ACADEMIC PROGRAM REVIEW

2007 - 2011

COMPUTER SCIENCE DEPARTMENT

6.1 Introduction to the Department and Programs

MISSION STATEMENT

The role of the Department of Computer Science and Information Systems is to maintain and administer two undergraduate academic programs in computer science and information systems and one graduate master's program in Computer Science. The purpose of these academic programs is to educate students pursuing a career in the varied fields of computer science and information technology; to educate quality computer science teachers for service in the public schools and institutions of higher education; to prepare students for advanced graduate study; to support the technological educational and training needs of local industry; to provide basic computer science service courses for the University. Furthermore, it is the goal of this department to create an environment in which students will develop their intellectual curiosity, analytical abilities, and computational and communication skills in preparation for independent and life-long learning. It is desired that this department become an important educational resource for Northeast Texas attracting students and research activities from industry and business.

PURPOSE OF PROGRAM

The Department of Computer Science and Information Systems offers Bachelor of Science degrees in Computer Science and in Computer Information Systems. The degree in Computer Science prepares students for a variety of positions within this diverse field. Students with this major complete a set of computer science core courses plus three advanced courses. They may use these electives as a concentration in database systems, information assurance and security, software development or networking. This curriculum is designed to prepare the student for a range of career choices such as database administrator or developer, network administrator, security specialist, software developer, system analyst/designer, technical writer, or web developer. The degree in Computer Science prepares students for a variety of positions in the field of information technology. Students with this major complete a combination of computer science and information systems core courses plus three advanced courses in information technology. Typically they may use these electives for a concentration in database management, networking and security, or application software development. This curriculum is designed to prepare the student for such career choices as system developer, database application programmer, network administrator, technical writer, or web developer. The department also offers a Bachelor of Science in Computer Information Systems with secondary certification in Computer Science for teaching computer science at the secondary school level. In addition the department offers second majors and in computer science and computer information systems as well as a minor in computer science to develop computing proficiencies complementary to their first major.

The purpose of the Department of Computer Science and Information Systems is consistent with the Mission of the Department (please see above). The role of the Department of Computer Science and Information Systems is to maintain and administer two undergraduate academic programs and one

graduate academic program in computer science and information systems. The undergraduate degree programs are listed as Computer Science (CS) and Computer Information Systems (CIS). The Master's program is listed as Master of Science (MS) in Computer Science. The first goal of these academic programs is to educate students pursuing a career in the varied fields of computer science and information technology. There is a wide range of topics and specialties within the realm of Computer Science and Computer Information Systems. There is the field of (1) *General Programming*, which includes algorithm design and the design of efficient algorithms. Students learn programming languages (JAVA, C++, C#) and the various problem solving techniques that comes with the discipline of computer programming. Our programming students are very much in demand by industry involved in engineering and communications. There is the field of (2) *Networking*, which includes communications, protocols, and networking security. The demand for our students trained in this area has greatly increased in the last 10 years as the communications industry has embraced digital technology. There is the general specialty of (3) D*atabase and Information Systems*, which includes the creation, theory and operation, and maintenance of database systems, and web-based interfaces to the database systems. There is the general specialty of (4) *Artificial Intelligence* which includes the theory and implementation of computational tools that help solve qualitative problems that do not fit within a set of mathematical formula. These tools include neural networks, data mining, adaptive algorithms, simulation, pattern recognition, and statistical tools. This field is closely aligned with High Performance Cluster Computing which utilizes the tools found in artificial intelligence to help solve problems.

Secondly, a goal of our department is to educate qualified computer science teachers for service in the public schools and institutions of higher education. Our efforts have produced a number of teachers who work in the public school system.

Consistent with our third goal, that of preparing students for advanced graduate studies, we have also produced a number of Master's students who go on to achieve a doctorate in Computer Science and teach at the college level.

Our fourth goal is to support the technological educational and training needs, graduate and undergraduate, of local industry. We have already discused above the demand of industry for our students. In close proximity to Texas A&M University-Commerce are industries involved in electronics, engineering, and aviation. Our department has a close working relationship with many of these companies.

Finally, because computing is involved in all aspects of modern society, a fifth goal is to provide basic computer science service courses for the University.

In summary, this department attempts to create an environment in which students will develop their intellectual curiosity, analytical abilities, and computational and communication skills in preparation for independent and life-long learning. It is desired that this department become an important educational resource for Northeast Texas attracting students and research activities from industry and business.

STUDENT LEARNING OUTCOMES AND ASSESSMENT

The Department of Computer Science and Information Systems has three degree programs: B.S. in Computer Science (CS) program, B.S. in Computer Information Systems (CIS) program, and M.S. in Computer Science (MS) program.

The learning outcomes (program objectives) of the **Computer Science Degree Program** are as follows:

Program Objective #1 (PO1): Students will develop skills in problem analysis.
Program Objective #2 (PO2): Students will develop problem-solving skills.
Program Objective #3 (PO3): Students will develop solution-modeling skills.
Program Objective #4 (PO4): Students will develop solution-implementation skills.
Program Objective #5 (PO5): Students will develop strong communication skills.
Program Objective #6 (PO6): Learn common algorithms and how to analyze them for efficiency.
Program Objective #7 (PO7): Understand the concepts used in modern computer technologies.

The learning outcomes (program objectives) of the **Computer Information Systems Degree Program** are as follows:

Program Objective #1 (PO1): Students will develop skills in problem analysis.
Program Objective #2 (PO2): Students will develop problem-solving skills.
Program Objective #3 (PO3): Students will develop solution-modeling skills.
Program Objective #4 (PO4): Students will develop solution-implementation skills.
Program Objective #5 (PO5): Students will develop ethics and strong communication skills.
Program Objective #6 (PO6): Learn common algorithms and how to analyze them for efficiency.
Program Objective #7 (PO7): Understand the concepts used in modern computer technologies.

Assessment Methods: List the methods used to assess student mastery of these outcomes.

General Assessment Plan for Graduate and Undergraduate Degree Programs

Program Embedded Assessment
The following is a description of the assessment program for the Computer Science Master's Degree Program, the Computer Science Bachelor of Science Degree, and the Computer Information Systems Bachelor of Science Degree. The assessment program contains: a) an overall comprehensive testing component; b) a course-embedded assessment component; c) a non-quantitative data gathering component.

A. Overall Comprehensive Testing Component

Currently, the Computer Science Master's program requires the successful completion of a comprehensive exam as a prerequisite for the Master's Degree. This exam is given three times a year (in the Fall, Spring, and Summer semesters). The exam is developed and administered by a committee of graduate faculty. A set of the most important course objectives are selected (see Course Embedded Assessment, Section B) for examination. Testing for these objectives are translated into a set of questions and administered. The results are translated into a percentile of those passing and failing by objective, and a list of those students passing or failing the exam. The criteria for passing are determined by the committee. Such criteria is based on the overall performance of students taking the exam. The report of the percentile of those passing or failing by objective will be used as feedback in re-evaluating techniques used in teaching these objectives.

Starting in the Spring Semester, 2002, a comprehensive exam will be also given to students graduating from the Computer Science and the Computer Information Systems Undergraduate Programs. The exam will be constructed by a committee of undergraduate faculty. It shall be a one or two hour exam and shall be given in the final days of the senior course, CSCI 440. Unlike the graduate comprehensive exam, the undergraduate comprehensive exam will not be required for graduation. It will be used only for program evaluation. The comprehensive exam will be developed and administered by a committee of undergraduate faculty. A set of the most important course objectives will be selected (see Course Embedded Assessment, Section B) for examination. Testing for these objectives will be translated into a set of questions and administered. The results will be translated into a percentile of those passing and failing by objective and will be used as feedback in re-evaluating techniques used in teaching these objectives.

Instead of using an in-house comprehensive exam, the option is reserved for a utilizing a nationally administrated exam that would nationally rank participants.

B. Course Embedded Assessment Component

The purpose of embedded assessment is to measure the degree of success in which each course objective has been met. Starting in the Spring 2003 semester, the comprehensive exam for both graduate and undergraduate students will contain embedded assessment of program objectives.

1. The most important course objectives (see Section II below) will be selected from objectives listed in core courses for both the graduate and undergraduate programs. These important objectives will comprise the overall program objectives. The selection will be made by the Graduate Curriculum Committee and Undergraduate Curriculum Committee.

2. These overall program objectives will be embedded in one of more questions given in the Graduate Comprehensive Exam and in the Undergraduate Comprehensive Exam. A passing grade on the Graduate Comprehensive Exam, as determined by the Graduate Curriculum Committee, is required for student graduation. The Undergraduate Comprehensive is not a requirement for graduation. The assessment for each objective is a percentile of the total maximum score is a similar manner that course objectives are measured. For example, is Program Objective #1 is measured by two 10 point questions and a total of 10 students take the exam, then a total maximum score for Program Objective #1 will be 200 points. If a total of 175 points is scored for Objective #1, then the overall assessment for Objective #1 is 87.5%. See Appendix A for a more detailed example.

3. Program Objectives will be divided into two categories: Category (A) 75% or greater; and Category (B) less than 75%. Objectives in Category A will be considered successful while objectives in Category B will be considered unsuccessful. The report submitted by the instructor shall include steps being taken to better emphasize and teach objectives falling into Category B.

C. Non-quantitative Data Gathering Component

A non-quantitative data gathering component shall also be part of the program assessment. This component consists of the following:
1. Exit interviews with graduating students.
2. Compilation of job positions and salaries offered to graduating students.
3. Interviews with employers of graduates.
4. Interviews with potential employers of graduates.

The purpose of these interviews are to keep informed of changes in employment patterns as we continually adjust our computer science and information systems curriculum to meet the needs of the workplace.

OVERVIEW OF PROGRAMS

Admission Requirement
Admission for study in the Computer Science department is consistent with the Texas A&M University– Commerce admission policies for first time freshman, concurrent enrollment for high school seniors, and for transfer from an accredited institution of higher learning.

Curriculum Development Process
Curriculum guides produced by the ACM/IEEE professional associations provide the foundation for our undergraduate program. Further enhancements have been guided by an external advisory group and by the ACM special interest group on computer science education (SIGCSE). A departmental curriculum committee considers and submits proposed changes in programs, courses and content. This committee is usually composed of two fulltime undergraduate faculty members plus a member of the graduate faculty. The process for undergraduate curriculum evaluation and development has been informal. Surveys and comparisons with similar institutions and programs are conducted irregularly. The Computer Science and Computer Information Systems programs overlap to some degree leading to group interaction over common courses. Where there is little overlap in course responsibilities, proposals from individual faculty members are discussed by committee members and typically recommended for change.

The undergraduate curriculum committee monitors the ACM and ABET web sites for changes in ACM curriculum recommendations and ABET requirements. When new recommendations or requirements are issued, the committee meets to consider how best to incorporate any new recommendations and requirements into the existing curriculum. Requests to the coordinating board for curriculum changes to the next academic catalog are submitted toward the beginning of each fall semester, so a curriculum review is typically done at this time to determine whether any changes are necessary. Any faculty member may submit a suggestion or request to be considered by the committee. A representative from the student ACM chapter has been added to the committee in an advisory capacity to provide input from the students' perspective.

Advisement Plan and Orientation
Incoming freshmen and transfer students attend a Student Access and Success orientation session where they are assigned to a success coach who monitors their progress for their first year. At the orientation they also meet with an advisor from their major department. The advisor explains the choice of degree programs to the student and provides the student with a copy of the requirements for each program and information about prerequisites and course sequencing. Based on the student's high school record or transfer courses, the advisor recommends a schedule of courses for the student's first semester. The student is assigned to a specific advisor based on the last digit of their ID number and is asked to check with that advisor to plan for future semesters.

Degree Plans
The degree plans for B.S. in CS and B.S. in CIS are shown in the following pages to show the requirements for baccalaureate degrees in each program.

Bachelor of Science in Computer Information Systems

Required Major Courses: 39-41 hours

		Language(s) taught
CSci 152	Programming Fundamentals II (prereq: 151)	C++
CSci 233	Object-Oriented Business Programming	COBOL/Java
CSci 241	Machine Language & Computer Organization	Intel 80x86 assembly
CSci 251	Intro to Information Security, Law, and Ethics	
CSci 270	Data Structures	C++
CSci 340	Intro to Database	Java, SQL
CSci 434	Intro to Local Area Networks	
CSci 359	Systems Analysis and Design	
CSci 380	Web Programming and Interface Design	
CSci 440	Applied Software Project Development	

plus 3 technical electives in any one of these specialized areas
    (choose Database Management, Networking, Programming, or General):

Database Management Track
- CSci 470 Database Programming
- CSci 471 Database Administration
- CSci 414 UNIX Network Administration

Networking Track
- CSci 342[4] Routers & Routing Basics
- CSci 343[4] Switching, Intermediate Routing & WAN Technologies
- CSci 414 UNIX Network Administration

Programming Track
- CSci 428 Object-Oriented Programming
- CSci 431 Java Language Programming
- 3 hours advanced CSci elective

General Track
- CSci 428 Object-Oriented Programming
- CSci 431 Java Language Programming
- 3 hours advanced CSci chosen with advisor approval

Information Assurance and Security Track
- CSci 351 Foundations of Information Security
- CSci 352 Intro to Computer Law and Forensics
- CSci 454 Intro to Network Security

Required Support Courses: 15 hours

- Eng 341 Technical Writing
- Math 176 Business Math II (pre-requisite is Math 175 Business Math I or Math 141 College Algebra)
- BA 302 Business and Economic Statistics (*can also be used in a General Business minor*)
  (or any statistics course)
- MIS 326 Information Systems Technology Productivity (*can also be used in a General Business minor*)
- MIS 328 Project Management and Practice (*can also be used in a General Business minor*)
- **Note: Support courses may also be used to satisfy minor or second major requirements.**

Minor: minimum of 18 hours in another department
Recommended minor(s): General Business, Accounting, or other area of business

General Business Minor
Acct 221 Principles of Acct
Eco 231 Macro Economics
4 advanced courses from Acct / Eco / Fin / BA / MIS / Mkt / Mgt
  (the Business Administration dept recommends:
  Mgt 305 Management & Org Behavior
  Mkt 306 Marketing
  BA 301 Legal Environment of Business
  BA 302 Bus & Eco Statistics)

Accounting Minor
Acct 221 Principles of Acct
Acct 222 Principles of Acct
Acct 321 Financial Acct I
Acct 322 Financial Acct II
Acct 311 or 326 or 437 or 440
Eco 231 Macro Economics

     Last modified Feb 2008

University Studies courses (from pp. 43-45 of the **2007-08** general catalog):

Basic Skills:	Eng 101, 102
	Math 175 , 141, or 179
	Spc 245 or 111 or 348 (245 is recommended)
American History:	Hist 121, 122
Political Science:	PSci 220, 221
Sciences:	any two courses from the Natural Sciences list
Visual & Performing Arts:	any course from the Visual & Performing Arts list
Humanities:	any course from the Humanities list
Social/Behavioral Sciences:	any course from the Social and Behavioral Sciences list
PE:	any two from the FRA activity list, or Marching Band, or one 2-hour wellness course, or at least one year of active-duty military service

Total hours required: 120

Second Major in Computer Science (78-81 hours):
(for majors in departments other than Computer Science and Information Systems)

Requirements for the second major are the same as those for the first major, including required support courses (see the Computer Science program handout).

Second Major in Computer Information Systems (27 hours)
 (for majors in departments other than Computer Science and Information Systems)

(or Second Bachelor's Degree in Computer Information Systems):

			language(s) taught
CSci	151	Programming Fundamentals I	C++
CSci	152	Programming Fundamentals II	C++
CSci	241	Machine Language, Organization and Architecture	Intel 80x86 assembly
CSci	251	Intro to Information Security, Law, and Ethics	
CSci	270	Data Structures	C++
CSci	321	Survey of Languages	Ada, COBOL
or	428	Object-Oriented Programming	C++
or	431	Java Programming	Java
CSci	340	Intro to Database	Java, SQL

plus 6 hours advanced Computer Science

Recommended Support Courses: 18 hours

Eng	341	Technical Writing
Math	175	Business Math I or Math 141 College Algebra (*either also satisfies the U.S. Math requirement*)
Math	176	Business Math II
BA	302	Business and Economic Statistics
MIS	326	Information Systems Technology Productivity
MIS	328	Project Management and Practice

Minor in Computer Science (18 hours):
(for majors in departments other than Computer Science and Information Systems)

			language(s) taught
CSci	151	Programming Fundamentals I	C++
CSci	152	Programming Fundamentals II	C++
CSci	270	Data Structures	C++

plus 9 hours from:

CSci	241	Machine Language, Organization and Architecture	Intel 80x86 assembly

or any advanced Computer Science

Bachelor of Science in Computer Science

Required Major Courses: 42-44 hours

		Language(s) taught
CSci 152	Programming Fundamentals II (prereq is 151)	C++
CSci 241	Machine Language & Computer Organization	Intel 80x86 assembly
CSci 251	Intro to Information Security, Law, and Ethics	
CSci 270	Data Structures	C++
CSci 340	Intro to Database	Java, SQL
CSci 434	Intro to Local Area Networks	
CSci 359	Systems Analysis and Design	
CSci 380	Web Programming and Interface Design	
CSci 428	Object-Oriented Programming	C++
CSci 430	Operating Systems	
CSci 440	Applied Software Project Development	

plus 3 technical electives in any one of these specialized areas
    (choose Database Management, Networking, Programming, Information Assurance & Security, or General):

Database Management Track
CSci 470 Database Programming
CSci 471 Database Administration
CSci 414 UNIX Network Administration

Networking Track
CSci 342[4] Routers & Routing Basics
CSci 343[4] Switching, Intermediate Routing & WAN
      Technologies
CSci 414 UNIX Network Administration

Programming Track
CSci 321 Survey of Languages
CSci 431 Java Language Programming
CSci advanced elective

General Track
CSci 431 Java Language Programming
6 hours advanced CSci chosen with advisor approval

Information Assurance and Security Track
CSci 351 Foundations of Information Security
CSci 352 Intro to Computer Law and Forensics
CSci 454 Intro to Network Security

Required Support Courses: 36-37 hours
Eng 341 Technical Writing
Phys 332[4] Digital Logic & Circuitry or 432 Advanced Electronics or 492 Instrumentation & Control
Math 191[4] Calculus I (may require pre-requisites of Math 141 Algebra and/or Math 142 Pre-Calculus)
Math 192[4] Calculus II
Math 331 Discrete Math
Math 401[4] Intro to Mathematical Statistics
3 hours of advanced Math (excluding 301, 350, 351, 361, 362, 372, 380, 460)
a two-course sequence (8 sh) in lab sciences for science majors*:
    Phys 211 & 212 or Chem 111 & 112 or ENVS 104 & 204 or ESci 101 & 203 or BSc** 101 & 102
    * any of these courses will also satisfy your University Studies science requirement
    ** BSc 101 & 102 at A&M Commerce are intended for Biology majors only and are not recommended for CSCI majors
4 additional hours of science
Note: Support courses may also be used to satisfy minor or second major requirements.

Minor: This degree program requires a minor or second major (minimum of 18 hours) from another department. The support courses already include a minor in Mathematics; **no additional minor is required**. The Math minor may be upgraded to a second major or an additional minor may be selected (recommended: Physics or other area of science).

Math Minor (already included in Support Courses)
Math 191[4] Calculus I
Math 192[4] Calculus II
Math 331   Discrete Math
Math 401[4] Math Statistics
3 hours adv Math (except 301, 350, 351, 361, 362, 372, 380, 460)

Physics Minor
Phys 132[4] Basic Electronics
Phys 211[4] Mechanics & Heat
Phys 212[4] Magnetism & Electricity
three courses from 319, 321, 333, 397, 432, 492

Note: a Math minor can be upgraded to a second major by taking an additional 6 hours of Math courses
    (a Math second major must include 314[4] Calculus III).

See the other side for University Studies requirements   Last modified Feb 2008

University Studies courses (from pp. 43-45 of the **2007-08** general catalog):

Basic Skills:	Eng 101, 102
	Math 175 , 141, or 179 (or 191)
	Spc 245 or 111 or 348 (245 is recommended)
American History:	Hist 121, 122
Political Science:	PSci 220, 221
Sciences:	Phys 211, 212 (or alternates – see Required Support Courses)
Visual & Performing Arts:	any course from the Visual & Performing Arts list
Humanities:	any course from the Humanities list
Social/Behavioral Sciences:	any course from the Social and Behavioral Sciences list
PE:	any two from the FRA activity list, or Marching Band, or one 2-hour wellness course, or at least one year of active-duty military service

Total hours required: 120

Second Major in Computer Science (78-81 hours):
(for majors in departments other than Computer Science and Information Systems)
Requirements for the second major are the same as those for the first major, including required support courses (see the other side of this page).

Second Major in Computer Information Systems (27 hours)
 (for majors in departments other than Computer Science and Information Systems)

(or Second Bachelor's Degree in Computer Information Systems):

			language(s) taught
CSci	151	Programming Fundamentals I	C++
CSci	152	Programming Fundamentals II	C++
CSci	241	Machine Language, Organization and Architecture	Intel 80x86 assembly
CSci	251	Intro to Information Security, Law, and Ethics	
CSci	270	Data Structures	C++
CSci	321	Survey of Languages	Ada, COBOL
or	428	Object-Oriented Programming	C++
or	431	Java Programming	Java
CSci	340	Intro to Database	Java, SQL

plus 6 sh advanced Computer Science

Recommended Support Courses: 18 hours

Eng	341	Technical Writing
Math	175	Business Math I or Math 141 College Algebra (*either also satisfies the U.S. Math requirement*)
Math	176	Business Math II
BA	302	Business and Economic Statistics
MIS	326	Information Systems Technology Productivity
MIS	328	Project Management and Practice

Minor in Computer Science (18 hours):
(for majors in departments other than Computer Science and Information Systems)

			language(s) taught
CSci	151	Programming Fundamentals I	C++
CSci	152	Programming Fundamentals II	C++
CSci	270	Data Structures	C++

plus 9 hours from:

CSci	241	Machine Language & Computer Organization	Intel 80x86 assembly

or advanced Computer Science

THECB Degree Inventory for Computer Science Department (5 January 2013)

Department of Computer Science   CIP Codes

COMPUTER SCIENCE	11.0101.00	B.S. (120 SCH) Start date: 09/01/1972
COMPUTER INFORMATION SYSTEMS	11.0401.00	B.S. (120 SCH) Start date: 09/01/1972

6.1.2 Enrollment Trends and Analysis

Computer Information Systems (11040100)

	Undergraduate					TOTAL				
	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011
Total SCH	479	521	420	544	515	479	521	420	544	515
ETHNICITY										
Native American or Alaskan Native	2	0	0	0	0	2	0	0	0	0
Asian or Pacific Islander	0	1	1	2	1	0	1	1	2	1
Black, Non-Hispanic	5	3	7	9	7	5	3	7	9	7
Hispanic	5	4	4	4	3	5	4	4	4	3
White, Non-Hispanic	28	33	26	28	29	28	33	26	28	29
International	1	0	0	3	3	1	0	0	3	3
GENDER										
Female	5	7	10	14	4	5	7	10	14	4
Male	36	34	28	32	39	36	34	28	32	39
MEAN AGE	24	23	24	25	26	24	23	24	25	26
DEPARTMENT TOTAL	41	41	38	46	43	41	41	38	46	43

Computer Science (11010100)

	Undergraduate					Graduate					TOTAL				
	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011
Total SCH	1,124	811	989	1,413	1,488	1,623	1,807	1,973	2,256	1,844	2,747	2,618	2,962	3,669	3,332
ETHNICITY															
Native American or Alaskan Native	1	1	2	1	1	0	0	0	0	0	1	1	2	1	1
Asian or Pacific Islander	4	2	1	3	4	0	0	2	3	5	4	2	3	6	9
Black, Non-Hispanic	10	10	12	18	15	0	2	1	0	1	10	12	13	18	16
Hispanic	7	6	8	15	10	0	0	0	0	0	7	6	8	15	10
White, Non-Hispanic	60	43	55	70	76	5	4	5	7	8	65	47	60	77	84

International	4	3	4	7	11	179	198	216	243	188	183	201	220	250	199
Unknown	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
GENDER															
Female	10	9	12	17	17	60	53	62	68	49	70	62	74	85	66
Male	76	56	70	97	100	124	151	162	185	154	200	207	232	282	254
MEAN AGE	23	22	24	23	23	24	23	23	24	24	23	23	23	24	24
DEPARTMENT TOTAL	86	65	82	114	117	184	204	224	253	203	270	269	306	367	320

The number of undergraduate majors in computer information systems had fluctuated between 38 and 46 during the 2007-2011, whereas that of undergraduate majors in computer science was between 65 and 117. The data shows that the CIS majors remain constant while CS majors had increased significantly in a steady pace from 2009 to 2011. The goal of the department is to reach above 150 in the next three and five years. To achieve this goal the department has devised plans to recruit students from the neighboring schools and community colleges. We have participated campus-wide activities, such as MANE EVENT that is being held twice in each year. Undergraduate advisors are actively working as a group to recruit more students. The department has taken a lead role in getting an NSF grant to take attention of undergraduate students during the course of their career. This initiative is expected to increase the number of the undergraduate students in the department. Additionally, the department is very successful in recruiting of international students whose number has increased in last six years. Toward achieving this goal, the department has been eagerly working to create new MOUs between international institutions.

6.1.3 Changes to the program and evaluation of the field.
To begin with, it is important to note that the basic mission and the effort of the Department to meet its mission goals have not changed over the last 6 years. The Department remains under staffed as evidenced by a very large student/faculty ratio. There are a number of very large graduate classes in which the enrollment exceeds 50 graduate students. Despite this, the faculty has remained dedicated and hard-working. Our graduates are in demand by industry as evidenced by the fact that they tend to obtain excellent and high-paying jobs after graduation. However, there have been two major changes within the Department within the last 6 years: (1) The character and professional training of the faculty has changed; (2) the practice and emphasis of student based assessment has gained in importance.

(1) The character and professional training of the faculty:
As the department began to dramatically grow in the 1990's, it became increasingly difficult to fill faculty positions with those having doctorates in Computer Science. As a result, a number of faculty members were hired with Master's degree in Computer Science. These were highly qualified teachers and served the students well. In the late 1990's, the Southern Association of Colleges and Schools (SACS), disqualified teachers with only a Master's degree from teaching graduate courses. It has taken a number of years to make this transition to an all Ph.D. faculty. However, at this time, all non-tenured faculty members, without a Computer Science doctorate, have been replaced with those holding a doctorate in Computer Science or related discipline. The exception is three tenured faculty members, who were all tenured over 30 years ago. Two of them hold only a Master's degree and one of them holds a Ph.D in Psychology. The department currently has ten faculty members with a doctorate degree including the one with a Ph.D in Psychology. A major change in the past six years is the character and qualification of the faculty. The department has never had as many Computer Science doctorates as it does at this time, and this number is expected to increase in the next few years as we expect the enrollment to go up.

(2) The practice and emphasis of student-based assessment:

In the last six years, the department has developed three program assessment plans, one for each degree program. The program assessment is based on individual departmental course assessments. Such assessments are quantitative, and attempts to measure relative success or failure. We currently have over 5 years of data for comparison, and this gives the faculty a valuable tool for identifying potential problem areas. The faculty has always suspected certain problem areas within the curriculum. Now, with the current assessment plan, we can quantify and verify that these problems do exist. Furthermore, this gives a measuring tool by which we can gage improvement. The assessment report is generated each semester and issued to the faculty for discussion. The Department Assessment Plan was outlined in detail in this document in Section 6.1.

6.2 Department Planning and Structure

6.2.1 Goals and Priorities of the Department

Goals:
1. To be consistent with consistent with the Mission of the Department and maintain and administer two undergraduate academic programs and one graduate academic program in computer science and information systems.
2. To educate qualified computer science teachers for service in the public schools and institutions of higher education. Our efforts have produced a number of teachers who work in the public school system and will continue.
3. To prepare students for advanced graduate studies.
4. To support the technological educational and training needs, both graduate and undergraduate, of local industry.
5. To provide basic computer science service courses for the University.
6. To attain ABET accreditation for computer science

In summary, this Department attempts to create an environment in which students will develop their intellectual curiosity, analytical abilities, and computational and communication skills in preparation for independent and life-long learning. It is desired that this department become an important educational resource for Northeast Texas attracting students and research activities from industry and business. Furthermore, the Department will attempt to attain ABET accreditation for computer science during 2013-14 evaluation cycle. Its preparation is under way.

6.2.2 Strengths and Weaknesses of the Department

Strengths:
1. A compatible, diverse and knowledgeable faculty;
2. Critical mass of students:
3. Working relationships with complementary programs in math and sciences;
4. Common interests within the college for a PhD program;
5. Industry support for our endeavors.

Weaknesses:
1. Need for more professional and social interaction among faculty ;
2. Low overall faculty interaction with the undergraduate student population;
3. Lack of diversity among the graduate student population;
4. ABET accreditation.

6.2.3 Faculty Expertise

Faculty expertise covers the breadth of the program. Faculty members are engaged and supported in scholarship of teaching through participation in regular faculty development workshops provided at the university and through peer mentoring. They are given department head evaluations of their teaching, research and scholarly activities, and service. They also receive peer evaluations, and student evaluations. These evaluations are discussed annually during the department head evaluation of faculty. Faculty members teaching large size classes were given graduate assistant support to help them in grading and classroom management. Many of the faculty members were assigned graduate research assistants to aid them in their research through internal research support by the graduate school and the college.

6.2.4 Faculty Qualifications

All teaching faculty in the computer science department are credentialed in-field and area of expertise either with a terminal degree in the field for graduate level courses or at least master's degree with eighteen hours of graduate course work in computer science for all undergraduate level courses. There is sufficient breadth of faculty expertise to cover every course with a qualified instructor or professor. All faculty meet the SACS requirements.

6.2.5 Faculty Productivity 2012 (spring, summer, and fall) Academic Year

FACULTY	SEMESTER CREDIT HOUR GENERATION	RESEARCH, CREATIVE & SCHOLARLY ACTIVITIES	DEPARTMENTAL AND UNIVERSITY SERVICE	COMMUNITY SERVICE	OTHERS
Sang C. Suh	51	1 book, 1 journal paper, 5 conference papers published	CoSEA leadership counsel member, dept. graduate curriculum committee	FNTAU member, SDPS president, SDPS2012 conference chair	Editor-in-Chief, Journal of Integrated Design and Process Science
Sam I. Saffer	48	1 conference paper published	CoSEA P&T committee, Dept. assessment chair	None	None
R. Dan Creider	20	None	Faculty senate member, dept. graduate curriculum committee, graduate admission coordinator	Federation of North Texas Area Universities, Computer Science Committee	Information System Security Officer
Tom Brown	30	None	Dept. database administer, CS undergraduate academic advisor, undergraduate curriculum committee	Computerized record keeping for a community association	Enhancement of CSCI340 online version
Derek Harter					
Abdullah Arslan	26	1 conference paper published; 2 NSF grant proposal submitted	MS COMP Exam coordinator, CS graduate committee chair, scholarship committee chair, faculty senate member		Professional journal reviewer
Jinho Kim	9	1 journal paper published	Graduate curriculum committee, dept. scholarship committee	None	
Unal Sakoglu					
Mutlu Mete	38	1 journal paper, 2	Dept. library liaison, dept.		Manuscript reviewer

		conference proceedings, and 1 book chapter published	undergraduate committee chair		
Nikolay Sirakov	27	1 journal paper, 2 lecture notes, 1 conference paper published	516 graduate placement test coordinator	None	Manuscript reviewer, guest lecturers
Sandy Huerter	26	None	Dept. undergraduate advisor, curriculum committtee	Contest director for UIL regional computer Science	
Varadraj Gurupur	27	2 Journal papers and 4 conference papers published	Faculty search committee, ACM faculty advisor, graduate advisor	None	Professional journal reviewer

6.2.6 Quality of the Management and Communications in the Department

The department head organizes several faculty meetings each year to set the vision for the year and communicate initiatives. Further, faculty and staff meet to discuss program and administrative needs regarding supplies, equipment needs, travel, planned giving, and other internal procedures that are pertinent. Once a year, the department head hold annual conference with each faculty member during faculty annual evaluation period to discuss organizational effectiveness and communication. The department head and the administrative assistant address any effectiveness issues that are brought up at the meeting. There is a formal orientation and evaluation system in place for all graduate assistants. The information from the evaluation system for graduate assistants is used to assess quality in teaching and research by them. Additionally, each graduate assistant is assigned a faculty mentor that guides them through their experience as an assistant. The same for adjuncts and part-time faculty not has not formally been held, but will be held from spring 2013.

6.2.7 Student Advising and Mentoring

The College of Science, Engineering, and Agriculture (CoSEA) is committed to providing quality advising for students majoring in all programs in the college. Incoming freshmen and transfer students attend a Student Access and Success orientation session where they are assigned to a success coach who monitors their progress for their first year. At the orientation they also meet with an advisor from their major department. The advisor explains the choice of degree programs to the student and provides the student with a copy of the requirements for each program and information about prerequisites and course sequencing. Based on the student's high school record or transfer courses, the advisor recommends a schedule of courses for the student's first semester. The student is assigned to a specific advisor based on the last digit of their ID number and is asked to check with that advisor to plan for future semesters and to get advising for any academic matters. The Computer Science department is committed to quality advisement and involvement with student majors as evidenced by input from the interviews of advisees randomly selected.

6.2.8 Substantial Online Course Offerings/off-campus Programs

Not applicable to our programs.

6.3 Commitment to Student Learning
Computer Science Program
Mutlu Mete, Program Coordinator

6.3.1 Provide the learning goals and assessment program that is in place for students majoring in your program and your assessment program for collecting information regarding student learning.

After graduating from this program the students will develop skills which will make them able to:
to analyze problem analysis and find solutions of these problems applying the skill accumulated in the course of study various programming classes. Further the students will be able to model the solutions and find their optimal implementation. Through the course of study the students will learn the ethical rules and conditions, which will make them high level professionals. The students will create and develop excellent communication still, which will give them the opportunity to efficiently work in high competitive teams. From programming view point the students will be able to write software programs in the basic languages and to manipulate and operate with different database structures. On the theoretical side the students will learn the basic algorithms and how to analyze them for efficiency. Also, the students will gather knowledge about the basic theoretical concepts that lie behind the mother computer technologies.

The assessment of the above goals is conducted through the set of courses required by the program. Every course is using number of objectives which are in line with the main objectives of the program. Every objective is evaluated by particular assignments reported to the program coordinator at the end of every semester.

Other than grades, how do you document students are achieving these goals?
As stated above, each course in the program is assessed by a list of Course Objectives (SLO). Each instructor determines how to evaluate each objective. It may be the average of a test score, or by the successful completion of a particular on an exam, or on the base of every single problem in an exam, or on the base of a software coded or a class project developed. When the Instructor turns in the scores for the Course Objectives at the end of the semester, the determination of each Course Objective is also documented.

Does the program have a capstone or culminating experience?
The capstone courses in the program are CSCI 359 and CSCI 440.

How do you gather and use data collected in your assessments?
At the end of each semester every Instructor turns in an evaluation of the Course Objectives for the class he is teaching. Certain SLOs are in turn used to evaluate overall Program Objectives (GOALS). Each Academic Year, a report is generated and used as the basis of discussion by the faculty. Recommendations and possible changes are discussed at the faculty level. If the faculty members agree, changes are implemented for the next academic year.

6.3.2 Provide a summary analysis of the results of your assessment program.

The assessment data is used as a mechanism to give each faculty member an overview of the operation of each degree program. Each semester, an assessment report is generated for each of the CS, CIS, and MS programs. Without this semester assessment data, it would be difficult for each faculty member, who has his or hers own area of expertise and coursework, to be drawn into the involvement and

overall functioning of the program. Consider the percentiles as gauges on an instrument panel. Each gauge may get a casual observance during the course of a given time period. However, the importance comes from the fact that a gauge reading below normal will get the deserved attention when something is malfunctioning.

The assessment data gives each degree program a topological structure, or hierarchical order, that allows each faculty member to better envision how the program is functioning. The fact that each course has a set of predetermined objectives, gives consistency to the course as Instructors changes over the semesters. Consistency is a particular problem when courses tend to be taught by adjuncts. The hierarchical order comes from the fact that various course objectives are used to evaluate a program objective. Thus the scoring of such Program Objective is dispersed over a number of courses and a number of Instructors.

The figure below demonstrates the assessment results for the CS Degree Program between 2008 and 2012. As described, it is considered successful if an assessment result is 75% or greater. As can be seen from the figure, the CS degree program has successfully achieved the seven Program Objectives over time. Note that the red line in the figure indicates whether the Program Objectives are satisfied or not. In Fall 2008, Program Objective #5 (PO #5) was not successful, but after that, the figure shows the objective has achieved successfully. Please see APPENDIX B for details about the assessment results.
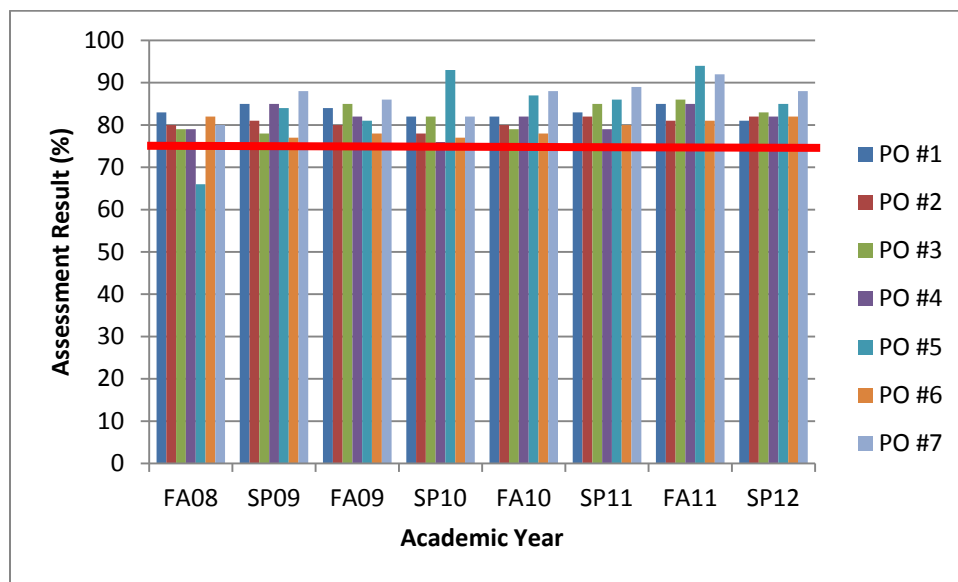

Figure 1 Assessment Results (from 2008 to 2012)

Give examples of changes that have been initiated due to these analyses over the past five years. Include examples from the undergraduate and graduate programs in the department.

Undergraduate Program:
One of the most critical times for computer science students is at the very beginning when the students are learning the skills of computer programming. About half of the students have a difficult time with these beginning concepts. We have used assessment data of re-evaluate our beginning programming courses (CSCI 151, 152). We have used different teaching methodologies (such as the use of graphical programming) to make these courses more attractive to beginning students. We have noticed that if we can successfully interest a student interested in the "art" of computer programming at the CSCI 151

level, then that student will be more likely to successfully complete a computer science major. We are using the assessment data as we examine different teaching techniques as well as the use of different programming languages.

Graduate Program
As the undergraduate program did, the graduate program has updated course objectives based on the assessment results. For example, based on several faculty meetings, course objectives for CSCI 532 (Algorithm Design) had been modified based on Fall 2009 assessment results. In addition to clarification of the objectives, another important motivation was to make sure that all CSCI 532 instructors include in their coverage common topics, so that MS Comprehensive Exam has a single set for CSCI 532 independent of instructors.

Some criteria may be hard to evaluate, but we also have developed techniques to measure program objectives effectively. For example, measuring the following Program Objective (PO #6) would not be straightforward to evaluate in practice:

> *Objective #6 (PO #6): Students will become successful professionals able to gain employment and/or to be accepted into a Computer Science Ph.D. program.*

This objective was assessed by follow-up surveys and letters of feedback from students. More in detail, a graduate student survey was conducted in July 2012 to obtain feedback about the master's program from current and former students and to obtain information about current employment from those students. The students were asked to complete the survey through a notice posted on Facebook and through an email list maintained by the International Student Office for recently graduated students who were on OPT (Optional Practical Training). One hundred current/former graduate students responded to the survey and their graduation dates ranged from 2003 to 2013 (projected). The results from the survey included graduation date, employer, location of employment and job title/description. By compiling the collected results, the jobs that the students have obtained demonstrate that our graduates are successful professionals and are competitive in the marketplace.

6.3.3 For undergraduate programs, describe the program's role in providing service programs to the core curriculum/general education program.

Department of Computer Science supports other majors in many ways. CSCI 126 Microcomputer Applications is the key support course taken by many students not only from our college also other colleges. Kinesiology and Sports Studies, Health, Pre-Health Information Management, and Agricultural Science are among those programs. CSCI 126 provides the student with knowledge about hardware, software and data management systems. The student is provided experience with an operating system environment, application software including productivity tools, and the use of the internet to communicate and search for information. Furthermore, CSCI 151, CSCI 152 , CSCI 241, and CSCI 270 are among required support courses in Math, Physics, and Agricultural Science Departments. CSCI 151 introduces the fundamental concepts of structured programming to improve student vision in software systems. Basic computer organization, machine cycle, digital representation of data and instructions are instructed in CSCI 241. Also, minor   and second major in CS and CIS are valuable support to those students who like to gain up-to-date qualifications sought in industry and academia.

How successful are these programs in supporting the University Studies' goals?

Students in CSCI 126, 151, 152, 241, 270 or pursuing computers science or information systems minor successfully demonstrate professional growth and integration of knowledge throughout these courses as evidenced by their evaluations. By the end of the program, students have a good understanding of the professional requirements of such as data manipulation, computer systems and components, information technologies, and basic of software development steps. Note that especially CSCI 126 Microcomputer Applications introduces tremendously important computer literacy and business communication tools, that are useful for professional success in students' career.

Please provide the information on which you base your analysis.

Student success in these courses is determined by the student evaluations completed by their instructors. Students in their final week of semester of the program typically average a 1.0 to 1.5 on their evaluations. (Evaluation scale is 1-5, with 5 being poor and 1 being excellent). As a second measure, each instructor assesses student learning outcomes for each course. Each outcome is measure on a percentage scale. Given a poor out outcome ($< 75\%$), the instructor give a justification on this outcome how to increase student learning. Professional growth and success of the students is also determined by the alumina surveys which provide information on how the individual is performing in their job. These evaluations provide feedback for overall growth and success of the students beyond graduation.

6.4 Recommendations and Implementation Plan

Based on general body of this review, it is recommended that formative and summative evaluations of the program continue and that data be used to increase quality and standards of course offered and to improve instruction in Computer Science. Each semester departmental curriculum committee will meet at least once to review course offerings, updates, co- and pre-requisite courses, and recommendations heard from other faculty members. Trends in the ACM/IEEE undergraduate curriculum guidelines will be implemented while amending current curriculum. The department also continues to evaluate courses based on university-wide and departmental-side assessment tools. Objectives for each course will be scrutinized by related faculty members on a regular basis.

6.4.1 What are the recommendations of the program in response to this review?

Although courses in the current program meet the academic standards, higher standards in the form of more challenging assignments in courses are being developed. The Computer Science Department has also raised the admission standards to the department. The admission standards are expected to be raised incrementally as the department continues to grow in the number of students, faculty, and academic achievement.

The student population shows an increasing trend in Computer Science program in recent years. The department is currently planning to offer more intro and advance level courses in form of distance education. Based on ongoing agreement, some courses will be offered at Navarro College. Therefore, more faculty positions are expected to reduce class sizes and offer more and diverse courses in different mediums. An application for ABET accreditation is an ongoing process and expected to be submitted in

Spring 2013. In terms of facilities, the department has already enough PC machine; however, more support is expected to establish a Mac and/or mobile programming lab.

6.4.2 What types of human, fiscal, and physical resources are needed to implement your enrollment projections and recommendations?

It is necessary to collect the views of the CS program faculty members and recommendations by the college deans and other members of the review process, in order to create the final draft of implementation plan. Based on the draft, the final implementation plan will be compiled with discussion and consultation among the department chair, the dean of the college, and the provost. As a result, the final implementation plan will combine the CS program plans with goals to those of the college and university, and it can also be used to guide the activities of the CS program for the next few years.

6.3 Commitment to Student Learning

Computer Information System Program
Tom Brown, Program Coordinator

6.3 Commitment to Student Learning
The Computer Information Systems program has as its goal to prepare students consistent with the stated mission of the Computer Science & Information Systems Department at Texas A&M University-Commerce. In particular it has objectives to enable the student to develop the knowledge and skills to function effectively in professional positions in the fields of computer information systems and technology, to grow professionally to assume leadership positions, or to pursue research or graduate studies in the field. Upon graduation a student should be able to explain and apply appropriate information technologies and employ appropriate methodologies to help an individual or organization achieve its goals and objectives; to manage information technology resources of an individual or organization; to recognize and adapt to the changes information systems technology and assist in the integration of new technologies and methodologies.

6.3.1 Provide the learning goals and assessment program that is in place for students majoring in your program and your assessment program for collecting information regarding student learning.
Student outcomes related to the integration of knowledge skills and behaviors are assessed each semester. Upon completion of the the CIS program students will have developed:
1) skills in problem analysis;
2) problem-solving skills;
3) solution-modeling skill;.
4) solution-implementation skills;
5) ethics and strong communication skills; and
6) learn common algorithms and how to analyze them for efficiency; and
7) understand the concepts used in modern computer technologies.

Other than grades, how do you document students are achieving these goals?
For each course taught there is a list of course objectives or student learning outcomes(SLO). Each instructor determines how to evaluate each SLO. It may be the average of a test score, or by the successful completion of a particular question on an exam, or by a class project. When the instructor turns in the scores for the course at the end of the semester, the determination of each course SLO is also documented.

Does the program have a capstone or culminating experience?
Yes. CSCI 440: Applied Software Development Project: a capstone course to provide the student with experience with analysis, design, and implementation of a semester project as a member of a system development team.

How do you gather and use data collected in your assessments?
Each instructor submits an evaluation of each course objective or SLO at the end of each semester. Certain SLOs are in turn used to evaluate overall program pbjectives (GOALS). Each academic year, a report is generated and used as the basis of curriculum discussion. Recommendations and possible changes are discussed at the faculty level. If the faculty agree, changes are implemented for the next academic year.

6.3.2 Provide a summary analysis of the results of your assessment program.

Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2011 and the second percentile is Spring 2012.

Fall   Spring
80%   81% Program Objective #1 (PO1): Students will develop skills in problem analysis.
78%   82% Program Objective #2 (PO2): Students will develop problem-solving skills.
86%   83% Program Objective #3 (PO3): Students will develop solution-modeling skills.
82%   78% Program Objective #4 (PO4): Students will develop solution-implementation skills.
91%   85% Program Objective #5 (PO5): Students will develop ethics and strong communication skills.

82%   82% Program Objective #6 (PO6): Learn common algorithms and how to analyze them for
             efficiency.
81%   89% Program Objective #7 (PO7): Understand the concepts used in modern computer
technologies.
[Appendix contains a detailed analysis of assessment results].

Give examples of changes that have been initiated due to these analyses over the past five years.
Changes that have been initiated due to the above mentioned analyses over the past five years are as
follows:
    Additional faculty members have been hired so the majority of undergraduate courses are taught by
    experienced, full-time faculty;
    A computing laboratory staffed with student tutors has been created for undergraduate students;
    A majority of the upper-level courses are offered in hybrid or online form;
    The introductory course has been broadened to provide background in the various subdisciplines and
    applications of computer science and information systems;

**6.3.3 For undergraduate programs, describe the program's role in providing service programs to
the core curriculum/general education program.**
The Computer Information Systems undergraduate program does not have courses required by the
general education curriculum. An introduction to computer science is offered as a service course to
students from the College of Science, Engineering and Agriculture.

6.4 Recommendations and Implementation Plan
It is recommended that formative and summative evaluations of the program continue to be conducted
each term, and that an annual analysis of data continue to be used to as a basis of discussion to improve
the curriculum and instruction.

6.4.1 What are the recommendations of the program in response to this review?
Courses in the current Computer Information Systems program currently meet the academic standards
of the university and college. Faculty are evaluated on their ability to maintain rigorous requirements
and to enhance the program to match the rapid change in the technologies and methodologies to be
applied in this discipline.

**6.4.2 What types of human, fiscal, and physical resources are needed to implement your
enrollment projections and recommendations?**
A 2011-12 study recommended the doubling of resources allocated to the Computer Science &
Information Systems Department. Given fluctuating enrollments in the graduate program along with
hiring, budgetary, and physical plant constraints, the implementation of this recommendation may need
to be implemented over the intermediate or long term.

Assessment for the CS Degree Program
FY 2011-2012
Fall 11 - Spring 12
Computer Science Dept.
Texas A&M University - Commerce

85% 81% Program Objective #1 (PO1): Students will develop skills in problem analysis.
81% 82% Program Objective #2 (PO2): Students will develop problem-solving skills.
86% 83% Program Objective #3 (PO3): Students will develop solution-modeling skills.
85% 82% Program Objective #4 (PO4): Students will develop solution-implementation skills.
94% 85% Program Objective #5 (PO5): Students will develop strong communication skills.
81% 82% Program Objective #6 (PO6): Learn common algorithms and how to analyze them for efficiency.
92% 88 % Program Objective #7 (PO7): Understand the concepts used in modern computer technologies.

Outcome Description
85% 81%Program Objective #1 (PO1): Students will develop skills in problem analysis.

Assessment Method
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2011 and the second percentile is Spring 2012.

CSCI 270 Data Structues
77% 77% (CO270.2) Be able to use the linked list data structure.
81% 80% (CO270.3) Be able to use the stack data structure.
80% 79% (CO270.4) Be able to use the queue data structure.
79% 90% (CO270.8) Be able to use the binary tree data structure and a hash table.

CSCI 340 Introduction to Database Systems
80% 80%(CO340.6) Describe, define and apply the major components of the relational database model.
70 % n/a (CO340.8) Describe the fundamental data structures, access methods and storage devices needed for physical database design.

CSCI 359 Systems Analysis and Design
90% 82%(CO359.2) Explain the purpose and activities of the systems development life cycle phases.

CSCI 380 Web Programming and Interface Design
0% 88% (CO380.1) Creation and manipulation of web graphics using popular software tools.
0% 95% (CO380.2) Creation of Web Pages using XHTML
0% 94% (CO380.3) Application of cascading style sheets

CSCI 428 Object Oriented Programming
94% 83%(CO428.1) Software Engineering Basic.
96% 87% (CO428.6) UML

CSCI 431 JAVA Programming
92% n/a (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440 Applied Software Project Development

100% 82% (CO440.6)Build user-friendly, aesthetic, and functional interfaces for application software projects.
76% 84% (CO440.8)Develop and implement a system application project in an object-oriented programming language using traditional process model diagrams as a guide.

CSCI 470 Database Programming
0% 90% (CO470.1)Identify and explain the major components of the relational data model.
0% 92% (CO470.2)Utilize structured query language (SQL) to define and manipulate database objects in the interactive mode.
0% 88% (CO470.3)Incorporate procedural extensions to SQL for maintaining database tables.
0% 84% (CO470.4)Develop an application program to access databases with the Java programming language.
0% 90% (CO470.8)Perform system and database administration to implement software to support database application development.
0% 84% (CO470.9)Complete a project to implement database management software or related tools.

81% 82% Program Objective #2 (PO2): Students will develop problem-solving skills.
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 152 Programming Fundamentals II
75% 76% (CO152.1) Be able to use one-dimensional arrays.
83 % 75% (CO152.2) Be able to use at least one (preferably at least two) sorting technique(s) to rearrange data in an array.
80% 76% (CO152.3) Be able to search an array using both linear and binary searching techniques.
80% 88% (CO152.7) Be able to design and code a program which includes a user-created class.

CSCI 241 Assembly Language and Computer Organization
82% 86% CO241.2) Concepts of Machine Instructions, Assembly and linking, assembly language programming (Unconditional jumps, flags, subroutines, Stacks).

CSCI 270 Data Structure and Algorithms
78% 77% (CO270.1) Be able to use address variables.
79% 90% (CO270.8)Be able to integrate the use of container classes (user-created or STL) into a moderately complex program solution.

CSCI 431 JAVA Programming
71% n/a (CO431.7) Employ exception-handling programming techniques.

81% n/a (CO431.8) Utilize file input and output procedures for sequential and random access.
92% n/a (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440 Applied Software Project Development
90% 82% (CO440.9)Connect a database and interface to software project.

 CSCI 470 Database Programming
n/a 84% (CO470.4)Develop an application program to access databases with the Java programming language.

86% 83% Program Objective #3 (PO3): Students will develop solution-modeling skills.
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 340 Introduction to Database Systems
90% 84% (CO340.1) Model a single entity, define and access a single entity database.
86% 80% (CO340.2) Model a one-to-many (1:m) relationship between two entities, define a 1:m database, and process a 1:m database .
75% 74% (CO340.3) Model a m:m relationship between two entities, define and process a m:m database.
90% 75% (CO340.4) Create a well-formed, high fidelity data model.
75% 77% (CO340.5) Describe the process of normalization and distinguish between different normal forms.

CSCI 359 Systems Analysis and Design

93% 91% (CO359.5) Understand and model system entities and data stores.

92% 92% (CO359.6) Understand and model system processes, events, and data flows within a system.

96% 90% (CO359.7) Understand and model classes of data within a system.

86% 82% (CO359.8) Understand concepts relating to various models, tools, and techniques used in system analysis and design.

CSCI 440 Applied Software Project Development
90% 85% (CO440.2)Use Microsoft Visio to create, edit, and publish to a web site traditional process model diagrams.
84% 84% (CO440.3)Use Microsoft Visio to create, edit, and publish to a web site Entity-Relationship diagrams.
80% 85% (CO440.7)Create a database using an Entity-Relationship diagram.

85% 82% Program Objective #4 (PO4): Students will develop solution-implementation skills.
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 152 Programming Fundamentals II
76 % 80% (CO152.4) Be able to use multiple-dimensional arrays.
77% 78% (CO152.5) Be able to use structs.

76% 77% CO152.6) Be able to use classes.

CSCI 241 Machine Language and Computer Organization
82% 86% (CO241.2) Concepts of Machine Instructions, Assembly and linking, assembly language programming (Unconditional jumps, flags, subroutines, Stacks).
83% 79% (CO241.4) I/O devices; memory mapped I/O; Interrupts ; Arrays, addressing modes and Floating Point Instructions.

CSCI 270 Data Structures
77% n/a (CO270.5) Be able to design, code, and use recursive functions.

CSCI 340 Introduction to Database Systems
75% 86% (CO340.7) Learn and apply the Structured Query Language (SQL) for database definition and manipulation.
85% 72% (CO340.9) Develop a procedural language application program to update a database table.

CSCI 359 Systems Analysis and Design
93% 95% (CO359.4) Identify and understand system inputs and outputs.

CSCI 380 Web Programming and Interface Design
0% 88% (CO380.1) Creation and manipulation of web graphics using popular software tools.
0% 95% (CO380.2) Creation of Web Pages using XHTML
0% 94% (CO380.3) Application of cascading style sheets
0% 89% (CO380.4) Client Side Scripting using JavaScript
0% 93% (CO380.5) Database creation and Web Integration using server side scripting.
0% 91% (CO380.6) Utilize Ajax and Web 2.0 technologies to create Rich Internet Applications

CSCI 431 JAVA Programming
100% n/a (CO431.1) Code, compile and run a Java program.
94% n/a (CO431.2) Master programming techniques for console input and output.
93% n/a (CO431.3) Apply logical constructs for branching and loops.
71% n/a (CO431.7) Employ exception-handling programming techniques.
81% n/a (CO431.8) Utilize file input and output procedures for sequential and random access.
92% n/a (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440 Applied Software Project Development
100% 90% (CO440.1) Develop and maintain an informational and project repository web site for an application project.

CSCI 470 Database Programming
0% 92% (CO470.2)Utilize structured query language (SQL) to define and manipulate database objects in the interactive mode.
0% 90% (CO470.5)Design a database-supported Web site.
0% 81% (CO470.6)Develop a database-supported Web site utilizing HTML and JavaServer Pages.
0% n/a (CO470.7)Apply XML for Data Exchange.

89% 85% Program Objective #5 (PO5) : Students will develop ethics and strong communication skills.

Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 251 Introduction to Information Security, Law, and Ethics
89% 81% (CO251.1) Define ethics, morality, and moral system and recognize the distinction between ethical theory and professional ethics.
86% 81% (CO251.2)Summarize the basic concepts of relativism, utilitarianism, and deontological theories.
78% 81% (CO251.3)Use methods and tools of analysis to analyze an argument to identify premises and conclusion and illustrate the use of example, analogy, and counter-analogy in an ethical argument.
92% 81% (CO251.4) Identify the strengths and weaknesses of relevant professional codes as expressions of professionalism and guides to decision-making.
88% 82% (CO251.5) Summarize the legal bases for the right to privacy and freedom of expression in one's own nation and how those concepts vary from country to country.
86% 82% (CO251.6) Identify the professional's role in security and the tradeoffs involved.
88% n/a (CO251.7) Outline the technical basis of viruses and denial-of-service attacks and enumerate techniques to combat the same.
82% n/a (CO251.8) Distinguish among patent, copyright, and trade secret protection and explain how patent and copyright laws may vary internationally.
89% n/a (CO251.9) Explain the various U.S. legislation and regulations that impact technology and the disadvantages and advantages of free expression in cyberspace.
90% n/a (CO251.10) Explain why computing/network access is restricted in some countries.
88% n/a (CO251.11) Define a computer use policy with enforcement measures.

CSCI 359 Systems Analysis and Design

92% 90% (CO359.3) Understand project management techniques.

CSCI 440 Applied Software Project Development
90% 92% (CO440.4)Develop and use a team constitution.
96% 85% (CO440.5)Solve team conflicts in a project building environment.
90% 86% (CO440.10)Create system documentation including help files, diagrams, and programming code.
100% 89% (CO440.11)Present the final project to an audience consisting of faculty, peers, administrators, and business leaders.
96% 88% (CO440.12)Evaluate other team members based upon specific criteria. (Derived based on team member evaluations.)

81% 82% Program Objective #6 (PO6) : Learn common algorithms and how to analyze them for efficiency.
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 152 Programming Fundamentals II
80% 88% (CO152.7) Be able to design and code a program which includes a user-created class.

CSCI 270 Data Structures

75% 75% (CO270.6) Understand Big-O notation (for algorithm efficiency): what it means, how it is determined, and why it should be considered in effective programming.
88% n/a (CO270.7) Be able to use the binary tree data structure and a hash table.

92% 88% Program Objective #7 (PO7) : Learn theory behind modern computer technologies.
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 241 Machine Language and Computer Organization
94%   96% (CO241.1) Understand various numbering systems and conversions.
90%   89% (CO241.3) Understand Computer Organization: registers, transfers, machine cycles.
83%   79% (CO241.4) Understand I/O devices, memory mapped I/O; Interrupts.

CSCI 428 Object Oriented Programming
94%   83% (CO428.1) Software Engineering Basic.
98% 86% (CO428.2) Classes basics/advanced
96% 87% (CO428.6) UML

CSCI 430 Operating Systems
0% 92% (CO430.1) Understand the concepts, structures, and mechanisms of operating systems.
0% 80% (CO430.2) Understand memory management, virtual memory, swapping, paging algorithms, segmentation, and clock paging policies.
0% 92% (CO430.3) Understand multiprogramming and multiuser capabilities, and how operating systems evolved.
 0% 84% (CO430.4) Understand process management, process states and process and thread structures and concepts.
0% 95% (CO430.5) Understand concurrent processes and associated deadlock prevention, avoidance, detection, recovery methods, and the use of semaphores.
0% 88% (CO430.6) Learn specific design decisions and architectures used in modern operating systems.

CSCI 359 Systems Analysis and Design
88% 90% (CO359.1) Understand concepts relating to different types of information systems.

Assessment for the CS Degree Program
FY 2010-2011
Fall 10 - Spring 11
Computer Science Dept.
Texas A&M University - Commerce

82% 83% Program Objective #1 (PO1): Students will develop skills in problem analysis.
80% 82% Program Objective #2 (PO2): Students will develop problem-solving skills.
79% 85% Program Objective #3 (PO3): Students will develop solution-modeling skills.
82% 79% Program Objective #4 (PO4): Students will develop solution-implementation skills.
87% 86% Program Objective #5 (PO5): Students will develop strong communication skills.
78% 80% Program Objective #6 (PO6): Learn common algorithms and how to analyze them for efficiency.

88% 89 % Program Objective #7 (PO7): Understand the concepts used in modern computer technologies.

Outcome Description
82% 83% Program Objective #1 (PO1): Students will develop skills in problem analysis.

Assessment Method
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 270
77% 77% (CO270.2) Be able to use the linked list data structure.
80% 80% (CO270.3) Be able to use the stack data structure.
79% 77% (CO270.4) Be able to use the queue data structure.
80% 86% (CO270.8) Be able to use the binary tree data structure and a hash table.

CSCI 340 Introduction to Database Systems
79% 79% (CO340.6) Describe, define and apply the major components of the relational database model.
76% 76% (CO340.8) Describe the fundamental data structures, access methods and storage devices needed for physical database design.

CSCI 359 Systems Analysis and Design <Data not available>
0% 0% (CO359.2) Explain the purpose and activities of the systems development life cycle phases.

CSCI 380
0% 0% (CO380.1) Creation and manipulation of web graphics using popular software tools.
0% 0% (CO380.2) Creation of Web Pages using XHTML
0% 0% (CO380.3) Application of cascading style sheets

CSCI 428 Object Oriented Programming
98% 100% (CO428.1) Software Engineering Basic.
85% 85% (CO428.6) UML

CSCI 431 JAVA Programming
0% 0% (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440 Applied Software Project Development

0% 93% (CO440.6)Build user-friendly, aesthetic, and functional interfaces for application software projects.
0% 95% (CO440.8)Develop and implement a system application project in an object-oriented programming language using traditional process model diagrams as a guide.

CSCI 470 Database Programming
0% 80% (CO470.1)Identify and explain the major components of the relational data model.
0% 88% (CO470.2)Utilize structured query language (SQL) to define and manipulate database objects

in the interactive mode.

0% 82% (CO470.3)Incorporate procedural extensions to SQL for maintaining database tables.

0% 82% (CO470.4)Develop an application program to access databases with the Java programming language.

0% 80% (CO470.8)Perform system and database administration to implement software to support database application development.

0% 75% (CO470.9)Complete a project to implement database management software or related tools.

80% 82% Program Objective #2 (PO2): Students will develop problem-solving skills.
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 152 Programming Fundamentals II
84% 76% (CO152.1) Be able to use one-dimensional arrays.
77% 80 % (CO152.2) Be able to use at least one (preferably at least two) sorting technique(s) to rearrange data in an array.
76% 80% (CO152.3) Be able to search an array using both linear and binary searching techniques.
77% 79% (CO152.7) Be able to design and code a program which includes a user-created class.

CSCI 241 Assembly Language and Computer Organization
89% 84% (CO241.2) Concepts of Machine Instructions, Assembly and linking, assembly language programming (Unconditional jumps, flags, subroutines, Stacks)

CSCI 270 Data Structure and Algorithms
76%76 % (CO270.1) Be able to use address variables.
80% 86% (CO270.8)Be able to integrate the use of container classes (user-created or STL) into a moderately complex program solution.

CSCI 431 JAVA Programming
0% 0% (CO431.7) Employ exception-handling programming techniques.
0% 0% (CO431.8) Utilize file input and output procedures for sequential and random access.
0% 0% (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440 Applied Software Project Development
0% 95% (CO440.9)Connect a database and interface to software project.

 CSCI 470 Database Programming
0% 82% (CO470.4)Develop an application program to access databases with the Java programming language.

79% 85% Program Objective #3 (PO3): Students will develop solution-modeling skills.
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 340 Introduction to Database Systems
94% 92% (CO340.1) Model a single entity, define and access a single entity database.
83% 79% (CO340.2) Model a one-to-many (1:m) relationship between two entities, define a 1:m database, and process a 1:m database .

70% 72% (CO340.3) Model a m:m relationship between two entities, define and process a m:m database.
75% 75% (CO340.4) Create a well-formed, high fidelity data model.
72% 77% (CO340.5) Describe the process of normalization and distinguish between different normal forms.

CSCI 359 Systems Analysis and Design <Data not available>

0% 0% (CO359.5) Understand and model system entities and data stores.

0% 0% (CO359.6) Understand and model system processes, events, and data flows within a system.

0% 0% (CO359.7) Understand and model classes of data within a system.

0% 0% (CO359.8) Understand concepts relating to various models, tools, and techniques used in system analysis and design.

 CSCI 440 Applied Software Project Development
0% 95% (CO440.2)Use Microsoft Visio to create, edit, and publish to a web site traditional process model diagrams.
0% 97% (CO440.3)Use Microsoft Visio to create, edit, and publish to a web site Entity-Relationship diagrams.
0% 96% (CO440.7)Create a database using an Entity-Relationship diagram.

82% 73% Program Objective #4 (PO4): Students will develop solution-implementation skills.
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 152 Programming Fundamentals II
81% 76 % (CO152.4) Be able to use multiple-dimensional arrays.
83% 78% (CO152.5) Be able to use structs.
77% 77% (CO152.6) Be able to use classes.

CSCI 241 Machine Language and Computer Organization
89% 84% (CO241.2) Concepts of Machine Instructions, Assembly and linking, assembly language programming (Unconditional jumps, flags, subroutines, Stacks)
94% 85% (CO241.4) I/O devices; memory mapped I/O; Interrupts ; Arrays, addressing modes and Floating Point Instructions

CSCI 270
80% 77% (CO270.5) Be able to design, code, and use recursive functions.

CSCI 359 Systems Analysis and Design
0% 0% (CO359.4) Identify and understand system inputs and outputs.

CSCI 340 Introduction to Database Systems
80% 80% (CO340.7) Learn and apply the Structured Query Language (SQL) for database definition and manipulation.
72% 62% (CO340.9) Develop a procedural language application program to update a database table.

CSCI 380 Web Programming and Interface Design
0% 0% (CO380.1) Creation and manipulation of web graphics using popular software tools.
0% 0% (CO380.2) Creation of Web Pages using XHTML
0% 0% (CO380.3) Application of cascading style sheets
0% 0% (CO380.4) Client Side Scripting using JavaScript
0% 0% (CO380.5) Database creation and Web Integration using server side scripting.
0% 0% (CO380.6) Utilize Ajax and Web 2.0 technologies to create Rich Internet Applications

CSCI 431 JAVA Programming
0% 0% (CO431.1) Code, compile and run a Java program.
0% 0% (CO431.2) Master programming techniques for console input and output.
0% 0% (CO431.3) Apply logical constructs for branching and loops.
0% 0% (CO431.7) Employ exception-handling programming techniques.
0% 0% (CO431.8) Utilize file input and output procedures for sequential and random access.
0% 0% (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440 Applied Software Project Development
0% 90% (CO440.1) Develop and maintain an informational and project repository web site for an application project.

CSCI 470 Database Programming
0% 88% (CO470.2)Utilize structured query language (SQL) to define and manipulate database objects in the interactive mode.
0% 80% (CO470.5)Design a database-supported Web site.
0% 75% (CO470.6)Develop a database-supported Web site utilizing HTML and JavaServer Pages.
0% 0% (CO470.7)Apply XML for Data Exchange.

87% 86% Program Objective #5 (PO5) : Students will develop ethics and strong communication skills.
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 251 Introduction to Information Security, Law, and Ethics
83% 85% (CO251.1) Define ethics, morality, and moral system and recognize the distinction between ethical theory and professional ethics.
82% 86% (CO251.2)Summarize the basic concepts of relativism, utilitarianism, and deontological theories.
84% 78% (CO251.3)Use methods and tools of analysis to analyze an argument to identify premises and conclusion and illustrate the use of example, analogy, and counter-analogy in an ethical argument.
91% 84% (CO251.4) Identify the strengths and weaknesses of relevant professional codes as expressions of professionalism and guides to decision-making.
84% 85% (CO251.5) Summarize the legal bases for the right to privacy and freedom of expression in one's own nation and how those concepts vary from country to country.
92% 83% (CO251.6) Identify the professional's role in security and the tradeoffs involved.
87% 83% (CO251.7) Outline the technical basis of viruses and denial-of-service attacks and enumerate techniques to combat the same.
80% 76% (CO251.8) Distinguish among patent, copyright, and trade secret protection and explain how patent and copyright laws may vary internationally.
89% 83% (CO251.9) Explain the various U.S. legislation and regulations that impact technology and the disadvantages and advantages of free expression in cyberspace.

92% 86% (CO251.10) Explain why computing/network access is restricted in some countries.
90% 87% (CO251.11) Define a computer use policy with enforcement measures.

CSCI 359 Systems Analysis and Design

0% 0% (CO359.3) Understand project management techniques.

CSCI 440 Applied Software Project Development
0% 95% (CO440.4)Develop and use a team constitution.
0% 86% (CO440.5)Solve team conflicts in a project building environment.
0% 95% (CO440.10)Create system documentation including help files, diagrams, and programming code.
0% 93% (CO440.11)Present the final project to an audience consisting of faculty, peers, administrators, and business leaders.
0% 89% (CO440.12)Evaluate other team members based upon specific criteria. (Derived based on team member evaluations.)

78% 80% Program Objective #6 (PO6) : Learn common algorithms and how to analyze them for efficiency.
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 152
77% 79% (CO152.7) Be able to design and code a program which includes a user-created class.

CSCI 270
75% 76% (CO270.6) Understand Big-O notation (for algorithm efficiency): what it means, how it is determined, and why it should be considered in effective programming.
81% 85% (CO270.7) Be able to use the binary tree data structure and a hash table.

88% 89% Program Objective #7 (PO7) : Learn theory behind modern computer technologies.
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 241
93% 89 % (CO241.1) Understand various numbering systems and conversions.
76% 85% (CO241.3) Understand Computer Organization: registers, transfers, machine cycles.
94% 85% (CO241.4) Understand I/O devices, memory mapped I/O; Interrupts.

CSCI 428 Object Oriented Programming
98% 100% (CO428.1) Software Engineering Basic.
84% 88% (CO428.2) Classes basics/advanced
85% 85% (CO428.6) UML

CSCI 430 Operating Systems
0% 0% (CO430.1) Understand the concepts, structures, and mechanisms of operating systems.

0% 0% (CO430.2) Understand memory management, virtual memory, swapping, paging algorithms, segmentation, and clock paging policies.
0% 0% (CO430.3) Understand multiprogramming and multiuser capabilities, and how operating systems evolved.
 0% 0% (CO430.4) Understand process management, process states and process and thread structures and concepts.
0% 0% (CO430.5) Understand concurrent processes and associated deadlock prevention, avoidance, detection, recovery methods, and the use of semaphores.
0% 0% (CO430.6) Learn specific design decisions and architectures used in modern operating systems.

CSCI 359 Systems Analysis and Design
0% 0% (CO359.1) Understand concepts relating to different types of information systems.

Assessment Plan for the CS Degree Program
FY 2009-2010
Fall 09 Sp 10
Computer Science Dept.
Texas A&M University - Commerce

85% 82% Program Objective #1 (PO1): Students will develop skills in problem analysis.
80% 78% Program Objective #2 (PO2): Students will develop problem-solving skills.
85% 82% Program Objective #3 (PO3): Students will develop solution-modeling skills.
82% 76% Program Objective #4 (PO4): Students will develop solution-implementation skills.
81% 93% Program Objective #5 (PO5): Students will develop strong communication skills.
78% 77% Program Objective #6 (PO6): Learn common algorithms and how to analyze them for efficiency.
86% 82% Program Objective #7 (PO7): Understand the concepts used in modern computer technologies.

Outcome Description
85% 82% Program Objective #1 (PO1): Students will develop skills in problem analysis.
Assessment Method
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 270
76% 77% (CO270.2) Be able to use the linked list data structure.
77% 78% (CO270.3) Be able to use the stack data structure.
77% 78% (CO270.4) Be able to use the queue data structure.
75% 82% (CO270.8) Be able to use the binary tree data structure and a hash table.

CSCI 340 Introduction to Database Systems
77% 77% (CO340.6) Describe, define and apply the major components of the relational database model.
82% 76% (CO340.8) Describe the fundamental data structures, access methods and storage devices needed for physical database design.

CSCI 359 Systems Analysis and Design

95% 86% (CO359.2) Explain the purpose and activities of the systems development life cycle phases.

CSCI 380
0% 0% (CO380.1) Creation and manipulation of web graphics using popular software tools.
0% 0% (CO380.2) Creation of Web Pages using XHTML
0% 0% (CO380.3) Application of cascading style sheets

CSCI 428 Object Oriented Porgramming
97% 98% (CO428.1) Software Engineering Basic.
85% 85% (CO428.6) UML

CSCI 431 JAVA Programming
87% 0% (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440
90% 0% (CO440.6)Build user-friendly, aesthetic, and functional interfaces for application software projects.
100% 0% (CO440.8)Develop and implement a system application project in an object-oriented programming language using traditional process model diagrams as a guide.

CSCI 470
0% 0% (CO470.1)Identify and explain the major components of the relational data model.
0% 0% (CO470.2)Utilize structured query language (SQL) to define and manipulate database objects in the interactive mode.
0% 0% (CO470.3)Incorporate procedural extensions to SQL for maintaining database tables.
0% 0% (CO470.4)Develop an application program to access databases with the Java programming language.
0% 0% (CO470.8)Perform system and database administration to implement software to support database application development.
0% 0% (CO470.9)Complete a project to implement database management software or related tools.

80% 78% Program Objective #2 (PO2): Students will develop problem-solving skills.
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 152 Programming Fundamentals II
75% 76% (CO152.1) Be able to use one-dimensional arrays.
76% 75% (CO152.2) Be able to use at least one (preferably at least two) sorting technique(s) to rearrange data in an array.
76% 76% (CO152.3) Be able to search an array using both linear and binary searching techniques.
81% 76% (CO152.7) Be able to design and code a program which includes a user-created class.

CSCI 241 Assembly Language and Computer Organization
84% 88% (CO241.2) Concepts of Machine Instructions, Assembly and linking, assembly language programming (Unconditional jumps, flags, subroutines, Stacks)

CSCI 270 Data Structure and Algorithms

76% 76% (CO270.1) Be able to use address variables.
75% 82% (CO270.8)Be able to integrate the use of container classes (user-created or STL) into a moderately complex program solution.

CSCI 431 JAVA Programming
72% 0% (CO431.7) Employ exception-handling programming techniques.
75% 0% (CO431.8) Utilize file input and output procedures for sequential and random access.
87% 0% (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440 Applied Software Project Development
100% 0% (CO440.9)Connect a database and interface to software project.

CSCI 470 Database Programming
0% 0% (CO470.4)Develop an application program to access databases with the Java programming language.

85% 82% Program Objective #3 (PO3): Students will develop solution-modeling skills.
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 340 Introduction to Database Systems
87% 94% (CO340.1) Model a single entity, define and access a single entity database.
82% 83% (CO340.2) Model a one-to-many (1:m) relationship between two entities, define a 1:m database, and process a 1:m database .
70% 75% (CO340.3) Model a m:m relationship between two entities, define and process a m:m database.
80% 75% (CO340.4) Create a well-formed, high fidelity data model.
70% 77% (CO340.5) Describe the process of normalization and distinguish between different normal forms.

CSCI 359 Systems Analysis and Design

91% 86% (CO359.5) Understand and model system entities and data stores.

83% 79% (CO359.6) Understand and model system processes, events, and data flows within a system.

87% 87% (CO359.7) Understand and model classes of data within a system.

87% 82% (CO359.8) Understand concepts relating to various models, tools, and techniques used in system analysis and design.

CSCI 440 Applied Software Project Development
95% 0% (CO440.2)Use Microsoft Visio to create, edit, and publish to a web site traditional process model diagrams.
100% 0% (CO440.3)Use Microsoft Visio to create, edit, and publish to a web site Entity-Relationship diagrams.
90% 0% (CO440.7)Create a database using an Entity-Relationship diagram.

82% 76% Program Objective #4 (PO4): Students will develop solution-implementation skills.
Assessment will be measured through testing the following course objectives:

The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 152 Programming Fundamentals II
73% 76% (CO152.4) Be able to use multiple-dimensional arrays.
76% 75% (CO152.5) Be able to use structs.
74% 75% (CO152.6) Be able to use classes.

CSCI 241 Machine Language and Computer Organization
84% 88% (CO241.2) Concepts of Machine Instructions, Assembly and linking, assembly language programming (Unconditional jumps, flags, subroutines, Stacks)
91% 62% (CO241.4) I/O devices; memory mapped I/O; Interrupts ; Arrays, addressing modes and Floating Point Instructions

CSCI 270
79% 77% (CO270.5) Be able to design, code, and use recursive functions.

CSCI 359 Systems Analysis and Design
84% 79% (CO359.4) Identify and understand system inputs and outputs.

CSCI 340 Introduction to Database Systems
85% 83% (CO340.7) Learn and apply the Structured Query Language (SQL) for database definition and manipulation.
70% 72% (CO340.9) Develop a procedural language application program to update a database table.

CSCI 380 Web Programming and Interface Design
0% 0% (CO380.1) Creation and manipulation of web graphics using popular software tools.
0% 0% (CO380.2) Creation of Web Pages using XHTML
0% 0% (CO380.3) Application of cascading style sheets
0% 0% (CO380.4) Client Side Scripting using JavaScript
0% 0% (CO380.5) Database creation and Web Integration using server side scripting.
0% 0% (CO380.6) Utilize Ajax and Web 2.0 technologies to create Rich Internet Applications

CSCI 431 JAVA Programming
100% 0% (CO431.1) Code, compile and run a Java program.
80% 0% (CO431.2) Master programming techniques for console input and output.
88% 0% (CO431.3) Apply logical constructs for branching and loops.
72% 0% (CO431.7) Employ exception-handling programming techniques.
75% 0% (CO431.8) Utilize file input and output procedures for sequential and random access.
87% 0% (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

 CSCI 440 Applied Software Project Development
100% 0% (CO440.1) Develop and maintain an informational and project repository web site for an application project.

CSCI 470 Database Programming
0% 0% (CO470.2)Utilize structured query language (SQL) to define and manipulate database objects in the interactive mode.
0% 0% (CO470.5)Design a database-supported Web site.
0% 0% (CO470.6)Develop a database-supported Web site utilizing HTML and JavaServer Pages.

0% 0% (CO470.7)Apply XML for Data Exchange.

81% 93% Program Objective #5 (PO5) : Students will develop ethics and strong communication skills.
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 251 Introduction to Information Security, Law, and Ethics
72% 0% (CO251.1) Define ethics, morality, and moral system and recognize the distinction between ethical theory and professional ethics.
65% 0% (CO251.2)Summarize the basic concepts of relativism, utilitarianism, and deontological theories.
68% 0% (CO251.3)Use methods and tools of analysis to analyze an argument to identify premises and conclusion and illustrate the use of example, analogy, and counter-analogy in an ethical argument.
73% 0% (CO251.4) Identify the strengths and weaknesses of relevant professional codes as expressions of professionalism and guides to decision-making.
85% 0% (CO251.5) Summarize the legal bases for the right to privacy and freedom of expression in one's own nation and how those concepts vary from country to country.
79% 0% (CO251.6) Identify the professional's role in security and the tradeoffs involved.
68% 0% (CO251.7) Outline the technical basis of viruses and denial-of-service attacks and enumerate techniques to combat the same.
65% 0% (CO251.8) Distinguish among patent, copyright, and trade secret protection and explain how patent and copyright laws may vary internationally.
71% 0% (CO251.9) Explain the various U.S. legislation and regulations that impact technology and the disadvantages and advantages of free expression in cyberspace.
78% 0% (CO251.10) Explain why computing/network access is restricted in some countries.
75% 0% (CO251.11) Define a computer use policy with enforcement measures.

CSCI 359 Systems Analysis and Design

96% 93% (CO359.3) Understand project management techniques.

CSCI 440 Applied Software Project Development
90% 0% (CO440.4)Develop and use a team constitution.
95% 0% (CO440.5)Solve team conflicts in a project building environment.
95% 0% (CO440.10)Create system documentation including help files, diagrams, and programming code.
100% 0% (CO440.11)Present the final project to an audience consisting of faculty, peers, administrators, and business leaders.
95% 0% (CO440.12)Evaluate other team members based upon specific criteria. (Derived based on team member evaluations.)

79% 77% Program Objective #6 (PO6) : Learn common algorithms and how to analyze them for efficiency.
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 152
81% 76% (CO152.7) Be able to design and code a program which includes a user-created class.

CSCI 270
73% 75% (CO270.6) Understand Big-O notation (for algorithm efficiency): what it means, how it is determined, and why it should be considered in effective programming.
82% 80% (CO270.7) Be able to use the binary tree data structure and a hash table.

86% 82% Program Objective #7 (PO7) : Learn theory behind modern computer technologies.
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 241
93% 91% (CO241.1) Understand various numbering systems and conversions.
79% 64% (CO241.3) Understand Computer Organization: registers, transfers, machine cycles.
91% 62% (CO241.4) Understand I/O devices, memory mapped I/O; Interrupts.

CSCI 428 Object Oriented Programming
97% 98% (CO428.1) Software Engineering Basic.
85% 84% (CO428.2) Classes basics/advanced
85% 85% (CO428.6) UML

CSCI 430 Operating Systems
90% 0% (CO430.1) Understand the concepts, structures, and mechanisms of operating systems.
82% 0% (CO430.2) Understand memory management, virtual memory, swapping, paging algorithms, segmentation, and clock paging policies.
80% 0% (CO430.3) Understand multiprogramming and multiuser capabilities, and how operating systems evolved.
 88% 0% (CO430.4) Understand process management, process states and process and thread structures and concepts.
82% 0% (CO430.5) Understand concurrent processes and associated deadlock prevention, avoidance, detection, recovery methods, and the use of semaphores.
76% 0% (CO430.6) Learn specific design decisions and architectures used in modern operating systems.

CSCI 359 Systems Analysis and Design
91% 90% (CO359.1) Understand concepts relating to different types of information systems.

2008-2009 Assessment for the Computer Science Degree Program
Fall 2008 - Spring 2009
Computer Science Dept.
Texas A&M University - Commerce

83% 85% Program Objective #1 (PO1): Students will develop skills in problem analysis.
80% 81% Program Objective #2 (PO2): Students will develop problem-solving skills.
79% 78% Program Objective #3 (PO3): Students will develop solution-modeling skills.

79% 85% Program Objective #4 (PO4): Students will develop solution-implementation skills.
66% 84% Program Objective #5 (PO5): Students will demonstrate knowledge and understanding of professional ethics and responsible behavior, and will develop
strong communication skills.
82% 77% Program Objective #6 (PO6): Learn common algorithms and how to analyze them for efficiency.
80% 88% Program Objective #7 (PO7): Understand the concepts used in modern computer technologies.

Outcome Description
83% 85% Program Objective #1 (PO1): Students will develop skills in problem analysis.
Assessment Method
Assessment will be measured through testing the following course objectives:

CSCI 270
77% 77% (CO270.2) Be able to use the linked list data structure.
81% 73% (CO270.3) Be able to use the stack data structure.
79% 70% (CO270.4) Be able to use the queue data structure.
84% 78% (CO270.8) Be able to use the binary tree data structure and a hash table.

CSCI 340 Introduction to Database Systems
89% 80% (CO340.6) Describe, define and apply the major components of the relational database model.
90% 86% (CO340.8) Describe the fundamental data structures, access methods and storage devices needed for physical database design.

CSCI 359 Systems Analysis and Design
76% 80% (CO359.2) Explain the purpose and activities of the systems development life cycle phases.

CSCI 380 <Taught in Spring Semester>
0% 96% (CO380.1) Creation and manipulation of web graphics using popular software tools.
0% 99% (CO380.2) Creation of Web Pages using XHTML
0% 99% (CO380.3) Application of cascading style sheets

CSCI 428 Object Oriented Programming
89% 90% (CO428.1) Software Engineering Basic.
85% 88% (CO428.6) UML

CSCI 431 JAVA Programming
80% 86% (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440 <Taught in Spring Semester>
0% 90% (CO440.6)Build user-friendly, aesthetic, and functional interfaces for application software projects.
0% 87% (CO440.8)Develop and implement a system application project in an object-oriented
programming language using traditional process model diagrams as a guide.

CSCI 470 <Not taught this semester>

(CO470.1)Identify and explain the major components of the relational data model.
(CO470.2)Utilize structured query language (SQL) to define and manipulate database
         objects in the interactive mode.
(CO470.3)Incorporate procedural extensions to SQL for maintaining database tables.
(CO470.4)Develop an application program to access databases with the Java programming language.
(CO470.8)Perform system and database administration to implement software to support
         database application development.
(CO470.9)Complete a project to implement database management software or related tools.

   PO1 Average score = 83% 85%

80% 81% Program Objective #2 (PO2): Students will develop problem-solving skills.
Assessment will be measured through testing the following course objectives:

CSCI 152 Programming Fundamentals II
81% 81% (CO152.1) Be able to use one-dimensional arrays.
83% 82% (CO152.2) Be able to use at least one (preferably at least two) sorting technique(s)
                 to rearrange data in an array.
85% 85% (CO152.3) Be able to search an array using both linear and binary searching techniques.
83% 81% (CO152.7) Be able to design and code a program which includes a user-created class.

CSCI 241 Assembly Language and Computer Organization
81% 91% (CO241.2) Concepts of Machine Instructions, Assembly and linking,
                      assembly language programming (Unconditional jumps, flags, subroutines,
Stacks)

CSCI 270 Data Structure and Algorithms
77% 77% (CO270.1) Be able to use address variables.
86% 78% (CO270.9)Be able to integrate the use of container classes (user-created or STL) into a
moderately complex program solution.

CSCI 431 JAVA Programming
60% 72% (CO431.7) Employ exception-handling programming techniques.
80% 66% (CO431.8) Utilize file input and output procedures for sequential and random access.
80% 86% (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440 Applied Software Project Development <Taught in Spring Semester>
0% 93%(CO440.9)Connect a database and interface to software project.

 CSCI 470 Database Programming <Not taught this semester>
(CO470.4)Develop an application program to access databases with the Java programming language.

      PO2 Average Score = 80% 81%

79% 78% Program Objective #3 (PO3): Students will develop solution-modeling skills.
Assessment will be measured through testing the following course objectives:

CSCI 340 Introduction to Database Systems
90% 81% (CO340.1) Model a single entity, define and access a single entity database.
75% 71% (CO340.2) Model a one-to-many (1:m) relationship between two entities,
                     define a 1:m database, and process a 1:m database .
67% 61% (CO340.3) Model a m:m relationship between two entities, define and process a m:m database.
69% 60% (CO340.4) Create a well-formed, high fidelity data model.
71% 76% (CO340.5) Describe the process of normalization and distinguish between different normal forms.

CSCI 359 Systems Analysis and Design

82% 79% (CO359.5) Understand and model system entities and data stores.

90% 78% (CO359.6) Understand and model system processes, events, and data flows within a system

79% 87% (CO359.7) Understand and model classes of data within a system.
88% 68% (CO359.8) Understand concepts relating to various models, tools, and techniques
                     used in system analysis and design.

 CSCI 440 Applied Software Project Development <Taught in Spring Semester>
0% 93% (CO440.2)Use Microsoft Visio to create, edit, and publish to a web site traditional
                     process model diagrams.
0% 94% (CO440.3)Use Microsoft Visio to create, edit, and publish to a web site Entity-Relationship diagrams.
0% 91% (CO440.7)Create a database using an Entity-Relationship diagram.

PO3 Average Score = 79% 78%

79% 85% Program Objective #4 (PO4): Students will develop solution-implementation skills.
Assessment will be measured through testing the following course objectives:

CSCI 152 Programming Fundamentals II
74% 76% (CO152.4) Be able to use multiple-dimensional arrays.
71% 75% (CO152.5) Be able to use structs.
72% 73% (CO152.6) Be able to use classes.

CSCI 241 Machine Language and Computer Organization
81% 91% (CO241.2) Concepts of Machine Instructions, Assembly and linking, assembly language
                     programming (Unconditional jumps, flags, subroutines, Stacks).
75% 84% (CO241.4) I/O devices; memory mapped I/O; Interrupts ; Arrays, addressing modes and
                     Floating Point Instructions.

CSCI 270
75% 73% (CO270.5) Be able to create and use templates.
80% 71% (CO270.6) Be able to design, code, and use recursive functions.

CSCI 340 Introduction to Database Systems
85% 88% (CO340.7) Learn and apply the Structured Query Language (SQL) for database
                     definition and manipulation.

75% 68% (CO340.9) Develop a procedural language application program to update a database table.

CSCI 359 Systems Analysis and Design
98% 95% (CO359.4) Identify and understand system inputs and outputs.

CSCI 380 Web Programming and Interface Design <Taught in Spring Semester>
0% 96% (CO380.1) Creation and manipulation of web graphics using popular software tools.
0% 99% (CO380.2) Creation of Web Pages using XHTML
0% 99% (CO380.3) Application of cascading style sheets
0% 91% (CO380.4) Client Side Scripting using JavaScript
0% 94% (CO380.5) Database creation and Web Integration using server side scripting.
0% 92% (CO380.6) Utilize Ajax and Web 2.0 technologies to create Rich Internet Applications

CSCI 431 JAVA Programming
100% 100% (CO431.1) Code, compile and run a Java program.
80% 85% (CO431.2) Master programming techniques for console input and output.
80% 86% (CO431.3) Apply logical constructs for branching and loops.
60% 72% (CO431.7) Employ exception-handling programming techniques.
80% 66% (CO431.8) Utilize file input and output procedures for sequential and random access.
80% 86% (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440 Applied Software Project Development <Taught in Spring Semester>
0% 95% (CO440.1) Develop and maintain an informational and project repository web site
                        for an application project.

CSCI 470 Database Programming <Not taught this semester>
(CO470.2)Utilize structured query language (SQL) to define and manipulate database
            objects in the interactive mode.
(CO470.5)Design a database-supported Web site.
(CO470.6)Develop a database-supported Web site utilizing HTML and JavaServer Pages.
(CO470.7)Apply XML for Data Exchange.

PO4 Average Score = 79% 85%

66% 84% Program Objective #5 (PO5): Students will demonstrate knowledge and understanding of

professional ethics and responsible behavior, and will develop strong communication skills.

Assessment will be measured through testing the following course objectives:

CSCI 251 Introduction to Information Security, Law, and Ethics
61% 77% (CO251.1) Define ethics, morality, and moral system and recognize the distinction
                between ethical theory and professional ethics.
56% 70% (CO251.2)Summarize the basic concepts of relativism, utilitarianism, and deontological theories.
46% 71% (CO251.3)Use methods and tools of analysis to analyze an argument to identify premises

and conclusion and illustrate the use of example, analogy, and counter-analogy
in an ethical argument.

63% 87% (CO251.4) Identify the strengths and weaknesses of relevant professional codes as
expressions
of professionalism and guides to decision-making.

68% 84% (CO251.5) Summarize the legal bases for the right to privacy and freedom of expression
in one's own nation and how those concepts vary from country to country.

74% 83% (CO251.6) Identify the professional's role in security and the tradeoffs involved.

76% 93% (CO251.7) Outline the technical basis of viruses and denial-of-service attacks and enumerate
techniques to combat the same.

54% 79% (CO251.8) Distinguish among patent, copyright, and trade secret protection and explain how
patent and copyright laws may vary internationally.

67% 79% (CO251.9) Explain the various U.S. legislation and regulations that impact technology
and the disadvantages and advantages of free expression in cyberspace.

71% 96% (CO251.10) Explain why computing/network access is restricted in some countries.

75% 81% (CO251.11) Define a computer use policy with enforcement measures.

CSCI 359 Systems Analysis and Design

84% 86% (CO359.3) Understand project management techniques.

CSCI 440 Applied Software Project Development <Taught in Spring Semester>
0% 94% (CO440.4) Develop and use a team constitution.
0% 87% (CO440.5) Solve team conflicts in a project building environment.
0% 81% (CO440.10)Create system documentation including help files, diagrams, and programming
code.
0% 91% (CO440.11)Present the final project to an audience consisting of faculty, peers, administrators,
and business leaders.
0% 92% (CO440.12)Evaluate other team members based upon specific criteria. (Derived based
on team member evaluations.)

PO5 Average Score = 66% 84%

**82% 77% Program Objective #6 (PO6) : Learn common algorithms and how to analyze them
for efficiency.**

Assessment will be measured through testing the following course objectives:

CSCI 152
83% 81% (CO152.7) Be able to design and code a program which includes a user-created class.

CSCI 270
78% 71% (CO270.7) Understand Big-O notation (for algorithm efficiency): what it means,
how it is determined, and why it should be considered in effective programming.
84% 79% (CO270.8) Be able to use the binary tree data structure and a hash table.

PO6 Average Score = 82% 77%

80% 88%Program Objective #7 (PO7) : Learn theory behind modern computer technologies.
Assessment will be measured through testing the following course objectives:

CSCI 241
88% 93% (CO241.1) Understand various numbering systems and conversions.
81% 84% (CO241.3) Understand Computer Organization: registers, transfers, machine cycles.
75% 84% (CO241.4) Understand I/O devices, memory mapped I/O; Interrupts.

CSCI 359 Systems Analysis and Design
91% 87% (CO359.1) Understand concepts relating to different types of information systems.

CSCI 428 Object Oriented Programming
89% 90% (CO428.1) Software Engineering Basic.
93% 89% (CO428.2) Classes basics/advanced
85% 88% (CO428.6) UML

CSCI 430 Operating Systems (Taught in Fall Semester)
72% 0% (CO430.1) Understand the concepts, structures, and mechanisms of operating systems.
80% 0% (CO430.2) Understand memory management, virtual memory, swapping, paging algorithms, segmentation, and clock paging policies.
80% 0% (CO430.3) Understand multiprogramming and multiuser capabilities, and how operating systems evolved.
 65% 0% (CO430.4) Understand process management, process states and process and thread structures and concepts.
70% 0% (CO430.5) Understand concurrent processes and associated deadlock prevention, avoidance, detection, recovery methods, and the use of semaphores.
73% 0% (CO430.6) Learn specific design decisions and architectures used in modern operating systems.

PO6 Average Score = 80% 88%

APPENDIX B

Assessment for the CIS Degree Program
FY 2011-2012
Fall 11 - Spring 12
Computer Science Dept.
Texas A&M University - Commerce

Fall   Spring
80% 81% Program Objective #1 (PO1): Students will develop skills in problem analysis.
78% 82% Program Objective #2 (PO2): Students will develop problem-solving skills.
86% 83% Program Objective #3 (PO3): Students will develop solution-modeling skills.
82% 78% Program Objective #4 (PO4): Students will develop solution-implementation skills.
91% 85% Program Objective #5 (PO5): Students will develop ethics and strong communication skills.
82% 82% Program Objective #6 (PO6): Learn common algorithms and how to analyze them for
   efficiency.
81% 89% Program Objective #7 (PO7): Understand the concepts used in modern computer technologies.

Outcome Description
80% 81% Program Objective #1 (PO1): Students will develop skills in problem analysis.
Assessment Method
Assessment will be measured through testing the following course objectives:
The first percentile is Fall 2011 and the second percentile is Spring 2012.

CSCI 270 Data Structures
77% 77% (CO270.2) Be able to use the linked list data structure.
81% 80% (CO270.3) Be able to use the stack data structure.
80% 79% (CO270.4) Be able to use the queue data structure.
79% 90% (CO270.8) Be able to use the binary tree data structure and a hash table.

CSCI 233 Application Program Development
90% n/a (CO233.2) Design and develop a basic report program.
72% n/a (CO233.6) Design and develop a program to process a sequentially-organized file.
70% n/a (CO233.7) Develop a program to access data from a database.
76% n/a (CO233.8) Design and develop a basic input form to capture data for an application.
70% n/a (CO233.9) Design and develop pages for a basic online application (team project).

CSCI 340 Introduction to Database Systems
80% 80% (CO340.6) Describe, define and apply the major components of the relational database model.
70% n/a (CO340.8) Describe the fundamental data structures, access methods and storage devices needed
   for physical database design.

CSCI 359 Systems Analysis and Design
90% 82% (CO359.2) Explain the purpose and activities of the systems development life cycle phases.

CSCI 380 Web Programming and Interface Design
0% 88% (CO380.1) Creation and manipulation of web graphics using popular software tools.
0% 95% (CO380.2) Creation of Web Pages using XHTML
0% 94% (CO380.3) Application of cascading style sheets

CSCI 431 JAVA Programming
92% n/a (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440 Applied Software Project Development
100% 82% (CO440.6) Build user-friendly, aesthetic, and functional interfaces for application software
   projects.
76%   84% (CO440.8) Develop and implement a system application project in an object-oriented
   programming language using traditional process model diagrams as a guide.

CSCI 470 Database Programming

0% 90%(CO470.1)Identify and explain the major components of the relational data model.
0% 92%(CO470.2)Utilize structured query language (SQL) to define and manipulate database objects in the interactive mode.
0% 88% (CO470.3)Incorporate procedural extensions to SQL for maintaining database tables.
0% 84% (CO470.4)Develop an application program to access databases with an application programming interface.
0% 90% (CO470.8)Perform system and database administration to implement software to support database application development.
0% 84% (CO470.9)Complete a project to implement database management software or related tools.

78% 82% Program Objective #2 (PO2): Students will develop problem-solving skills.
Assessment will be measured through testing the following course objectives:

CSCI 152 Programming Fundamentals II
75% 76% (CO152.1) Be able to use one-dimensional arrays.
83% 75% (CO152.2) Be able to use at least one (preferably at least two) sorting technique(s) to rearrange data in an array.
80% 76% (CO152.3) Be able to search an array using both linear and binary searching techniques.
80% 88% (CO152.7) Be able to design and code a program which includes a user-created class.

CSCI 233 Application Program Development
90% n/a (CO233.2) Design and develop a basic report program.
70% n/a (CO233.3) Enhance a basic report program to process grouped data and summarize results.
82% n/a (CO233.4)Learn the programming constructs and develop programs to create and process arrays.
70% n/a (CO233.5) Develop a program to capture, process and store object data in a file.
72% n/a (CO233.6) Design and develop a program to process a sequentially-organized file.
70% n/a (CO233.7) Develop a program to access data from a database.
76% n/a (CO233.8) Design and develop a basic input form to capture data for an application.
70% n/a (CO233.9) Design and develop pages for a basic online application (team project).

CSCI 241 Assembly Language and Computer Organization
82% 86% (CO241.2) Concepts of Machine Instructions, Assembly and linking, assembly language programming (Unconditional jumps, flags, subroutines, Stacks)

CSCI 270 Data Structure and Algorithms
78% 77% (CO270.1) Be able to use address variables.
79% 90% (CO270.8) Be able to integrate the use of container classes (user-created or STL) into a moderately complex program solution.

CSCI 431 JAVA Programming
71% n/a (CO431.7) Employ exception-handling programming techniques.
81% n/a (CO431.8) Utilize file input and output procedures for sequential and random access.
92% n/a (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440 Applied Software Project Development
90% 82% (CO440.9)Connect a database and interface to software project.

CSCI 470 Database Programming
0% 84% (CO470.4) Develop applications to access databases with an application programming interface.

86% 83% Program Objective #3 (PO3): Students will develop solution-modeling skills.
Assessment will be measured through testing the following course objectives:

CSCI 340 Introduction to Database Systems
90% 84%(CO340.1) Model a single entity, define and access a single entity database.
86% 80% (CO340.2) Model a one-to-many (1:m) relationship between two entities, define a 1:m database, and process a 1:m database .
75% 74%(CO340.3) Model a m:m relationship between two entities, define and process a m:m database.
90% 75% (CO340.4) Create a well-formed, high fidelity data model.

75% 77% (CO340.5) Describe the process of normalization and distinguish between different normal forms.

CSCI 359 Systems Analysis and Design
93% 91% (CO359.5) Understand and model system entities and data stores
92% 92% (CO359.6) Understand and model system processes, events, and data flows within a system.
96% 90% (CO359.7) Understand and model classes of data within a system.
86% 82% (CO359.8) Understand concepts relating to various models, tools, and techniques used in system analysis and design.

CSCI 440 Applied Software Project Development
90% 85% (CO440.2)Use Microsoft Visio to create, edit, and publish to a web site traditional process model diagrams.
84% 84% (CO440.3)Use Microsoft Visio to create, edit, and publish to a web site Entity-Relationship diagrams.
80% 85% (CO440.7)Create a database using an Entity-Relationship diagram.

82% 78% Program Objective #4 (PO4): Students will develop solution-implementation skills.
Assessment will be measured through testing the following course objectives:

CSCI 152 Programming Fundamentals II
76% 80% (CO152.4) Be able to use multiple-dimensional arrays.
77% 78% (CO152.5) Be able to use structs.
76% 77% (CO152.6) Be able to use classes.

CSCI 233 Application Program Development
90% n/a (CO233.2) Design and develop a basic report program.
70% n/a (CO233.3) Enhance a basic report program to process grouped data and summarize results.
72% n/a (CO233.6) Design and develop a program to process a sequentially-organized file.
70% n/a (CO233.7) Develop a program to access data from a database.

CSCI 241 Machine Language and Computer Organization
82% 86% (CO241.2) Concepts of Machine Instructions, Assembly and linking, assembly language programming (Unconditional jumps, flags, subroutines, Stacks)
83% 79% (CO241.4) I/O devices; memory mapped I/O; Interrupts ; Arrays, addressing modes and Floating Point Instructions

CSCI 270
77% n/a (CO270.5) Be able to design, code, and use recursive functions.
75% 75% (CO270.6) Be able to design, code, and use recursive functions.

CSCI 359 Systems Analysis and Design
93% 95% (CO359.4) Identify and understand system inputs and outputs.

CSCI 340 Introduction to Database Systems
75% 86% (CO340.7) Learn and apply the Structured Query Language (SQL) for database definition and manipulation.
85% 72% (CO340.9) Develop a procedural language application program to update a database table.

CSCI 380 Web Programming and Interface Design
0% 88% (CO380.1) Creation and manipulation of web graphics using popular software tools.
0% 95% (CO380.2) Creation of Web Pages using XHTML
0% 94% (CO380.3) Application of cascading style sheets
0% 89% (CO380.4) Client Side Scripting using JavaScript
0% 93% (CO380.5) Database creation and Web Integration using server side scripting.
0% 91% (CO380.6) Utilize Ajax and Web 2.0 technologies to create Rich Internet Applications

CSCI 431 JAVA Programming
100% n/a (CO431.1) Code, compile and run a Java program.

94% n/a (CO431.2) Master programming techniques for console input and output.

93% n/a (CO431.3) Apply logical constructs for branching and loops.

71% n/a (CO431.7) Employ exception-handling programming techniques.

81% n/a (CO431.8) Utilize file input and output procedures for sequential and random access.

92% n/a (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440 Applied Software Project Development

100% 90% (CO440.1) Develop and maintain an informational and project repository web site for an application project.

CSCI 470 Database Programming

0% 92% (CO470.2)Utilize structured query language (SQL) to define and manipulate database objects in the interactive mode.

0% 90% (CO470.5)Design a database-supported Web site.

0% 81% (CO470.6)Develop a database-supported Web site utilizing an application programming interface.

0% n/a (CO470.7)Apply XML for Data Exchange.

91% 85% Program Objective #5 (PO5) : Students will develop ethics and strong communication skills.

Assessment will be measured through testing the following course objectives:

CSCI 233 Application Program Development

70% n/a (CO233.9) Design and develop pages for a basic online application (team project).

CSCI 251 Introduction to Information Security, Law, and Ethics

0% 81% (CO251.1) Define ethics, morality, and moral system and recognize the distinction between ethical theory and professional ethics.

0% 81% (CO251.2)Summarize the basic concepts of relativism, utilitarianism, and deontological theories.

0% 81% (CO251.3)Use methods and tools of analysis to analyze an argument to identify premises and conclusion and illustrate the use of example, analogy, and counter-analogy in an ethical argument.

0% 81% (CO251.4) Identify the strengths and weaknesses of relevant professional codes as expressions of professionalism and guides to decision-making.

0% 82% (CO251.5) Summarize the legal bases for the right to privacy and freedom of expression in one's own nation and how those concepts vary from country to country.

0% 82% (CO251.6) Identify the professional's role in security and the tradeoffs involved.

0% n/a (CO251.7) Outline the technical basis of viruses and denial-of-service attacks and enumerate techniques to combat the same.

0% n/a (CO251.8) Distinguish among patent, copyright, and trade secret protection and explain how patent and copyright laws may vary internationally.

0% n/a (CO251.9) Explain the various U.S. legislation and regulations that impact technology and the disadvantages and advantages of free expression in cyberspace.

0% n/a (CO251.10) Explain why computing/network access is restricted in some countries.

0% n/a (CO251.11) Define a computer use policy with enforcement measures.

CSCI 359 Systems Analysis and Design

92% 90% (CO359.3) Understand project management techniques.

CSCI 440 Applied Software Project Development

90% 92% (CO440.4)Develop and use a team constitution.

96% 85% (CO440.5)Solve team conflicts in a project building environment.

90% 86% (CO440.10)Create system documentation including help files, diagrams, and programming code.

100% 89% (CO440.11)Present the final project to an audience consisting of faculty, peers, administrators, and business leaders.

96% 88% (CO440.12)Evaluate other team members based upon specific criteria. (Derived based on team member evaluations.)

81% 82% Program Objective #6 (PO6) : Learn common algorithms and how to analyze them for efficiency.

Assessment will be measured through testing the following course objectives:

CSCI 152
80% 88% (CO152.7) Be able to design and code a program which includes a user-created class.

CSCI 270
75% 75% (CO270.6) Understand Big-O notation (for algorithm efficiency): what it means, how it is determined, and why it should be considered in effective programming.
88% n/a (CO270.7) Be able to use the binary tree data structure and a hash table.

81% 89% Program Objective #7 (PO7) : Learn theory behind modern computer technologies.
Assessment will be measured through testing the following course objectives:

CSCI 241
94% 96% CO241.1) Understand various numbering systems and conversions.
90% 89% (CO241.3) Understand Computer Organization: registers, transfers, machine cycles.
83% 79% (CO241.4) Understand I/O devices, memory mapped I/O; Interrupts.

CSCI 233 Application Program Development
95% 0% (CO233.1) Compile and test a program.
90% 0% (CO233.2) Design and develop a basic report program.
70% 0% (CO233.3) Enhance a basic report program to process grouped data and summarize results.
82% 0% (CO233.4) Learn the programming constructs and develop programs to create and process arrays.
70% 0% (CO233.5) Develop a program to capture, process and store object data in a file.
72% 0% (CO233.6) Design and develop a program to process a sequentially-organized file.
70% 0% (CO233.7) Develop a program to access data from a database.
76% 0% (CO233.8) Design and develop a basic input form to capture data for an application.
70% 0% (CO233.9) Design and develop pages for a basic online application (team project).

CSCI 359 Systems Analysis and Design
88% 90% (CO359.1) Understand concepts relating to different types of information systems.

APPENDIX C
Faculty Vitae

VITA

SANG C. SUH

Texas A&M University - Commerce
Department of Computer Science
Commerce, TX 75429-3011, U. S. A.
Phone: 903-468-8199(O), 903-886-5409(Secretary), 903-886-5404(Fax)
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PROFESSIONAL APPOINTMENTS

- 1992-present: Assistant, Associate, and currently Professor & Head, Department of Computer Science & Information Systems, Texas A&M University-Commerce, U.S.A.
- 1990-1992: Research Associate, Grants from Texas Instruments Systems Lab., Dallas, TX, and Department of Computer Science & Engineering, Southern Methodist University, U.S.A.
- 1989-1990: Instructor, Department of Computer Science & Engineering, Southern Methodist University, U.S.A.

AREAS OF EXPERTISE

1) Data/Knowledge Mining
2) Data Analytics and Information Visualization
3) Cyber Physical Systems
4) Human Computer Interfaces and Interaction
5) Bio and Human Informatics

PROFESSIONAL PREPARATION

- ✓ Ph.D. Computer Science
  Southern Methodist University, U.S.A., 1992
- ✓ M.S. Computer Science
  University of Hawaii, U.S.A., 1986

EDITOR-in-Chief

2011-Present **Transactions of SDPS: Journal of Integrated Design and Process Science**, ISSN: 1092-0617, Abstracted/indexed in: Academic Source Complete, ACM Digital Library, Compendex, CPX, EBSCO database, Science & Technology Collection, SciVerse Scopus, Ulrich's Periodicals Directory, IOS Press, http://www.iospress.nl/journal/journal-of-integrated-design-process-science

AWARDS and FELLOSHIPS

- Excellence in Leadership Award, Society for Design & Process (2010)
- Texas A&M System Faculty Teaching Excellence Award by Students (2010, 2011)
- Outstanding Achievement Award, WorldComp2009 – World Congress on Computer Science, Computer Engineering and Applied Computing (2009)
- Nominated for Minnie Stevens Piper Professor Teaching Award by A&M-Commerce faculty senate (2009)
- Distinguished Service Award, Society for Design & Process Science (1996)
- Texas Instruments Research Fellowship Award (1990-92)
- Graduate Instructor Fellowship Award, Southern Methodist University (1989-90)
- University of Hawaii Software Engineering Research Fellowship Award (1985-86)

UNIVERSITY SERVICES

2010-2011	Chairman, Computational Science Ph.D task committee, TAMU-C
2008-present	Department Head, Computer Science Department, TAMU-C
2011-present	Member, Leadership Council, College of Science, Engineering and Agriculture, TAMU-C.
2008-2011	Member, College of Arts & Sciences Executive Council, TAMU-C.
2008-present	Representative, Computer Science Session, Main Event Preview Day, TAMU-C
2008(Nov. 7)	Judge, Computer Science Program, Pathway Research Symposium, TAMU.
2007(Apr. 5)	Graduate Council Representative, Ph.D. dissertation: Relationship between acculturation and personality for Asian Indians in the United States.
2008-2011	Chairman, Graduate Curriculum Committee, Computer Science Department, TAMU-C
2005, 2012	Member, ABET accreditation planning and advisory committee, Computer Science, TAMU-C.
1993-2006	Graduate Curriculum Committee Member, Computer Science Department, TAMU-C
1998-present	Computer Science Committee Member, Federation of North Texas Area Universities
2000-2005	Member, Faculty Development Committee, TAMU-C
2000-2005	Member, University Honors Committee, TAMU-C
2003	Member, University Graduate Research Committee, TAMU-C
2002-2005	Member, Science Council of College of Arts and Sciences, TAMU-C
2002-2006	Science and Technology Building Advisory Team Member, TAMU-C
2002	SACS (Southern Associations of Colleges and Schools) subcommittee member for Section 5A, TAMU-C
1998-2001	Faculty Senator, Computer Science Department, TAMU-C
1998-present	Graduate Comprehensive Exam Coordinator, Computer Science Department, TAMU-C

1993-present Computer Science Department Library Liaison, TAMU-C

REGIONAL/NATIONAL PROFESSIONAL SERVICES

2012-present **President**, Elected in June, 2012. **Society for Design and Process Science**. Established in 1995 at the IC^2 (Innovation, Creativity, and Capital) Institute, University of Texas at Austin. World organization with 1000+ professional membership, www.sdpsnet.org

2010-2012 **Vice President**, Elected in June, 2010. **Society for Design and Process Science**. Established in 1995 at the IC^2 (Innovation, Creativity, and Capital) Institute, University of Texas at Austin. World organization with 1000+ professional membership, www.sdpsnet.org

2009-2012 North Texas Federation Advisory Panel member. Elected as a 3-year term advisory panel member to serve the North Texas Federation for faculty research collaboration and student research enhancement (with University of North Texas and Texas Women's University).

1998-Present Member, Eastfield College Technology Advisory Board. Advisory body for Eastfield College's technical curriculum and planning.

1998-present Computer Science Committee Member, Federation of North Texas Area Universities.

2003-present Treasurer, Computer Science Committee, Federation of North Texas Area Universities.

2007 Reviewer, Best Paper Award in Computer Science (Data Analysis and Data Mining), Southern Association of Colleges and Schools.

CONFERENCE SYNERGISTIC ACTIVITIES

CONFERENCE KEYNOTE SPEECH

S. C. Suh, Conference Main **Keynote Speaker**, The 10th International Conference on Computers, Communications and Systems (ICCCS2009), November 6th, Daegu University, Korea.

M. Yang, Jack Yang, **S. Suh**, H. Arabnia "**Plenary Keynote Lecture**: Next Generation Sequence Generation Sequencing Technologies Foster the New Initiatives of High-Performance Computing" In Proceedings of International Joint Conference on Bioinformatics, Systems Biology and Intelligent Computing". Library of Congress Number 2009904091, ISBN 978-0-7695-3739-9, IEEE Computer Society Order Number P3739, BMS Part Number CFP0935H-PRT, IEEE Press 2009.

M. Yang, Jack Yang, **S. Suh**, and H. Arabnia "World Congress on Computer Science, Computer Engineering and Applied Computing **Keynote Lecture**: The impact of supercomputing in the next generation sequencing data mining" World Congress on Computer Science, Computer Engineering and Applied Computing. July 13-17, 2009 Las Vegas, Nevada, USA. In Proceedings of The 2009 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'09), CSREA Press, 2009.

Sang C. Suh, Invited talk for NSF STEM program at Eastfield College, March 25th, 2009.

CONFERENCE CHAIRMAN

SDPS2012, The 17th World Conference on Integrated Design and Process Technology, the Society for Design and Process Science & Software Engineering Society, Berlin, Germany, June 10-14, 2012.

PROGRAM CHAIRMAN

SDPS2011, The 16th World Conference on Integrated Design and Process Technology, the Society for Design and Process Science & Software Engineering Society, Jeju Island, Korea, June 12-16, 2011.

SDPS2010, The 15th World Conference on Integrated Design and Process Technology, the Society for Design and Process Science & Software Engineering Society, Dallas, Texas, June 1-5, 2010.

SDPS2009, The 14th World Conference on Integrated Design & Process Technology, Society for Design and Process Science, University of Alabama, Montgomery, Alabama, November 1-5, 2009.

GENERAL VICE CHAIR

2012 IIISC& ICCCS, 2012 Joint Conference of The International Industrial Information Systems Conference & The International Conference on Computers, Communications and Systems, December 20-23, 2012, Chiang Mai, Thailand; http://www.iiisc.org.

PROGRAM ADVISORY BOARD MEMBER

Advisory Board Member for Program Committee, The 10th International Conference on Computers, Communications and Systems (ICCCS2009), November 6th, Daegu University, Korea.

PROGRAM COMMITTEE MEMBER

The 16th Transdisciplinary Science World Conference, SDPS, Dallas, 2010.

The 12th World Conference on Integrated Design & Process Technology, May 31- June 5, 2009, Dallas, TX.

The World Congress on Computer Science and Engineering, July 13-17, 2009, Las Vegas, U.S.A.

The 11th World Conference on Integrated Design & Process Technology, June 1-6, 2008, Taiwan.

The 10th World Conference on Integrated Design & Process Technology, June 3-8, 2007, Antalya, Turkey.

The 9th World Conference on Integrated Design & Process Technology, June 25-30, 2006, San Diego, USA.

The 6th World Conference on Integrated Design & Process Technology, June 1-4, 2002, U.S.A.

The Inter national Scientific Committee for EXPERSYS-98 Technology Transfer Series, France, 1998.

The 9th International Conference in AI & Expert Systems Applications, Oct. 14-15, 1997, England.

The 2nd World Conference on Integrated Design & Process Technology, Dec. 1-4, 1996, U.S.A.

The 7th International Conference in AI & Expert Systems Applications, Nov. 9-10, 1995, U.S.A.

The 4th Golden West International Conference in Intelligent Systems, June 12-14, 1995,U.S.A.

The 6th International Conference in AI & Expert Systems Applications, Dec. 1-2, 1994, U.S.A.

INTERNATIONAL EDITORIAL BOARD MEMBER
GConference.net (http://gconference.net/eng/index.html), established by AICIT.

SOCIETY
Founding member of the Society for System Design and Process Science established in 1995.

TEACHING EXPERIENCE

TEXAS A&M UNIVERSITY – COMMERCE
GRADUATE COURSES

Introduction to Computer Programming (C) (CSCI515) (3 semesters)
Introduction to Database Systems (CSCI526) (38 semesters)
Advanced Databases and Data Mining (CSCI527) (36 semesters)
Artificial Intelligence (CSCI538) (6 semesters)
Operating Systems (CSCI530) (38 semesters)
Automata Theory (CSCI549) (40 semesters)
Introduction to Compiler Theory (CSCI 555) (2 semesters)
Advanced Network Programming (CSCI 553) (26 semesters)
Data Warehousing (CSCI589) – (24 semesters)
Special Topics on Intelligent Systems (CSCI 597) (12 semesters)
Freshman Success Seminar (CAS 111) (8 semesters)

TEXAS A&M UNIVERSITY – COMMERCE
UNDERGRADUATE COURSES

Introduction to Computer Programming (C) (CSCI151)

Systems Programming(CSCI 364)

Introduction to Operating Systems (CSCI 430)

SOUTHERN METHODIST UNIVERSITY
UNDERGRADUATE COURSES

Introduction to Computing (CSE 1314)
Computer Programming for Eng. & Science (CSE 1316)
Programming Languages (CSE 3342)

RESEARCH GRANTS - last 3 years only

2011-12	Co-PI, U.S. Department of Energy Grant: TX-W-20090427-0004-50. Advanced Artificial Science. The development of an artificial science and engineering research infrastructure to facilitate innovative computational modeling, analysis, and application to interdisciplinary areas of scientific investigation., $300,000 awarded, 2011- 2012.
2012	Co-PI, NSF TUES – Type 1 Project, "STEM Analysis and Learning Tool (SALT): Assessing and Guiding Future Generation of STEM Fields", $182,332, proposed in May, 2012.
2010-11	Co-PI, U.S. Department of Energy Grant: TX-W-20090427-0004-50. Advanced Artificial Science. The development of an artificial science and engineering research infrastructure to facilitate innovative computational modeling, analysis, and application to interdisciplinary areas of scientific investigation., $291,600 awarded, 2010- 2011.
2011	Principle Investigator, NSF CE21 (Computing Education for 21st Century), "Planning Grant: Computer Programming Technology Training Center", $192,345, proposed in July 2011.
2011	Principle Investigator, NSF IIS SoCS (Social-Computational Systems), "MENTAL GREEN ZONE (MGZ) - An Intelligent and Interactive Application to Improve Mental Health ", $480,536, proposed in November, 2011.
2011	Principle Investigator, NSF RET (Research Experience for Teachers), "RET in Engineering and Computer Science Site - Program in Computational Science at Texas A&M University-Commerce", $448,143, proposed in October, 2011.
2011	Principle Investigator, NSF CNS-CISE, REU (Research Experience for Undergraduate), "REU Site: Research Experience for Undergraduates for Computational Science", $295,425, proposed in August, 2011.
2010	Principle Investigator, NSF IIS SoCS (Social-Computational Systems), "MENTAL GREEN ZONE: An Intelligent and Interactive Application to Improve Mental Health", $420,027, proposed in November, 2010.

2009-10   Principle Investigator, Texas A&M University – Commerce Research Grant, "Robust Data and Visual Analytic Tool for Automatic Information Retrieval from Massive Data Sets", $10,666/1yr, Sept. 1, 2009-Aug. 31, 2010.

2009-10   Co-PI, U.S. Department of Energy Grant: DE-SC0001132, The development of an artificial science and engineering research infrastructure to facilitate innovative computational modeling, analysis, and application to interdisciplinary area of scientific investigation, $380,000 awarded, 2009- 2010.

PUBLICATIONS

BOOKS

Sang C. Suh, *Practical Applications of Data Mining – Methods and Practices*, Jones and Bartlett Publishers, Boston, MA, USA, (in print), ISBN-13: 9780763785871, January 2011 (Single author book).

Sang C. Suh, Murat Tank, and V. Gurupur, Eds., *Biomedical Engineering – Health Care Systems, Technology and Techniques*, Springer Verlag, New York, NY, USA, ISBN 978-1-4614-0115-5, eISBN 978-1-4614-0116-2, DOI: 10.1007/978-1-4614-0116-2, 2011.

BOOK CHAPTERS

N. M. Sirakov, **Sang C. Suh** and S. Attardo, "Integration of low level and ontology derived features for automatic weapon recognition and identification", *Automatic Target Recognition XXI,* Eds.: Firooz A. Sadjadi and Abhijit Mahalanobis, Proceedings of SPIE Vol. 8049 (SPIE, Bellingham, WA), 80490X. September, 2011.

Sang C. Suh and K. Xiong, *Resource Provisioning in SLA-Based Cluster Computing*, Lecture Notes in Computer Science, Spring Verlag, ISBN-13: 978-3-642-16504-7, pp. 1-17, 2010.

Sang C. Suh and Nagendra Pabbisetty, "Extraction of Meaningful Rules in a Medical Database," *Machine Learning* (Ed. YaGang Zhang), IN-Teh Academic Publishers, Vukovar, Croatia, pp. 411-426, 2010, ISBN: 978-953-307-033-9.

Sang C. Suh and V. Kandula, "A Prospective View on Intelligent Databases," *Intelligent Systems* (Ed. E. A. Yfantis), Kluwer Academic Publishers, Netherlands, 1995, pp. 757-761, ISBN: 0-7923-3421-3.

Sang C. Suh, Murat M. Tanik, and Dennis J. Frailey, "An Efficient Inferencing for Real-Time Expert Systems," *Knowledge-Based Systems and Neural Networks: Techniques and Applications* (Eds. R. Sharda, J.T. Cheung, and W. J. Cochron), Elsevier Science Publishers, N.Y., 1991, pp. 17-28, ISBN: 0-444-01610-4.

JOURNAL PAPERS AND PROCEEDINGS (ALL PEER REVIEWED AND REFEREED) − LAST 5 YEARS ONLY

S. Kim, H. Kim, D. Lee and **Sang C. Suh,** "Agent-based Mobile Data Caching Strategies Using Data Significance", *Transactions of the SDPS: Journal of Integrated Design and Process Science,* ISSN: 1092-0617, Volume 17, Number 1, IOS Press, Accepted for publication in March, 2013.

I. Moon, S. Kim and **Sang C. Suh,** "An Intelligent Decision Support System for Cropland Suitability Evaluation", *Transactions of the SDPS: Journal of Integrated Design and Process Science,* ISSN: 1092-0617, Volume 16, Number 3, IOS Press, September, 2012.

Pramukh R. Karla, **Sang C. Suh**, and Varadraj P. Gurupur, "Encrypting Ontological Meta-Model Using Elliptic Curve Cryptography with Identity Based Encryption", *Proceedings of The 8th International Conference on Computing Technology and Information Management (ICCM2012)*, IEEE pp. 146-150, ISBN-13: 978-89-88678-67-1, Seoul, Korea, April 24-26, 2012.

Sang C. Suh, Lavanya Gaddam, and Tarun Bheema, "Generating Ontology Relations through Clustering for Preventive Health Care", *Proceedings of The 5th International Multi-Conference on Engineering and Technological Innovation (IMETI2012)*, International Institute of Informatics and Systemics, Member of the International Federation for Systems Research (IFSR), pp. 75-80, ISBN-13: 978-1-936338-67-2, Orlando, Florida, July 17-20, 2012.

Varadraj P. Gurupur, **Sang C. Suh**, Richard R. Selvaggi, Pramukh R. Karla, "An Approach for Building a Personal Health Information System Using Conceptual Domain Knowledge", *Journal of Medical Systems*, Volume 36, No. 6, pp. 3685-93, DOI: 10.1007/s10916-012-9842-2, 2012.

Pramukh Karla, Shelly I. Saffer, Varadraj P. Gurupur, **Sang C. Suh**, " Identification of Class of Services in the Internet and a Proposed Approach to Traffic Prioritization at Layer 3," *Proceedings of the IEEE Southeast Conference*, Orlando, FL, March 15-18, 2012.

Pramukh Karla, Varadraj Gurupur, **Sang C. Suh**, "An approach to develop health information systems using concept maps", *Proceedings of The 17h World Conference on Integrated Design and Process Technology (SDPS2012)*, the Society for Design and Process Science & Software Engineering Society, 4 pages, Berlin, Germany, June 10-14, 2012.

Sang C. Suh, Varadraj P. Gurupur, Nigel Koay, Radmila Juric, Pramukh R. Karla, " Developing a preventive healthcare tool for Alzheimer's disease using semantic web technologies", *Proceedings of The 17h World Conference on Integrated Design and Process Technology (SDPS2012)*, the Society for Design and Process Science & Software Engineering Society, 6 pages, Berlin, Germany, June 10-14, 2012.

Nuthakki, M. K., Mete, M., Varol, C., **Suh, S. C**. (2011). UXSOM: UML generated XML to software metrics. *ACM SIGSOFT Software Engineering Notes, Volume 36*, No. 3, http://dl.acm.org/citation.cfm?doid=1968587.1968609.

Erdal Cosgun, Sam Saffer and **Sang C. Suh**, "Random Forest and Boosted Classification Tree Based Multifactor Dimensionality Reduction Analysis", *Proceedings of The 16^h World Conference on Integrated Design and Process Technology (SDPS2011)*, the Society for Design and Process Science & Software Engineering Society, 15 pages, Jeju, Korea, June 12-16, 2011.

N. M. Sirakov, **Sang C. Suh** and S. Attardo, "Automatic Object Identification Using Visual Low Level Feature Extraction and Ontological Knowledge", *Journal of Integrated Design and Process Science,* September, 2011.

Sang C. Suh and Gouthami Vudumula, "The Role of Conceptual Hierarchies in the Diagnosis and Prevention of Diabetes", *Proceedings of the 7th International Conference on Networked Computing and Advanced Information Management (NCM2011)*, ISBN: 978-89-88678-36-7, IEEE pp. 267-276, Gyeongju, Korea, June 21-23, 2011.

Sang C. Suh, and Kalyani Komatireddy, "Clustering of Ontology in Preventive Health Care Through Relational Ontology", *Proceedings of The 2011 International Conference on Data Mining (IKE'11): The 2011 World Congress in Computer Science, Computer Engineering, & Applied Computing (Worldcom'11) July 18-21*, Las Vegas, NV, Eds. Hamid Arabnia, ISBN: 1-XXXXX-XXX-4, CSREA Press, 7 pages, 2011.

Sang C. Suh, D. H. Lee, Radmila Juric, Jaya T. S., and Ajit Shilpa, "Preventive Healthcare System using Ontological Modeling and Semantic Reasoning By Converting Relational data", *Proceedings of The 16^h World Conference on Integrated Design and Process Technology (SDPS2011)*, the Society for Design and Process Science & Software Engineering Society, 9 pages, Jeju, Korea, June 12-16, 2011.

Sang C. Suh, Radmila Juric, Jaya T. S., and Ajit Shilpa, "Smart Preventive Healthcare System using Ontological Reasoning", *Proceedings of The 16^h World Conference on Integrated Design and Process Technology (SDPS2011)*, the Society for Design and Process Science & Software Engineering Society, 9 pages, Jeju, Korea, June 12-16, 2011.

Sang C. Suh and Lavanya Gaddam, "Role of Clustering of Ontology Relations for Preventive Health Care through Nutrition", *Proceedings of the International Conference on Mobile IT Convergence (ICMIC2011),* 7 pages, Gumi, Korea, September 26-28, 2011.

Sang C. Suh and K. Xiong, "Resource Provisioning in SLA-based Cluster Computing", *Lecture notes in Computer Science - Job Scheduling Strategies for Parallel Processing*, Volume 6253/2010, ISBN: 3-642-16504-4 & 978-3-642-16504-7, DOI: 10.1007/978-3-642-16505-4_1, Springer Berlin/Heidelberg, pp. 1-15, November, 2010.

Sang C. Suh, Gayatri Appana, and S. Anaparth, "Design of Conceptual Search Engine Using Hierarchy of Attributes and Concepts", *Proceedings of the 6th International Conference on Networked Computing and Advanced Information Management (Joint Conference with 6th IDC2010),* ISBN: 978-89-88678-25-1, IEEE pp. 359-366*,* Seoul, Korea, August 16-18, 2010.

Sang C. Suh, Nikolay Sirakov, and Salvatore Attardo, "Automatic Object Identification Using Visual Low Level Feature Extraction and Ontological Knowledge", *Proceedings of The 15^{h} World Conference on Integrated Design and Process Technology (SDPS2010)*, the Society for Design and Process Science & Software Engineering Society, 9 pages, Dallas, TX, June 6-11, 2010, ISSN: 1090-9389.

Sang C. Suh, Kaiqi Xiong, and Ravikanth Pulipati, "Concept-based Classification of Data for Improving Search Accuracy and Relevancy", *Intelligent Engineering Systems Through Artificial Neural Networks,* Vol. 20, pp. 41-48, ASME Press, New York, 2010, ISBN 978-0-7918-5959-9.

Sang C. Suh, Sam I. Saffer, and Jhansi Baireddy, "Visual Representation of Hierarchy of Attributes and Concepts as Ontology for Semantic Reasoning", *Intelligent Engineering Systems Through Artificial Neural Networks,* Vol. 20, pp. 49-56, ASME Press, New York, 2010, ISBN 978-0-7918-5959-9.

Sang C. Suh and K. Xiong, "Resource Provisioning in SLA-based Cluster Computing", *15th International Workshop on Job Scheduling Strategies for Parallel Processing (JSSPP10),* 15 pages*,* Atlanta, GA, April 23, 2010.

Sang C. Suh, B. Wu, and Dan Li, "Knowledge Discovery on International Linkage of the Chinese Stock Market", *Proceedings of The 2009 International Conference on Information and Knowledge Engineering (IKE'2009): The 2009 World Congress in Computer Science, Computer Engineering, & Applied Computing (Worldcom'09) July 13-16*, Las Vegas, NV, Eds. H. Arabnia, R. Hashemi, and F. Moxley, ISBN: 1-60132-114-7, CSREA Press, pp. 417-423, 2009.

Sang C. Suh S. Anaparthi,and N. Sirakov, "Basics of Concepts Representation for Document Summarization", *Proceedings of the 5th International Conference on Networked Computing and Advanced Information Management (Joint Conference with 5th IDC2009),* ISBN: 1-60132-114-7, August 25-29, pp. 1374-1380*,* Seoul, Korea, August 2009.

M. Yang, Jack Yang, **S. Suh**, H. Arabnia "Plenary Keynote Lecture Note: Next Generation Sequence Generation Sequencing Technologies Foster the New Initiatives of High-Performance Computing" In Proceedings of International Joint Conference on Bioinformatics, Systems Biology and Intelligent Computing". Library of Congress Number 2009904091, ISBN 978-0-7695-3739-9, IEEE Computer Society Order Number P3739, BMS Part Number CFP0935H-PRT, IEEE Press 2009.

Sang C. Suh and Praveen Tunki, "A Novel Representation of Human Intention for Efficient Document Retrieval", *Proceedings of The World Conference on Integrated Design and Process*

Technology, the Society for Design and Process Science & Software Engineering Society, 8 pages, Montgomery, Alabama, November 1-5, 2009.

Published invited talk, "Foundations on Data and Visual Analytics (FoDAVA) – next generation search engine for better information and better answers", 62 slides, The 10th International Conference on Computers, Communications and Systems (ICCCS2009), November 6th, Daegu University, Korea.

S. Suh, Jack Yang, M. Yang, H. Arabnia "Next Generation Sequence Analysis Using Genetic Algorithms on Multi-core Technology" In *Proceedings of ISIBM International Joint Conference on Bioinformatics, Systems Biology and Intelligent Computing*", p.p. 190-194. Library of Congress Number 2009904091, ISBN 978-0-7695-3739-9, IEEE Computer Society Order Number P3739, BMS Part Number CFP0935H-PRT, IEEE Press 2009.

M. Yang, Jack Yang, **S. Suh**, and H. Arabnia "World Congress on Computer Science, Computer Engineering and Applied Computing Keynote Lecture: The impact of supercomputing in the next generation sequencing data mining" World Congress on Computer Science, Computer Engineering and Applied Computing. July 13-17, 2009 Las Vegas, Nevada, USA. In Proceedings of The 2009 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'09), CSREA Press, 2009.

Sang C. Suh and Nagendra Babu Pabbisetty, "A Conceptual Hierarchy-Based Approach For The Extraction of Medical Knowledge in Psychiatric Diseases", *Intelligent Engineering Systems Through Artificial Neural Networks,* Vol. 18, pp. 237-244, ASME Press, New York, 2008, ISBN 978-0-7918-0282-3.

Sang C. Suh and Madhavi Valasingam, "The Role of Conceptual Hierarchies in the Diagnosis of Diabetes", *Proceedings of The 2008 International Conference on Data Mining (DMIN'08): The 2008 World Congress in Computer Science, Computer Engineering, & Applied Computing (Worldcom'08) July 14-17*, Eds. R. Stahlbock, S. Crone, and S. Lessmann, ISBN: 1-60132-060-4, CSREA Press, pp. 719-724, 2008.

Sang C. Suh, Sam I. Saffer, and N. K. Adla, "Extraction of Meaningful Rules in a Medical Database", *Proceedings of The 7th International Conference on Machine Learning and Applications, December 11-13*, Eds. M. A. Wani, et. al., ISBN: 978-0-7695-3495-4, The IEEE Computer Society (Order #: P3495), Library of Congress Number 2008908513, pp. 450-456, 2008.

Sang C. Suh and Archana Chada, "Knowledge-Based Trip Advisor: From Theory to Practice in Data Mining", *Proceedings of The 10th World Conference on Integrated Design and Process Technology (IDPT2008)*, the Society for Design and Process Science & Software Engineering Society, 6 pages, Asia University, Taichung, Taiwan, June 1-6, 2008.

Sang C. Suh, Sam I. Saffer, and V. Masarani, "Discovery of Useful Concepts Using The Hierarchy of Attributes and Concepts", *Intelligent Engineering Systems Through Artificial Neural Networks* Vol. 17, pp. 303-309 , ASME Press, New York, 2007, ISBN 0-7918-0265-5.

Sang C. Suh and Sam Cheung, "Adaptive Web Navigation and Personalization through the Integration of Web Content and Usage Mining", *Proceedings of The 10th World Conference on Integrated Design and Process Technology*, the Society for Design and Process Science & Software Engineering Society, 12 pages, Antalya, Turkey, June 3-8, 2007.

Sang C. Suh, R. Alex, and S. Menon, "Towards a More Human-Oriented Data Mining Applications", *Intelligent Engineering Systems Through Artificial Neural Networks* Vol. 17, pp. 327-333, ASME Press, New York, 2007, ISBN 0-7918-0265-5.

Sang C. Suh and N. Sirakov, "Content Based Search in Web Archive", *Proceedings of The 2007 International Conference on Internet Computing (ICOMP'07): The 2007 World Congress in Computer Science, Computer Engineering, & Applied Computing (Worldcom'07) June 27*, Eds. H. Arabnia et. al., ISBN: 1-60132-044-2, C.S.R.E.A. Press, 7 pages, 2007.

Dr. Derek Shawn Harter, BSc, MSc, PhD

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Employment

Fall 2004-present Assistant Professor, Department of Computer Science, Texas A&M University - Commerce.
2001-2004 Research Scientist, NASA Intelligent Systems Grant NCC-2-1244 SODAS, University of Memphis.
2000-2001 Research Scientist, ONR MURI Grant N00014-00-1-0600 Why2000, University of Memphis.
1998-2000 Principle Research Programmer, NSF Grant SBR 9720314 AutoTutor , University of Memphis.
1994-1998 Senior Software Engineer, Research and Development, MCImetro, Reston, VA
1990-1994 Software Engineer, Hughes Network Systems, Germantown, MD

Education

1998-2004 University of Memphis, Memphis, TN
Department of Mathematics and Computer Science
PhD, Computer Science
Computational Neurodynamics Laboratory (Dr. Robert Kozma)
Institute for Intelligent Systems (Dr. Stan Franklin, Dr. Arthur C. Graesser)
Graduated with Distinction
PhD Thesis:
  "Towards a Model of Basic Intentional Systems: Chaotic Dynamics for Perception and Action in Autonomous
  Adaptive Agents"

1992-1994 Johns Hopkins University, Baltimore, MD
Department of Computer Science
MSc, Computer Science with concentration Artificial Intelligence
Graduated with Honors
MSc Thesis:
  "Simple Voice Recognition System for Remote Control of Entertainment Devices"

1986-1990 Purdue University, West Lafayette, IN
Department of Computer Science
BSc, Computer Science

Publications

Journal Articles

1. Lu, S., Harter, D. and Graesser, A. (2009). An empirical and computational study of perceiving and remembering
    event temporal relations. **Cognitive Science.** *33: 344-373.*

ISI Impact Factor: 2.38

2. Harter, D., Kozma, R., and Achunala, S. (2007). Dynamical aspects of Behavior generation under constraints. **Cognitive Neurodynamics.** 1(3): 213-223.
   ISI Impact Factor: 1.13   Times Cited: 3

3. Harter, D., and Kozma, R. (2006). Aperiodic dynamics and the self-organization of cognitive maps in autonomous agents. **International Journal of Intelligent Systems.** 21(9):955-971.
   ISI Impact Factor: 0.57   Times Cited: 2

4. Harter, D., and Kozma, R. (2005). Chaotic neurodynamics for autonomous agents. **IEEE Transactions on Neural Networks.** 16(3): 565-579.
   ISI Impact Factor: 2.77   Times Cited: 19

5. Harter, D., and Lu, S. (2005). A synthesis of many levels of constraints as a modern view of development. Commentary on Steels & Belpaeme paper entitled: "Coordinating perceptually grounded categories through language". **Behavioral and Brain Sciences.** 28(3): 498-499.
   ISI Impact Factor: 15.6   Times Cited: 3

6. Harter, D., and Kozma, R. (2001). Task environments for the dynamic development of behavior. **Lecture Notes in Computer Science.** *2074:300-306.*
   ISI Impact Factor: 0.42   Times Cited: 2

7. Harter, D., Graesser, A. C. and Franklin, S. P. (2001). Bridging the gap: Dynamics as a unified view of cognition. **Behavioral and Brain Sciences,** 24(1):45-46.
   ISI Impact Factor: 15.60   Times Cited: 49

8. Graesser, A. C., VanLehn, K., Rosé, C., Jordan, P., Harter, D. (2001). Intelligent tutoring systems with conversational dialogue. **AI Magazine.** 22(4):39-51.
   ISI Impact Factor: 1.27   Times Cited: 60

9. Graesser, A.C., Person, N., Harter, D., and the Tutoring Research Group (2000). Teaching tactics and dialog in AutoTutor. **International Journal of Artificial Intelligence in Education.** 12(3):257-279.
   ISI Impact Factor: 0.24   Times Cited: 3

10. Graesser, A. C., Wiemer-Hastings, P., Wiemer-Hastings, K., Harter, D., Person, N., & the Tutoring Research Group. (2000). Using Latent Semantic Analysis to evaluate the contributions of students in AutoTutor. **Interactive Learning Environments.** 8(2):129-148.
    ISI Impact Factor: 0.44   Times Cited: 4

11. Wiemer-Hastings, P., Graesser, A.C., and Harter, D. (1998). The foundations and architecture of AutoTutor. **Lecture Notes in Computer Science.** 1452:334-340.
    ISI Impact Factor: 0.42   Times Cited: 6

Peer-Reviewed Conference Publications

12. Harter, D. & Zhang, L. (2010). Parallelization of Genetic Optimization for Large Network Simulations on a Cluster Computer. Proceedings of the Society for Design and Process Science 2010.

13. Pierce, D., Lu, S., & Harter, D. (2010). Perceiving events in simulated environments: The role of expectation driven processes. Proceedings of the World Conference on Innovative Virtual Reality 2010. New York: ASME Publishing.

14. Pierce, D., Lu, S., & Harter, D. (2009). Enacting actions in simulated environments. In S. Garbaya (Eds.), Proceedings of the Inaugural World Conference on Innovative Virtual Reality. New York: ASME Publishing.

15. Harter, D. (2007). Time Constraints and the Evolution of Scale-Free Properties in Associative Networks. *Proceedings of the NSF International Workshop on Large Scale Random Graph Methods for Modeling Mesoscopic Behavior in Biological and Physical Systems,* Budapest, Hungary, Aug. 2007.

16. Harter, D., and Kozma, R. (2006). Nonconvergent Dynamics and Cognitive Systems. *Proceedings of the 28th*

Annual Meeting of the Cognitive Science Society (CogSci 2006), Vancouver, BC Canada, Jul. 2006, pp. 1446-1452.

17. Lu, S. and Harter, D. (2006).   The role of overlap and end state in perceiving and remembering events. *Proceedings of the 28th Annual Meeting of the Cognitive Science Society (CogSci 2006),* Vancouver, BC Canada, Jul. 2006, pp. 1729-1835.

18. Harter, D. (2006). Complex Systems Approaches to Emergent Goal Formation in Cognitive Agents.   *Proceedings of the 2006 International Joint Conference on Neural Networks (IJCNN'06),* Vancouver, BC Canada, Jul. 2006, pp. 1682-1688.

19. Harter, D. & Kozma, R. (2005). Iterative Model of Mesoscopic Neural Populations Displaying Aperiodic Dynamics. *Proceedings of the 2005 International Symposium on Nonlinear Theory and its Applications (NOLTA'05),* Bruges, Belgium, Oct. 2005.

20. Harter, D. (2005). Evolving Neurodynamic Controllers for Autonomous Robots.   *Proceedings of the 2005 International Joint Conference on Neural Networks (IJCNN'05),* Montreal, Canada, Aug. 2005, pp. 137-142.

21. Lu, S. and Harter, D. (2005). Representing Events Using Fuzzy Temporal Boundaries. *Proceedings of the 27th Annual Conference of the Cognitive Science Society*, Stresa, Italy, Jul. 2005, pp. 1343-1348.

22. Harter, D. (2005). Discrete Approximation of Continuous K-Set Population Model. *Proceedings of the Fourteenth Annual Computational Neuroscience Meeting (CNS*2005),* Madison, WI, Jul. 2005, pp. 80.

23. Lu, S. and Harter, D. (2005). A Recurrent Neural Network Model of Event Temporal Representations. *Proceedings of the 51st Southwestern Psychological Association Annual Meeting*, Memphis, TN, Mar. 2005.

24. Harter, D., and Kozma, R. (2004). Complex Systems Approaches to the Ontogenetic Development of Behavior. *Proceedings of the 3rd Annual Technical Conference of the American Institute of Aeronautics and Astronautics Conference (AIAA 2004)*, Chicago, IL, Sept. 2004, pp. 312.

25. Harter, D., and Kozma, R. (2004).   Biological Limbic Systems: A Bottom-Up Model for Deliberative Action. *Proceedings of the 26th Annual Meeting of the Cognitive Science Society (CogSci 2004),* Chicago, IL, Aug. 2004, pp. 1569.

26. Harter, D., and Kozma, R. (2004). Navigation and cognitive map formation using aperiodic neurodynamics*. Proceedings of the 8th International Conference on the Simulation of Adaptive Behavior (SAB'04)*, Los Angeles, CA, July 2004, pp. 450-455.

27. Harter, D., and Kozma, R. (2004). Aperiodic dynamics and the self-organization of cognitive maps in autonomous agents*. Proceedings of the 17th International FLAIRS Conference (FLAIRS'04)*, Miami, FL, May 2004, pp. 424-429.

28. Harter, D., and Kozma, R. (2004). Aperiodic dynamics for appetitive/aversive behavior in autonomous agents*. Proceedings of the 2004 IEEE International Conference on Robotics and Automation (ICRA'04),* New Orleans, LA, April 2004, pp. 2147-2152.

29. Harter, D., and Kozma, R. (2002). Simulating the principles of chaotic neurodynamics. In *Proceedings of the 6th World Multi-Conference on Systemics, Cybernetics and Informatics (SCI 2002),* volume XIII, pages 598-603, Orlando, FL.

30. Kozma, R., Harter, D. and Achunala, S. (2002).   Action selection under constraints: Dynamic optimization of behavior in machines and humans*. In Proceedings of the IEEE/INNS/ENNS International Joint Conference on Neural Networks (IJCNN'02),* pages 2574-2579, Washington, D.C.

31. Harter, D. (2001). Ontogenetic development of skills, strategies and goals for autonomously behaving systems. In *Proceedings of the 5th World Multi-Conference on Systemics, Cybernetics and Informatics (SCI 2001),* pages 178-181, Orlando, FL.

32. Harter, D., and Kozma, R. (2001).   Models of ontogenetic development for autonomous adaptive systems*. In Proceedings of the 23rd Annual Conference of the Cognitive Science Society,* pages 405-410, Edinburgh, Scotland.

33. Harter, D., and Kozma, R. (2001). Task environments for the dynamic development of behavior*. In Proceedings of the Intelligent Systems Design and Applications 2001 Workshop (ISDA 2001),* pages 300-309, San Francisco, CA.

34. Harter, D., and Kozma, R. (2001). Ontogenetic development of behavior for simple tasks*. In Proceedings of the Artificial Intelligence and Soft Computing Conference (ASC 2001),* pages 401-407, Cancun, Mexico.

35. Harter, D., Kozma, R. and Franklin S. P. (2001). Models of ontogenetic development: The dynamics of learning*. In Proceedings of the 2001 Learning Workshop,* page 37, Snowbird, UT.

36. Harter, D., Kozma, R. and Franklin S. P. (2001).   Ontogenetic development of skills, strategies and goals for autonomously behaving systems*. In Proceedings of the Fifth International Conference of Cognitive and Neural Systems (CNS2001),* page 18, Boston, MA.

37. Kozma, R., Harter, D. and Franklin S. P. (2001). Self-organizing ontogenetic development for autonomous adaptive systems (SODAS)*. In Proceedings of the IEEE/INNS/ENNS International Joint Conference on Neural Networks*

(IJCNN'01), pages 633-637, Washington, D.C.
38. Graesser, A.C., Person, N., Harter, D., and the Tutoring Research Group (2000). Teaching tactics in AutoTutor. In *Proceedings of the Workshop on Tutorial Dialogue at the Intelligent Tutoring Systems 2000 Conference*. pages 49-57, University of Quebec, Canada.
39. Marineau, J., Wiemer-Hastings, P., Harter, D., Olde, B., Chipman, P., Karnavat, A., Pomeroy, V., Graesser, A.C., and the Tutoring Research Group (2000). Classification of speech acts in tutorial dialog. In *Proceedings of the Workshop on Tutorial Dialogue at the Intelligent Tutoring Systems 2000 Conference*.
40. Wiemer-Hastings, P., Graesser, A. C., Harter, D., & the Tutoring Research Group (1998). The foundations and architecture of AutoTutor. In *Proceedings of the 4th International Conference on Intelligent Tutoring Systems,* pages 334-343, Berlin Springer-Verlag.

Under Review

Harter, D., Lu, S., Henley, T. (under review). Low-cost immersive environments for embodied perceptual-motor training using Wii Remotes.
Harter, D. & Saffer, S. (under review). Project Corvus, a net-centric cognitive architecture for large-scale wireless sensor networks.
Lu, S., Harter, D., & Wakefield, L. (under review). The time course of perceiving everyday events: Risks and event boundaries.
Lu, S., Pierce, D., Harter, D., Rawlinson, T. G. (under review). Enacting actions in real versus simulated environments.

Invited Talks

Harter, D., Saffer, S. (2007). "Project Corvus and L3 HPC Activities at TAMUC", Texas A&M University - Commerce Math Colloquium, April 3.
Harter, D., Saffer, S. (2007). "Computational Sciences and High Performance Computing", Texas A&M University - Commerce Physics Colloquium, February 15.
Harter, D. (2007). Time Constraints and the Evolution of Scale-Free Properties in Associative Networks. Paper presented at the 1st NSF International Workshop on Large Scale Random Graph Methods for Modeling Mesoscopic Behavior in Biological and Physical Systems*,* Budapest, Hungary*,* Aug. 2006.
Harter, D. (2004). "Computing, Life Sciences and Cognition: Interdisciplinary Approaches to Understanding Intelligence", Texas A&M University - Commerce, Sigma XI Society semi-annual meeting, December 2.
Harter, D. (2004). "Salamanders Don't Play Chess: Computation, Sciences and Careers for the 21st Century", Mesquite Metroplex Center Mentoring Workshop, November 13.

Conference Presentations

Zhang, L. & Harter, D. (2010). Parallelization of Genetic Optimization for Large Network Simulations on a Cluster Computer. Proceedings of the Society for Design and Process Science 2010, Dallas, TX.
Pierce, D., Lu, S., & Harter, D. (2009). Enacting actions in the simulated environments. Paper presented at the Inaugural World Conference on Innovative Virtual Reality, Chalon-sur-Saône, France.
Harter, D., and Kozma, R. (2006). Nonconvergent Dynamics and Cognitive Systems. Poster presented at the 28th Annual Meeting of the Cognitive Science Society (CogSci 2006)*,* Vancouver, BC Canada, Jul. 2006.
Lu, S. and Harter, D. (2006). The role of overlap and end state in perceiving and remembering events. Poster presented at the 28th Annual Meeting of the Cognitive Science Society (CogSci 2006)*,* Vancouver, BC Canada, Jul. 2006.
Harter, D. (2006). Complex Systems Approaches to Emergent Goal Formation in Cognitive Agents.   Paper presented at the 2006 International Joint Conference on Neural Networks (IJCNN'06)*,* Vancouver, BC Canada*,* Jul. 2006.
Harter, D. (2005). Evolving Neurodynamic Controllers for Autonomous Robots. Paper presented at the 2005 International Joint Conference on Neural Networks (IJCNN'05), Montreal, Canada, Aug. 2005.
Harter, D. (2005). Applications of IDS: Mead's Challenge, What is Going on Here?. Invited talk at the 2005 International Joint Conference on Neural Networks (IJCNN'05) Workshop on Intentional Dynamical Systems, Montreal, Canada,

Aug. 2005.

Lu, S. and Harter, D. (2005). Representing Events Using Fuzzy Temporal Boundaries. Poster presented at the 27th Annual Conference of the Cognitive Science Society, Stresa, Italy, Jul. 2005.

Harter, D. (2005). Discrete Approximation of Continuous K-Set Population Model. Poster presented at the Fourteenth Annual Computational Neuroscience Meeting (CNS*2005), Madison, WI, Jul. 2005.

Lu, S. and Harter, D. (2005). A Recurrent Neural Network Model of Event Temporal Representations. Poster presented at the 51st Southwestern Psychological Association Annual Meeting, Memphis, TN, Mar. 2005.

Harter, D., and Kozma, R. (2004). Complex Systems Approaches to the Ontogenetic Development of Behavior. Paper presented at 1st Intelligent Systems Technical Conference of the American Institute of Aeronautics and Astronautics (AIAA'04), Chicago, IL, September 2004.

Harter, D., and Kozma, R. and Freeman, W.J. (2004). Biological Limbic Systems: A Bottom-Up Model for Deliberative Action. Poster presented at the 26th Annual Meeting of the Cognitive Science Society (CogSci 2004), Chicago, IL, August 2004.

Harter, D., and Kozma, R. (2004). Navigation and Cognitive Map Formation Using Aperiodic Neurodynamics. Paper presented at From Animals to Animats 8: The 8th International Conference on the Simulation of Adaptive Behavior (SAB '04), Los Angeles, CA, July 2004.

Harter, D., and Kozma, R. (2004). Aperiodic dynamics and the self-organization of cognitive maps in autonomous agents. Paper presented at the 17th International FLAIRS Conference (FLAIRS'04), Miami, FL, May 2004.

Harter, D., and Kozma, R. (2004). Aperiodic Dynamics for Appetitive/Aversive Behavior in Autonomous Agents. Paper presented at the 2004 IEEE International Conference on Robotics and Automation (ICRA 2004), New Orleans, LA, April 2004.

Harter, D. (2004). Formation of perceptual patterns in autonomous agents using a discretized K-III model. Paper presented at the 2004 Intentional Dynamic Systems Conference (IDS'04), Memphis, TN, April 2004.

Harter, D., and Kozma, R. (2002). Simulating the principles of chaotic neurodynamics. Paper presented at the 6th World Multi-Conference on Systemics, Cybernetics and Informatics (SCI 2002), Orlando, FL.

Harter, D. (2002). Computational neurodynamics at the University of Memphis. Paper presented at the 4th Annual Memphis Area Engineering and Science Conference (MAESC 2002), Memphis, TN.

Harter, D. (2002). Chaotic neurodynamics for behaviors in autonomous agents. Poster presented at the 2002 Symposia on the Dynamics of Memory, Perception and Consciousness (DPCM 2002), Memphis, TN.

Harter, D. (2001). Ontogenetic development of skills, strategies and goals for autonomously behaving systems. Paper presented at the 5th World Multi-Conference on Systemics, Cybernetics and Informatics (SCI 2001), Orlando, FL.

Harter, D., and Kozma, R. (2001). Models of ontogenetic development for autonomous adaptive systems. Poster presented at the 23rd Annual Conference of the Cognitive Science Society, Edinburgh, Scotland.

Harter, D., and Kozma, R. (2001). Ontogenetic development of behavior for simple tasks. Paper presented at the Artificial Intelligence and Soft Computing Conference (ASC 2001), Cancun, Mexico.

Harter, D., Kozma, R. and Franklin S. P. (2001). Models of ontogenetic development: The dynamics of learning. Poster presented at the 2001 Learning Workshop, Snowbird, UT.

Harter, D., Kozma, R. and Franklin S. P. (2001). Ontogenetic development of skills, strategies and goals for autonomously behaving systems. Poster presented at the Fifth International Conference of Cognitive and Neural Systems (CNS2001), Boston, MA.

Graesser, A.C., Person, N., Harter, D., & the Tutoring Research Group (2000, June). Teaching tactics in AutoTutor. Paper presented at the Workshop on Tutorial Dialogue at the Intelligent Tutoring Systems 2000 Conference, Montreal, Canada.

Marineau, J., Wiemer-Hastings, P., Harter, D., Olde, B., Chipman, P., Karnavat, A., Pomeroy, V., Graesser, A.C., and the Tutoring Research Group (2000, June). Classification of speech acts in tutorial dialog. Paper presented at the Workshop on Tutorial Dialogue at the Intelligent Tutoring Systems 2000 Conference, Montreal, Canada.

Person, N., Graesser, A.C., Harter, D., Mathews, E., and the Tutoring Research Group (2000, November). Dialog move generation and conversation management in AutoTutor. Paper presented at the AAAI Fall Symposium 2000 on Building Dialogue Systems for Tutorial Applications, Cape Code, MA.

Person, N., Graesser, A.C., Harter, D., and the Tutoring Research Group (2000, July). The dialog advancer network: A mechanism for improving AutoTutors conversational skills. Paper presented at the Meetings of the Society for Text and Discourse, Lyon, France.

Rajan, S., Harter, D., Graesser, A.C., and the Tutoring Research Group (2000, July). Back channel feedback in human and intelligent tutoring systems. Poster presented at the Meetings of the Society for Text and Discourse, Lyon,

France.

Graesser, A. C., Wiemer-Hastings, K., Wiemer-Hastings, P., Harter, D., Person, N., and Kreuz, R. (1999). Latent semantic analysis can reliably evaluate student contributions in AutoTutor. Paper presented at the 40th Annual Meeting of the Psychonomic Society, Los Angeles, California.

Graesser, A.C., Franklin, S. P., and the Tutoring Research Group (1998, July). The goals and design of AutoTutor. Symposium presented at the 8th Annual Meeting of the Society for Text and Discourse, Madison, Wisconsin.

External Grants

Saffer, S., Harter, D., Suh, S., Lu, S., Miskevitch, F. (2009). "The Development of an Artificial Science and Engineering Research HPC Infrastructure to Facilitate Innovative Computational Modeling", Department of Energy (DOE) #DE-SC0001132, **$380,000**, **Funded,** 2009-

Lu, S., Harter, D., Henley, T. (2009). "Perceiving and Enacting Actions in Simulated Environments", National Science Foundation (NSF) #0916749, **$500,000**, **Funded,** 2009-

Harter, D. (2008). "Network Resource Provisioning as a Complex Adaptive System", Defense Advanced Research Projects (DARPA), $100,000.

Harter, D. , Lu, S. (2007). "Neurodynamics of Intentional Behavior", Jams S. McDonnell Foundation Bridging Brain Mind and Behavior Research Grant, $400,000.

Lu, S., Harter, D., Henley, T. (2007). "The Role of Sensorimotor and Perceptual Features in Perceiving and Enacting Actions", National Science Foundation (NSF) #0742109, **$70,000**, **Funded,** 2007-2008.

Harter, D., Saffer, S., Lu, S., Suh, S. (2007). "CDI-Type II; Corvus: A Curious Distributed Cyber-Infrastructure", National Science Foundation (NSF), $650,000.

Harter, D., Lu, S., Tseng, S. (2006). "Investigating the Formation of Intentionality in Intelligent Systems", Texas Advanced Research Program (ARP) #003565-0002-2006, **$100,000**, **Funded,** 2006-2007.

Harter, D., Lu, S., Saffer, S. (2006). "Self-Organizing Curious Anticipatory Architectures for Robust Intelligence (SCARI)", National Science Foundation (NSF), $450,000.

Harter, D., Saffer, S., Lu, S., (2005). "Cognitive Models of Curiosity for Automatic Object Discovery, Identification, Location and Tracking", L3 Communications Comcept Division Industry Award, **$385,000**, **Funded,** 2005-2008.

Kozma, R., Harter, D., Freeman, W.J., Franklin, S. (2001). "Models of Self-Organizing Ontogenetic Development for Autonomous Adaptive Systems (SODAS)", National Aeronautics and Space Administration (NASA) grant #NCC-2-1244, **$1,000,000**, **Funded,** 2001-2004.

Internal Grants

Harter, D. (2009). "Fractal Self-Organization of Sensory-Motor Systems", Texas A&M University - Commerce Research Enhancement Grant, **$16, 250, Funded,** 2009-2010.

Lu, S., Harter, D. (2008). "An Investigation of Enacting Risky Actions", Texas A&M University - Commerce Research Enhancement Grant, **$11,680, Funded,** 2008.

Lu, S., Harter, D. (2005). "A Computational and Empirical Investigation of Time in Perceiving, Rembering and Describing Events and Actions", Texas A&M University - Commerce Research Enhancement Grant, $**6128, Funded**, 2005.

Harter, D. (2004). "Support Equipment for Embodied Robotics Laboratory", Texas A&M University - Commerce Mini-Grant, **$600, Funded**, 2004.

Awards

2006 Travel Award, $750, NSF Carnegie Mellon University Embodiment Symposium.
2006 Travel Award, $1500, NSF Large Scale Random Graph Workshop.
2004 National Academy of Sciences Research Associateship Awardee, 12 Month NASA/JSC.

2001 Travel Award, $500, NSF Travel Grant Cognitive Science Society.
2001 Travel Award, $750, Cognitive and Neural Systems.

Academic Experience

Reviewer: Prentice Hall Book Reviewer, International Journal of Intelligent Systems (IJIS), International Neural Networks Society (INNS) Newsletter, IEEE Transactions on Neural Networks, Neural Networks, Cognitive Science Conference, International Joint Conference on Neural Networks, Intentional Dynamic Systems Conference, Intelligent Systems Design and Applications Conference.

Organizer: 2010 Lecture Series on HPC @ TAMUC**,** 2006 Northeast Texas INNS/MIND Workshop on Goal-Directed Neural Systems, 2004 Symposium on Intentional Dynamic Systems University of Memphis, 2001 Symposium on the Dynamics of Memory, Perception and Consciousness, University of Memphis.

Professional Memberships: Association of Computing Machinery (ACM), Cognitive Science Society, Institute of Electrical and Electronics Engineers (IEEE), Society of Adaptive Behavior, American Institute of Aeronautics and Astronautics.

Teaching

Instructor:
    Texas A&M University - Commerce:
        Spring 2010: High Performance Computing
        Spring 2010/09/08/07/06: Unix Programming and Networking
        Fall 2009/07, Spring 2006: Graduate Artificial Intelligence
        Fall 2009/07, Spring 2006: Undergraduate Artificial Intelligence
        Fall 2009/08, Spring 2005: Graduate Operating Systems
        Fall 2009/08, Spring 2005: Undergraduate Operating Systems
        Spring 2009/08: Undergraduate Unix Programming
        Spring 2009: Object Oriented Programming
        Fall 2008: Fundamentals of Programming Lab
        Spring 2008: Unix Network Administration
        Spring 2008/07, Fall 2008/07/06: Java Programming
        Fall 2008: Microcomputer Applications
        Summer 2008/06, Fall 2005/04, Spring 2005: Undergraduate Programming II
        Fall 2008/05: Robotics and Autonomous Systems
        Spring 2007: Linux and Python Software Development
        Spring 2007: Programming Languages
        Summer 2008/05, Fall 2004: Data Structures
        Spring 2010/09/07, Fall 2009/08, Summer 2009/07: Thesis
        Spring 2010/08/07/06/05, Fall 2008/07/06/05/04: Research Literature and Techniques

    University of Memphis:
        Spring 2004: Expert Systems and Prolog
        Summer 2004: Data Structures
        Fall 2001: Dynamics of Memory and Cognition

Graduate Advisor:
    Pratyush Koturu, MSc, PhD, 2006-present.
    Devin Pierce, PhD, 2007-2010.
    Chris Jones, MSc, 2009-present.
    Gideon Mazambani, MSc, 2008-2009.
    Terry Rawlinson, MSc, PhD, 2007-present.
    Mei Jiang, Ph.D. 2007-2009.

Lonnie Wakefield, MSc, 2006-2008.
Tom Faulkenberry, Ph.D., 2006-2008.

Postdoctoral Advisor:
Linbao Zhang, postdoctoral associate, 2010-present.

Mentor:
Over 25 graduate and undergraduate student research projects and honors projects, 2004-present.

Academic Service

2010-present: Computational Sciences Ph.D. Degree Program Development Committee.
2008-present: Computer Science Graduate Curriculum Review Committee.
2008-present: TAMUC Faculty Development Committee.
2010, Spring: TAMUC Graduate Expo, Mesquite Metroplex Center.
2010, Spring: Judge, University Interscholastic League Academic Meet, Computer Science Regional.
2009, Fall: University Days Department of Computer Science organizer and mentor.
2009, Spring: Mentor TAMUC National Cyber Defense Team competition.
2009, Spring: Judge, University Interscholastic League Academic Meet, Computer Science Regional.
2008-2009: Professional Sciences Master's Degree Program Committee.
2008- 2009: College of Arts and Sciences Dean Advisory Search Committee.
2008, Fall: TAMUC University Days Presenter, Computer Science Breakout Session.
2008, Summer: Organizer, X-Teams Summer Academy, Introduction to Programming Concepts using Lego MindStorms.
2008, Spring: Ad Hoc CSIS College of Business Committee.
2008, Spring: Judge, University Interscholastic League Academic Meet, Computer Science Regional.
2007-2008: Computer Science and Information Systems Department Head Search Committee.
2007, Fall: TAMUC Freshman Success Seminar, Computational Sciences: Building Universal Skill Sets for the 21st Century.
2007, Fall: TAMUC University Days Presenter, Computer Science Breakout Session.
2007, Spring: Judge, University Interscholastic League Academic Meet, Computer Science Regional.
2006, Spring: Judge, University Interscholastic League Academic Meet, Computer Science Regional.
2006: Co-Organizer TAMUC Brain, Computation and Mind brown bag seminars
2005, Fall: TAMUC University Days Computer Science Department organizer and mentor
2004-2008: ACM Student Chapter Faculty Advisor
2004-2005: Computer Science ABET Committee
2004-2005: Computer Science Curriculum Committee
2004, Fall: Mesquite Metroplex Center Mentoring Workshop
2004, Fall: TAMUC University Days Computer Science Department organizer and Mentor

---

Professional References

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5. Dr. Carlos A. Bertulani, Full Professor

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6. Dr. Tracy B. Henley, Full Professor & Head

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Abdullah N. Arslan

Assistant Professor
Texas A & M University – Commerce
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EDUCATION

2002. PhD in Computer Science, University of California, Santa Barbara, CA
1996. MS in Computer Science, University of North Texas, Denton, TX
1990. BS in Computer Engineering, Middle East Technical University, Ankara, Turkey

ACADEMIC APPOINTMENTS

2009-Present. Assistant Professor, Department of Computer Science and Information Systems, Texas A & M University - Commerce
2002-2009.   Assistant Professor, Department of Computer Science, University of Vermont

BOOK CHAPTERS

Arslan, A. N. (2008) *Guided Sequence Alignment*. Encyclopedia of Data Warehousing and Mining - 2nd Edition, Edited by John Wang, Professor, Department of Management & Information Science, Montclair State University, IGI Global (Formerly "Idea Group Inc."), Hershey, PA, USA, August 2008, pp. 964-969, ISBN: 978-1-60566-010-3
 (a peer-reviewed chapter)

Arslan, A. N. and Egecioglu, O. (2007) *Chapter 76. Dynamic and fractional programming approximation algorithms for local alignment with constraints.* Handbook of Approximation Algorithms and Metaheuristics, Edited by: Teofilo F. Gonzalez, Chapman & Hall/CRC in the Computer & Information Science Series, Volume 13, ISBN: 9781584885504

JOURNAL PUBLICATIONS

Arslan, A. N. (2008) An algorithm with linear expected running time for string editing with substitutions and substring reversals. *Information Processing Letters,* 106(5):213-218 (available online: 10.1016/j.ipl.2007.11.017)

Arslan, A. N. (2007) Regular expression constrained sequence alignment. *Journal of Discrete Algorithms,* Elsevier, 5(4), 647-661 (available online: http://dx.doi.org/10.1016/j.jda.2007.01.003), (the formulation of sequence alignment presented in this paper was adopted in the alignment tool RE-MuSiC as reported in an article in Nucleic Acids Research in 2007)

He, D., Arslan, A. N., and Ling, A. C. H. (2006) A fast algorithm for the constrained multiple sequence alignment problem. *Acta Cybernetica*, 17: 701-717

Chen, G., Wu, X., Zhu, X., Arslan, A. N., and He, Yu. (2006) Efficient string matching with wildcards and length constraints. *Knowledge and Information Systems*, 10(4):399-419 (available online DOI: 10.1007/s10115-006-0016-8)

He, D and Arslan, A. N. (2005) A space-efficient algorithm for the pairwise sequence alignment algorithm. *Genome Informatics*, 16(2): pp. 237–246

Arslan, A. N. and Egecioglu, O. (2005) Algorithms for the constrained longest common subsequence problems. *International Journal of Foundations of Computer Science*, (16)6:1099-1111, December 2005

Arslan, A. N. and Egecioglu, O. (2004) Dynamic programming based approximation algorithms for sequence alignment with constraints. *INFORMS Journal on Computing, Special issue on Computational Molecular Biology/Bioinformatics,* Vol. 16, No. 4, pp. 441-458

Arslan, A. N. and Egecioglu, O. (2004) Dictionary look-up within small edit distance. *International Journal of Foundations of Computer Science,* Vol. 15, No 1, pp. 57-71, February 2004

Arslan, A. N. and Egecioglu, O. (2002) Approximation algorithms for local alignment with length constraints. *International Journal of Foundations of Computer Science* 13:751-567

Arslan, A. N., Egecioglu, O. and Pevzner, P.A. (2001) A new approach to sequence comparison: normalized sequence alignment. *Bioinformatics* 17:327-337 (the paper proposed using length-normalized scores for eliminating mosaic and shadow effects (some undesired anomalies) that arise when the common notion of sequence similarity is used. This fractional programming algorithm is strikingly fast although the optimization problem solved is complex)

Arslan, A. N. and Egecioglu, O. (2000) Efficient algorithms for normalized edit distance. *Journal of Discrete Algorithms* (Special Issue on Matching Patterns) 1(1):3-20

PEER-REVIEWED CONFERENCE PUBLICATIONS

Arslan, A. N. and Chidri, A. (2010) An efficient multiplication algorithm for thin matrices and for matrices with similar rows and columns. *The 2010 International Conference on Scientific Computing (CSC) 2010*, Las Vegas, NV, Jul 12-15, 2010

Arslan, A. N (2010) Heuristic algorithms for local sequence alignment with inversions and reversals. The 15th Anniversary Celebration, Transformative Systems Conference, SDPS 2010, Dallas, TX, June 6-11, 2010

Arslan, A. N. (2010) A fast longest common subsequence algorithm for similar strings. The 4th International Conference on Language and Automata Theory and Applications (LATA 2010), *Lecture Notes in Computer Science*, pp. 82-93, Trier, May 24-28, 2010

Arslan, A. N. (2007) Sequence alignment guided by common motifs described by context free grammars. *The 4th Biotechnology and Bioinformatics Symposium (BIOT) 2007)*, October 19-20, Colorado Springs, CO

Arslan, A. N. and Bizargity, P. (2007) Phylogeny by top down clustering using a given multiple alignment. *The Proceedings of the 7th IEEE Symposium on Bioinformatics and Biotechnology (BIBE 2007)*, Vol. II, pp. 809-814, Harvard Medical School, Boston, Massachusetts, October 14-17, 2007

He, D., Arslan, A. N., He, Y. and Wu, X. (2007) Iterative refinement of repeat sequence specification using constrained pattern matching. *The Proceedings of the 7th IEEE Symposium on Bioinformatics and Biotechnology (BIBE 2007)*, Vol. II, pp. 1199-1203, Harvard Medical School, Boston, Massachusetts, October 14-17, 2007

Arslan, A. N. (2007) A largest common d-dimensional subsequence of two d-dimensional strings. *The 16th International Symposium on Fundamentals of Computation Theory (FCT 2007)*, Budapest, Hungary, August 2007, *Lecture Notes in Computer Science (LNCS) 4639*, Erzsebet Csuhaj-Varju, Zoltan Esik (Eds.), Springer, pp. 40-51

He, Y., Wu, X., Zhu, X. and Arslan, A. N. (2007) Mining Frequent Patterns with Wildcards from Biological Sequences. *Proc. of the IEEE International Conference on Information Reuse and Integration (IEEE IRI-07)*, pp. 329-334, Las Vegas, August 13-15, 2007

Arslan, A. N. (2006) An algorithm with linear expected running time for string editing with substitutions and substring reversals. *The Proceedings of the Biotechnology and Bioinformatics Symposium (BIOT-2006)*, pp. 90-96, Provo, Utah, October 20-21, 2006

Arslan, A. N. and He, D. (2006) An improved algorithm for the regular expression constrained multiple sequence alignment problem. *The Proceedings of the 6th IEEE Symposium on Bioinformatics and Biotechnology (BIBE 2006),* pp. 121-126, Washington, DC, October 16-18, 2006

Arslan, A. N. (2006) An algorithm for string edit distance allowing substring reversals. *The Proceedings of the 6th IEEE Symposium on Bioinformatics and Biotechnology (BIBE 2006)*, pp. 220-226, Washington, DC, October 16-18, 2006

He, D. and Arslan, A. N. (2006) FastPCMSA: An Improved Parallel Algorithm for the constrained multiple sequence alignment problem. *FCS'06 - The 2006 International Conference on Foundations of Computer Science*, pp. 88-94, Monte Carlo Resort, Las Vegas, Nevada, June 26-29, 2006

He, D. and Arslan, A. N. (2006) Space-efficient algorithms for the constrained multiple sequence alignment problem. *BIOCOMP'06- The 2006 International Conference on Bioinformatics & Computational Biology*, pp. 10-16, Monte Carlo Resort, Las Vegas, Nevada, June 26-29, 2006

He, D. and Arslan, A. N. (2006) A* algorithms for the constrained multiple sequence alignment problem. *ICAI'06 - The 2006 International Conference on Artificial Intelligence*, pp. 465-479, Las Vegas, Nevada, June 26-29, 2006

Zheleva, E. and Arslan, A. N. (2006) Fast motif search in protein sequence databases. *International Computer Science Symposium in Russia (CSR 2006), Lecture Notes in Computer Science 3967,* pp. 670-681, St.Petersburg, Russia, June 8-12, 2006

Arslan, A. N. (2006) Efficient approximate dictionary look-up for long words over small alphabets. *Lecture Notes in Computer Science 3887, pp. 118-129, Latin American Theoretical Informatics LATIN'06*, Valdivia, Chile, March 20-24, 2006

Singh, D. R. , Arslan, A. N, and Wu, X. (2006) Using an extended suffix tree to speed-up sequence alignment. *IADIS International Conference on Applied Computing*, pp. 655-660, San Sebastian, Spain, February 25-28, 2006

Arslan, A. N. (2005) Multiple sequence alignment containing a sequence of regular expressions, Proc. *IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB'05)*, pp. 230-236, La Jolla, November 14-15, 2005

He, Dan and Arslan, A. N. (2005) A parallel algorithm for the constrained multiple sequence alignment problem, Proc. *IEEE the 5th Symposium on Bioinformatics and Biotechnology (BIBE'05),* pp. 258-262, Minneapolis, Minnesota, October 19-21, 2005

Arslan, A. N. (2005) Regular expression constrained sequence alignment, *Lecture Notes in Computer Science* 3537, pp. 322-333, *Combinatorial Pattern Matching (CPM)*, Jeju Island, Korea, June 19-22, 2005

He, Dan and Arslan, A. N. (2005) A fast algorithm for the constrained multiple sequence problem. Proceedings. *11th International Conference on Automata and Formal Languages (AFL 2005),* Zoltan Esik, Zoltan Fulop (Eds.) Institute of Informatics, University of Szeged, pp. 131-143, Dobogoko, Hungary, May 17-20, 2005

Arslan, A. N. and Egecioglu, O. (2004) Algorithms for the constrained longest common subsequence problems, Proceedings of the *Prague Stringology Conference 2004,* pp. 24-32, Edited by Milan Simanec and Jan Holub, Prague, Czech Republic, August 30-September 1, 2004

Arslan, A. N. and Egecioglu, O. (2002) Efficient computation of long similar subsequences. *Lecture Notes in Computer Science* 2476:77-90, *String Processing and Information Retrieval, 9th International Symposium (SPIRE 2002)*, Lisbon, Portugal, September 11-13, 2002

Arslan, A. N. and Egecioglu, O. (2002) Dictionary look-up within small edit distance. *Lecture Notes in Computer Science* 2387:127-136, *8th Annual International Computing and Combinatorics Conference (COCOON)*, Singapore, August 15-17, 2002

Arslan, A. N. and Egecioglu, O. (2002) Algorithms For Local Alignment With Length Constraints *Proc. 5th Latin American Theoretical Informatics Symposium (LATIN 2002), LNCS 2286*, pp. 38-51Cancun, Mexico, April 2002

Arslan, A. N. and Egecioglu, O. (2001) An improved upper bound on the size of planar convex-hulls. *Lecture Notes in Computer Science* 2108:111-120, COCOON, Guilin, China, August 20-23, 2001

Arslan, A. N. and Egecioglu, O. and Pevzner, P.A. (2001) A new approach to sequence alignment: normalized sequence alignment. *The Fifth Annual International Conference on Computational Molecular Biology (RECOMB 2001)*, pp. 2-11, Montreal, Canada,, April 22-25, 2001

Arslan, A. N. and Egecioglu, O. (1999) An efficient uniform-cost normalized edit distance algorithm. *IEEE Computer Society 6th International Symposium on String Processing and Information Retrieval (SPIRE 1999)*, pp. 8-15, Cancun, Mexico, September 22-24, 1999

OTHER PUBLICATIONS

J. Zhang, G. Li, J. Y. Yang Editors, and A. Arslan et al. Associate Editors. (2009) *The Proceeding of the international conferences on bioinformatics, systems biology, and intelligent computing. IEEE Computer Society*, ISBN 978-0-7695-3739-9

A. N. Arslan and J. Nowak. Efficient approximate dictionary look-up for words over small alphabets. *Technical Report TUM-I0708, Technische Universität München, Institut für Informatik*, January 2007 (http://www14.in.tum.de/personen/nowakj/)

Arslan, A. N. (2004) Algorithmic methods in bioinformatics, Biyoinformatik-II (Bioinformatics Graduate Summer School II, Sile/Turkey), pp. 1-11, August,2004 (Editors: Azmi Telefoncu, Fikrettin Sahin, Ali Kilinc), ISBN=975-483-637-X

Arslan, A. N. (2004) Sequence alignment, Biyoinformatik-II (Bioinformatics Graduate Summer School II, Sile/Turkey), pp. 101-114, August,2004 (Editors: Azmi Telefoncu, Fikrettin Sahin, Ali Kilinc), ISBN=975-483-637-X

Arslan, A. N. (2002) Algorithms for string similarity with constraints. Ph.D. Thesis at University of California, Santa Barbara. Published by UMI, Ann Arbor

GRANTS

MATER STUDENTS SUPERVISED

In CS Department at the University of Vermont
- Jambhore, Vicky W.(2009)
    - Project: Programs for approximate dictionary look-up
- Punugu, Sirisha (2009)
    - Project: Programs for sequence alignment guided by context-free-gramar-described motifs
- Sharma, Renu (2009)
    - Project: Programs for sequence alignment with inversions
- DeHaas, Drew. (2007)
    - Project: *Programs For Constrained Sequence Alignment*
    - after graduation started as a "Software Engineer" at Honeywell Process Solutions
- He, Yu (2006) (co-advised with X. Wu)
    - Project: *Mining Frequent Patterns With Wildcards*
    - Published one journal paper, two peer-reviewed conference papers
- Zheleva, Elena (2005*)*
    - Thesis: *Restricted Regular Expression Pattern Matching Using Suffix Trees*
    - after graduation started pursuing PhD in CS at U. of Maryland, College Park
    - published a peer-reviewed conference paper
- Singh, Divya R. (2005)
    - Thesis: *Faster Sequence Alignment Using Suffix Tree and Data-Mining Techniques* (co-Advisor: Dr. Xindong Wu)
    - after graduation started working at IBM, Burlington, currently with Microsoft Corp.
    - published a peer-reviewed conference paper

SERVICE FOR TEXAS A&M UNIVERSITY - COMMERCE

Have prepared parts of the CS comprehensive exam every semester since Fall 2009
Have served as a member of Computational Science PhD Program Proposal Task Committee since Fall 2009

SERVICE FOR THE UNIVERSITY OF VERMONT

Served the Computer Science Department as
- the Library Liaison during 2002-2005
- the Webmaster during 2002-2007
- the Technical Reports Coordinator in 2007-2008 academic year
- as a member on the committee of graduate admissions in 2007-2008 academic year, and CS curriculum committee during 2002-2008

- During 2004-2008, prepared parts of the CS MS and PhD Comprehensive Exam course contents, guidelines, and sample exams for Operating Systems, Analysis of Algorithms, and Theory of Computation; proctored, and graded parts of these exams

SELECTED SYNERGISTIC ACTIVITIES

Have been an editor for International Journal of Data Mining, Modelling and Management since 2008

Have been serving on Permanent Steering Committee Member of Biotechnology and Bioinformatics Symposium (BIOT) http://www.biotconf.org/ since 2007

Served on the Program Committee of International Symposia on Health Informatics and Bioinformatics (HIBIT) 2009 and 2010

Served on the Program Committee of the Tenth Asian Conference on Computer Vision (ACCV) 2010

Reviewed
- one paper for Pattern Recognition Journal in 2010
- two papers for the 21st International Symposium on Algorithms and Computation (ISAAC 2010)
- one paper for 17th edition of the Symposium on String Processing and Information Retrieval (SPIRE 2010)
- two papers for Biotechnology and Bioinformatics Symposium (BIOT) 2009,
- one paper for International Journal of Foundations of Computer Science in 2009,
- four papers for the Ninth Asian Conference on Computer Vision (ACCV), 2009,
- five papers for the 20th International Symposium on Algorithms and Computation *(*ISAAC 2009*)*

Before Joining Texas A&M University – Commerce:

Associative Editor for the proceeding of the international joint conferences on bioinformatics, systems biology and intelligent computing, 2009, IEEE Computer Society, ISBN 978-0-7695-3739-9

Served on Program Committees of more than 14 international conferences in bioinformatics and algorithms

In October 2007, rated publication venues (refereed journals and conferences) in computational biology and bioinformatics to aid the tenure and advancement review process in Brigham Young University on request from their CS Department Head

Reviewed for the following journals: IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBBSI), Knowledge and Information Systems (KAIS): An International Journal, Journal of Mathematical Biology (JMB), Bioinformatics, Theoretical Computer Science (TCS), IEEE Transactions on Knowledge Engineering (TKDE), Data and Knowledge Engineering (DKEJ), Information Processing Letters (IPL), Pattern Recognition (PR), Information Sciences (INS), Information and Computation, Journal of Discrete Algorithms

Reviewed for the following conferences: Combinatorial Pattern Matching Symposium (CPM), ACM-SIAM Symposium on Discrete Algorithms (SODA), Research in Computational Molecular Biology (RECOMB), International Conference on Implementation and Application of Automata (CIAA), International Conference on Parallel and Distributed Computing Systems (PDCS), Symposium on Health Informatics and Bioinformatics Health (HIBIT), IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB), IEEE International Conference on Bioinformatics and Biomedicine (BIBM), Bioinformatics and Biotechnology Symposium (BIOT) Asian Conference on Computer Vision (ACCV), International Symposium on Algorithms and Computation (ISAAC)

Invited lecturer: Bioinformatics Graduate Summer School (August 15-21, 2004, Sile/Turkey) (http://sci.ege.edu.tr/~biyoinformatik2/eng/ogruyeleri.htm) organized by Ege University, Yeditepe University of Turkey, and Berlin Technical University of Germany. Attended by undergraduate, graduate students, researchers, and faculty members from various disciplines, and from multiple countries including Turkey, Germany, England, and Hungary

<div align="center">**College of Arts and Sciences**</div>

<div align="center">**VITAE**</div>

Name: Thomas Lamar Brown

Faculty Id: 10071788

Year Appointed: 1971

Department: Computer Science and Information Systems

1. **Academic Degrees:**
    MBA   Northeast Louisiana University   Management 1968
    BS   Northeast Louisiana University   Management 1966

2. **Professional Experience:**
    Texas A&M University-Commerce   August 1971-July 2010
    Tarrant County Junior College   September 1970-May 1971
    North Texas Community   College   July 1968-August 1970
    University of Louisiana-Monroe   September 1966-May 1968

3. **Faculty and Administrative load:**
    Fall 2009 – faculty member (fulltime)
    Spring 2009 -- faculty member (fulltime)
       Fall 2008 – faculty member (fulltime)
    Spring 2008 -- faculty member (fulltime)
    Fall 2007 – faculty member (fulltime)
    Summer 2007-- faculty member (one-fourth time)
    Spring 2007 -- faculty member (fulltime)
    Fall 2006 – faculty member (fulltime)
    Summer 2006-- faculty member (one-fourth time)
    Spring 2006 – faculty member (fulltime)
    Fall 2005 – faculty member (fulltime)
    Summer 2005 -- faculty member (one-fourth time)
    Spring 2005 -- faculty member (fulltime)

4. **Service Activities:**
    a) **University Wide:** academic advisor, orientation, Undergraduate Experience
       Committee, Scholarship Committee, financial contributions;
    b)   **Departmental:** search committee, curriculum development, accreditation
    committee,
          academic advisement, database administration, new student orientation, msdnaa
    administration
       (software distribution to CSci students);

c) **Community: computerized record-keeping for neighborhood association.**

5. **Professional Association Memberships:**
   a) **Association for Computing Machinery;**
   b) **Association for Computer Educators in Texas;**
   c) **Computer Science Teachers Association.**

6. **Professional Assignments, Activities:**
   a) **Full-time teaching;**
   b) **Academic advisor writing degree plans for Computer Science & Information Systems programs;**
   c) **Microsoft Development Academic Alliance coordinator (distribute software to CSci students);**
   c) **Database administrator for faculty, students and research teams;**
   d) **ACM student organization advisor.**

7. **Publications:**
   a) **Refereed, adjudicated, etc.--none in last five years.**
   b) **Non-refereed, adjudicated--none in last five years.**

8. **Papers Presented, Workshops, Demonstrations, etc.:**
   Academic Enrichment workshop, Girl Scout Interest Project College, Computer Camp.

9. **Research:**
   That research necessary to develop supporting software for teaching laboratories, server, and
   database administration and curriculum development responsibilities.

10. **Grants, Proposals:**
    none in last five years

11. **Honors and Awards Received:**
    Thirty-five year recognition and award

12. **Other Evidence of Professional Achievement:**
    a) **Administration of departmental database and web servers;**
    b) **Development of computer-based laboratory guides, problem sets, support**

software, web pages
   and course notebooks;
   c)   **Mastery of new hardware and software utilized in Computer Science and Information Systems**
   programs;
   d)   **Completion of faculty development workshops for teaching and administering online courses;**
   e)   **Development and delivery of online course in database management, and web-enhanced courses**
   in Fundamentals of Programming, Java Programming, and Information System Programming,
   and Database Programming.

Vitae for College of Arts & Sciences 1/04/2005 --> 7/27/2010

Name: R. Daniel Creider, Ph.D.
Office Phone: (903) 886-5407

Academic Degrees
    Ph.D., Baylor University, Waco, Texas; Major - Experimental Psychology, 1978
    M.S., Texas A&M University-Commerce, Commerce, Texas; Major - Computer Science, 1979
    M.S., Auburn University, Auburn, Alabama; Major - General/Experimental Psychology, 1971
    B.S., Southwest Missouri State University, Springfield, Missouri; Major - Psychology, 1969
    B.A., Central Bible College, Springfield, Missouri; Major - Bible/Music, 1968

Professional Experience
    Texas A&M University-Commerce, Computer Science and Information Systems Department, Commerce, TX.;
        Acting Department Head, March through May 1998
        Associate Professor, August 1984 to present
        Assistant Professor, August 1978 to August 1984
    Baylor University, Computer Center, Waco, Texas; graduate assistant, August 1977 to August 1978.
    Baylor University, Psychology Department, Waco, Texas; graduate assistant, August 1974 to August 1977.
    Texas Employment Commission, Corpus Christi, Texas; Employment Counselor: responsibilities included providing
        vocational counseling, aptitude test selection and analysis, job solicitation, training selection and monitoring;
        November 1971 to August 1974.

Service Activities
    University
        Academic Advisor (undergraduate) for advising office for 1983-84 and 1984-85 school years which included
            a one fourth release time from teaching responsibilities.
        Computer Science Federation Program Development Committee (Chairman, 8 yr., member 27 yr.)
        Doctoral committee member on numerous (*at least 24*) committees for students with comprehensive or split
            minor in Computer Science and majors in Secondary and Higher Education, and Educational Media and
            Technology
        Faculty Senate (8 yrs.)
        International Student Advisory Committee (2 yr.)
        Advisor for the India Student Association from November 2009 to present

    Department
        Departmental Curriculum Committee
        Departmental Faculty Search Committee
        Departmental Head Search Committee
        Departmental S.C.A.R. Committee
        Departmental Scholarship Committee
        Editor of Departmental Newsletter beginning with the Spring 1991 semester for 1 year.
        Graduate Advisor/Coordinator from Fall 1985 through Spring 1990; Fall 1992 through present. This was an
            administrative appointment for the 1985-86 and 1986-87 school years which included a one fourth
            release time from teaching responsibilities.
            Responsibilities included: reviewing applications for graduate admissions to the department; advising
            graduate students on course of study; reviewing curriculum; coordinating, scheduling and grading of
            comprehensive exam each semester.

    Community
        Sanctuary musician at all regularly scheduled services at the First Assembly of God Church, Greenville,
            Texas.

Professional Association Memberships
Computer Society of the IEEE
Association for Computing Machinery

Publications (refereed)
Creider, R. Daniel, Ammouri, Emad, and Ayad, Ali. "An Intelligent Advisor for the Immigration and Naturalization Service". *Proceedings of the ISCA Fourth Golden West International Conference on Intelligent Systems*, June 12-14, 1995, pp. 239-243.

Creider, Daniel., Legge, Gaynor. A computer Science Masters Degree Curriculum at a Small University. The *Journal of Computing in Small Colleges*. Vol 12, No. 4. March 1997. pp 31-39.

Creider, R. Daniel, Palmer, Michael, Matrix Manipulations in C/C++ Using Dynamically Allocated Memory. *Proceedings of The Fifth World Conference on Integrated Design and Process Technology*, IDPT Vol. 1, pp. 21 (abstract), 1999-2000. Complete paper on CD.

Creider, R. Daniel, Sundar Singh, Paul S. "Differential Diagnosis of Allergic Rhinitis and Sinusitis An Expert System". *Proceedings of The Second World Conference on Integrated Design and Process Technology*, IDPT-Vol. 2, pp. 251-254, 1996.

Kolstad, K. K., Coker, Donald R., and Creider, R.D. "The Improvement of Testing Through Cooperation Between Teachers and Computer Personnel". *Educational Technology*, Vol. 24, No. 5, May 1984.

Kolstad, K. K., Creider, R.D., Kolstad, R. A. "Structural Cueing on MULTIPLE-CHOICE Test Items". *Education*, Vol. 107, No. 3, Spring 1987.

Kolstad, R., Creider, R.D., Cassel, R.N. "Use of the Democratic Maturity Test to Predict Freshman College Dropouts". *Scientia Paedagogica Experimentalis*, Vol. XXXVI, pp. 263-266, 1999.

Myers, S.M., Creider, R. Daniel. "Aero Expert: An Electrical Design Expert System". *Proceedings of the ISCA Fourth Golden West International Conference on Intelligent Systems*, June 12-14, 1995, pp. 234-238.

Suh, Sang C., Creider, R. Daniel, Kandula, Veerasekhar. "Prospective View on Intelligent Databases." *Proceedings of the Third Golden West International Conference on Intelligent Systems.* Las Vegas, June 2-4, 1994, pp. 757-761.

Presentations
Creider, R. Daniel, Palmer, Michael, Matrix Manipulations in C/C++ Using Dynamically Allocated Memory. The Fifth World Conference on Integrated Design and Process Technology, Dallas Texas June 4-8, 2000

Creider, R. Daniel., Ammouri, Emad., and Ayad, Ali. An Intelligent Advisor for the Immigration and Naturalization Service. Fourth Golden West International Conference on Intelligent Systems. San Francisco, June 12-14, 1995

Creider, Daniel., Legge, Gaynor. A computer Science Masters Degree Curriculum at a Small University. Consortium for Computing in Small Colleges: Eighth Annual South Central Conference; April 11-12, 1997, San Antonio, Texas.

Creider, R. Daniel., Sundar Singh, Paul S. Differential Diagnosis of Allergic Rhinitis and Sinusitis An Expert System. The Second World Conference on Integrated Design and Process Technology, Austin Texas December 1-4, 1996.

Myers, S.M., Creider, R.D., Aero Expert: An Electrical Design Expert System. Fourth Golden West International Conference on Intelligent Systems. San Francisco, June 12-14, 1995

Suh, Sang C., Creider, R. Daniel, Kandual, Veerasekhar. Prospective View on Intelligent Databases.   Third Golden West International Conference on Intelligent Systems. Las Vegas, June 1994.

Research - Funded
Contract research funded by E-Systems, Greenville Division in the area of Artificial Intelligence for the years given below:

June 1983 through December 1983 in the amount of ....$30,538.
April 1984 through December 1984 in the amount of ....$48,402.
January 1985 through May 1986 in the amount of ....$31,740.

Consulting
Consulted at E-Systems, Greenville Division in conjunction with a contract proposal for the Federal Government during November 1983 in the area of Human Factors and Artificial Intelligence

Grants, Proposals
    Research proposal submitted to the Texas Advanced Technology Research Program in 1985 but was not funded:
    Expert systems Integration.

Honors Thesis Student
    Walker, Grady M., *Is the Josephson Effect the Answer to the Supercomputer?,* December 1981

Thesis Students
    Mosley, Burt, *Developing A Generic Expert System for Solving Configuration Problems*, May 1985
    Rhee, Rhillkyu, *A Syntactic Pattern Recognition System for Handwritten Characters*, August 1986
    Blair, Richard N., *Configuration Management in Symbolic Processing Environments*, May 1987
    Burks, Mike W., *User Interfaces and User Interface Management Systems: A Survey*, May 1988
    Campbell, K. Scott, *Knowledge Acquisition in a Knowledge-Based Intelligence Analysis System*, December 1988
    McCord, William Keith, Pathfinding Algorithms in Two-Dimensional Computer Games Using C#, May 2005
    Moquin, Bertrand P., *Software Configuration Management an Expert System Candidate*, December 1988
    Norris, David G., *An Expert System to Calculate Channel Capacity According to Manning's Equation*, May 1990
    Slaughter, Stephen R., *An Application of Artificial Neural Systems in Trend Analysis*, May 1990
    Wilcoxson, John K., *Application of Sublanguages in Natural Language Translation*, May 1990
    Portwood, Marion M., *Rule Adaptation and Modification in Machine Learning*, August 1990
    Weatherman, Wesley L., *Expert Systems Design and Implementation of XL.PRL*, December 1990
    Hoover, Lucian T., *EEG Monitor Software*, May 1992
    Benge, Carey S., *NFS (Network File System) A Study of the Functionality, Design , and Implementation of NFS in a UNIX Based Environment*, December 1992
    Skauge, Suzanne E., *Design and Implementation of Computerized Test Administration Software*, May 1993
    Coco, Roger K., *Expert System Shell Design*, August 1993
    French, Lonnie G., *Fossil Expert System*, May 1994
    Khamitkar, Charudatta N., *Universal Healthcare System on the Internet*, December 1996
    White, Pablo, *The Root Word Analysis of the English Language*, May 2004
    McCord, William Keith, Pathfinding *Algorithms in Two-Dimsional Computer Games Using C#,* April 2005

Presentations Supervised
    Supervised student presentation (Joythi Pamulapati) for the 7th *Annual Texas A&M University System Pathways Student Research Symposium, Nov 13-14, 2009, Laredo, TX.* Topic was Programming Efficiency.

    Supervised student presentation (Divya Kandala) for the 6th *Annual Texas A&M University System Pathways Student Research Symposium, Nov 8, 2008, Commerce, TX.* Topic was Programming Performance. Student won second place for Master's level in Computer Science

Courses Taught
    Texas A&M University-Commerce (courses in parentheses are no longer offered)
    126   Introduction to Computers
    (236)   Introductory FORTRAN Programming
    241   Assembly Language Programming
    (337)   Advanced FORTRAN Programming
    502   Internship in College Teaching of Computer Science
    504   Introduction to Computer Application
    506   Introduction to Computer-Oriented Research Applications
    515   Fundamentals of Programming
    520   Information Structure and Algorithms Analysis
    526   Database Systems
    537   Advanced Concepts of Programming Languages
    538   Algorithms and Programming Techniques for Artificial Intelligence Applications
    539   Expert Systems
    597   Neural Computing
    597   Programming Performance

Varadraj Prabhu Gurupur, Ph.D.

PO Box 3011
Commerce, TX 75429   **Email: varadrajprabhu@gmail.com**

EDUCATION

Ph.D. in Computer Engineering, University of Alabama at Birmingham,   May 2010
Birmingham, AL 35294

Master of Science, Computer and Information Sciences, University of
Alabama at Birmingham, Birmingham, AL 35294   December 2005

Bachelor of Engineering, Computer Science & Engineering,
Manipal Institute of Technology,   July 2001
Manipal, India

TECHNICAL WORK EXPERIENCE

- Information Systems Specialist II, Neurology Chair Office, University of Alabama at Birmingham, October 2010 – July 2011

- Program Coordinator II, Neurology Chair Office, Alzheimer's Disease Research Center, University of Alabama at Birmingham, April 2007 – October 2010

- Data Processing Specialist, Department of Pharmacy, University of Alabama at Birmingham Hospital, November 2005 – April 2007

TEACHING EXPERIENCE

- Assistant Professor, Department of Computer Science, Texas A&M University - Commerce, August 2011 – Present

- Guest Lecturer: Course# EE621, fall 2009, Instructor: Dr. Murat M. Tanik, Department of Electrical and Computer Engineering, University of Alabama at Birmingham

- Guest Lecturer: Course# EE601, spring 2010, Instructor: Dr. Thomas C. Jannett, Department of Electrical and Computer Engineering, University of Alabama at Birmingham

- Lecturer in the Department of Computer Science & Engineering, Gogte Institute of Technology, India, September 2001 – June 2003

ACADEMIC AWARDS AND HONORS

International Award

- Awarded the SDPS Leadership Award for 2011 at the annual SDPS Conference, June 12 – 16, 2011, Jeju Island, South Korea.

Regional Award

- Awarded for the best presentation under the Ph.D. category at the ACM Mid-Southeast Conference 2008, Gatlinburg, Tennessee, November, 20-21, 2008.

Institutional Awards and Honors

- Awarded the Outstanding Graduate Student in Electrical and Computer Engineering at the University of Alabama at Birmingham for the academic year 2009 – 2010.
- Awarded the UAB Service Award for excellence in service at the University of Alabama at Birmingham.
- Nominated for the Outstanding Graduate Engineering Student Award at the University of Alabama at Birmingham for the academic year 2009 – 2010.
- Nominated for the University of Alabama at Birmingham President's Diversity Award 2010 under the category of Professional Student involved in diverse activities at UAB.
- Award winning Internet Banking System (final year undergraduate project), Manipal Institute of Technology, India, Graduating Year: 2001.

SERVICES

- *Reviewer* for *ACM Computing Reviews*, ISSN 1530-6586.
- *Chair,* Registration Committee, SDPS 2011 Conference, June 12-16, 2011, Jeju Island, South Korea.
- *Member,* Technical Program Committee (Reviewer) for IEEE Southeast Conference 2011, March 17-20, 2011, Nashville, TN.
- *Member,* Program Support Committee, 15th SDPS Conference, June 6-11, 2010, Dallas, TX.
- *Member,* Technical Program Committee (Reviewer) for IEEE Southeast Conference 2010, March 18-21, 2010, Charlotte, NC.
- *Session Chair*, IEEE Southeast Conference 2009, March 5-8, 2009, Atlanta, GA.
- *Member,* Technical Program Committee (Reviewer) for IEEE Southeast Conference 2009, March 5-8, 2009, Atlanta, GA.
- *Session Chair*, Twelfth Conference SDPS Transdisciplinary Conference on Integrated Systems, Design and Process Science, November 1-5, 2009, Montgomery, AL.

PRESENTATIONS

- "Bridging the Semantic Gap in Building Biomedical Information Systems Using Concept Maps," ACM Mid-Southeast Conference 2010, Gatlinburg, Tennessee, November, 11-12, 2010.
- "Building Applications Representing Processes as Concepts," 15th SDPS Conference, Dallas, TX, June 6 – 11, 2010.

- "Representing Processes as Concepts: Towards Reducing Semantic Gap," Twelfth SDPS Transdisciplinary Conference-Workshop on Integrated Systems, Design and Process Science, Montgomery, AL, November, 1-5, 2009.
- "Building Semantic Models Using Concept Maps for Medical Research," Twelfth SDPS Transdisciplinary Conference-Workshop on Integrated Systems, Design and Process Science, Montgomery, AL, November, 1-5, 2009.
- "Abstract Software Design Framework: An Artificial Intelligence-Based System for Software Systems," Twentieth Midwest Artificial Intelligence and Cognitive Science Conference (MAICS 2009), Fort Wayne, Indiana, April 18-19, 2009.
- "Abstract Software Design Framework: A Semantic Service Composition Approach," IEEE Southeast Conference, Atlanta, Georgia, March 6-8, 2009.
- "A Transdisciplinary Approach towards Clinical Research Evaluation," ACM Mid-Southeast Conference 2008, Gatlinburg, Tennessee, November, 20-21, 2008.
- "The ADRC Online Web-Based Dataset: A New Dementia Research Resource at UAB," Alzheimer's disease Research Center Lecture Series, UAB, Birmingham, AL, September 9, 2008.
- "A Knowledge Based Engineering Paradigm for Software Component Integration," ACM Mid-Southeast Conference 2006, Gatlinburg, Tennessee, November, 16-17, 2006.
- "Software Cultivation using Semantic Web Technology, Web Agents, and Knowledge Based Engineering," ACM Mid-Southeast Conference 2005, Gatlinburg, Tennessee, November, 10-11, 2005.
- "Intelligent Design Framework for Optical Backplane Engineering," IEEE Southeast Conference 2005, Fort Lauderdale, Florida, April, 8-10, 2005.

PUBLICATIONS

Dissertation

- **"**A Framework for Semantic Service Composition: Process-as-a-Concept**,"** Department of Electrical and Computer Engineering, University of Alabama at Birmingham, Spring 2010. Adviser: Dr. Murat M. Tanik.

Refereed Journal Papers

- **Varadraj P. Gurupur**, and Murat M. Tanik, A System for Building Clinical Research Applications using Semantic Web-Based Approach, *Journal of Medical Systems,* DOI: 10.1007/s10916-010-9445-8 (Published Online), PMID: 21431599.
- Urcun J. Tanik, Gary Grimes, Charles J. Sherman, and **Varadraj P. Gurupur,** An Intelligent Design Framework Proposal Leveraging Axiomatic Design and the Semantic Web, *Journal of Integrated Design and Process Science,* Volume 9 Nov 1 / 2005, pp. 41-53.
- **Varadraj P. Gurupur**, U. John Tanik, and Murat M. Tanik, Semantic Requirements Sharing in Developing a Gene Linkage Information System, *Decision Support Systems*, Under Review.
- Jerry A. Higgs, **Varadraj P. Gurupur**, and Murat M. Tanik, HScMed: Building Biomedical Information Systems Using Social Computing, *Journal of Medical Systems*, Under Review.

Edited Book

- Biomedical Engineering, Healthcare Systems, Technology and Techniques, Editors: Sang C. Suh, Murat M. Tanik, and **Varadraj P. Gurupur**, *Springer*, 2011, ISBN-13: 978-1461401155, *In press*.

Book Chapters

- **"**Enhancing Medical Research Efficiency Using Concept Maps," **Varadraj P. Gurupur**, Amit S. Kamdi, Tolga Tuncer, Murat M. Tanik, and Murat N. Tanju, Editor: Hamid R. Arabnia , Advances in Experimental Medicine and Biology, *Springer,* 2011, Volume 696, Part 7, 581-588, DOI: 10.1007/978-1-4419-7046-6_59 (15% acceptance rate), PMID: 20703749.
- "The Role of Social Computing in Health Services Support," Jerry A. Higgs, **Varadraj P. Gurupur**, and Murat M. Tanik, Editors: Sang C. Suh, Murat M. Tanik, and Varadraj P. Gurupur, Biomedical Engineering, Healthcare Systems, Technology and Techniques, *Springer*, 2011, ISBN-13: 978-1461401155, *In press*.

Refereed Conference Papers

- **Varadraj P. Gurupur**, Lee G. Moradi, and U. John Tanik, "Information Architecture of a Clinical Decision Support System for NASA Life Support Project Advancing STEM," *Proceedings of SDPS 2011 Conference*, Jeju Island, Korea, June 12 – 16, 2011.
- David E. Robbins, **Varadraj P. Gurupur**, and U. John Tanik, "Information Architecture of a Clinical Decision Support System," *Proceedings of the IEEE Southeast Conference 2011, pp. 374 -378,* Nashville, TN, March 17-20, 2011.
- Jerry A. Higgs, **Varadraj P. Gurupur**, and Murat M. Tanik, "A Transformative Software Development Framework: Reflecting the Paradigm shift in Social Computing," *Proceedings of the IEEE Southeast Conference 2011, pp. 339-344,* Nashville, TN, March 17-20, 2011.
- **Varadraj P. Gurupur**, Murat N. Tanju, Tolga Tuncer, Cristiane C. Gattaz, and Murat M. Tanik, "Building Semantic Models Using Concept Maps for Medical Research," *Proceedings of the Twelfth SDPS Transdisciplinary Conference-Workshop on Integrated Systems, 2009, pp. 244- 249*, Montgomery, AL, November 1-5, 2009.
- **Varadraj P. Gurupur**, and Rajani S. Sadasivam, "Representing Processes as Concepts: Towards Reducing Semantic Gap," *Proceedings of the Twelfth SDPS Transdisciplinary Conference-Workshop on Integrated Systems, Design and Process Science, pp. 173- 180,* Montgomery, AL, November 1-5, 2009.
- **Varadraj Gurupur**, U. John Tanik, and Murat M. Tanik, "Abstract Software Design Framework: An Artificial Intelligence-Based System for Software Systems," *Proceedings of the Twentieth Midwest Artificial Intelligence and Cognitive Science Conference (MAICS 2009), pp. 20 – 25*, Fort Wayne, IN, April 18-19, 2009
- **Varadraj Gurupur**, and Murat M. Tanik, "Abstract Software Design Framework: A Semantic Service Composition Approach," *Proceedings of the IEEE Southeast Conference 2009, pp. 295-300,* Atlanta, GA, March 5-8, 2009.
- **Varadraj Gurupur**, and Urcun J. Tanik, "A Framework for Software Design Automation and Integration Utilizing the Semantic Web," *Proceedings of IDPT Conference in Taiwan, pp. 450-457*, Taichung, Taiwan, June 1-6, 2008.
- Damodar Prabhu, **Varadraj Gurupur** and Urcun J. Tanik, "Leveraging Web Services for Software Cultivation using Artificial Intelligence Design Framework," *Proceedings of IDPT*

2006 , pp. 483-489, San Diego, CA, June 25-30, 2006.
- Urcun J. Tanik, Gary J. Grimes, Charles J. Sherman, and **Varadraj Gurupur**, "An Intelligent Design Framework Proposal Leveraging Axiomatic Design and the Semantic Web," *Proceedings of IDPT Conference in China, pp. 41-53*, Beijing, China, June 12-16, 2005.

Poster

- **Varadraj Gurupur** and Urcun J. Tanik, "Software Cultivation using Artificial Intelligence Design Framework," *Proceedings of ACM Southeast conference 2006, pp. 786-787*, Melbourne, FL, March 10-12, 2006.

Published Abstracts

- **Varadraj Gurupur**, Bridging the Semantic Gap in Building Biomedical Information Systems Using Concept Maps, ACM Mid-Southeast Conference 2010, Gatlinburg, Tennessee, November, 11-12, 2010.
- **Varadraj Gurupur**, A Transdisciplinary Approach towards Clinical Research Evaluation, ACM Mid-Southeast Conference 2008, Gatlinburg, Tennessee, November, 20-21, 2008.
- **Varadraj Gurupur**, A Knowledge Based Engineering Paradigm for Software Component Integration, ACM Mid-Southeast Conference 2006, Gatlinburg, Tennessee, November, 16-17, 2006.
- **Varadraj Gurupur**, Software Cultivation using Semantic Web Technology, Web Agents, and Knowledge Based Engineering, ACM Mid-Southeast Conference 2005, Gatlinburg, Tennessee, November, 10-11, 2005.

Published Reviews with *ACM Computing Reviews*

- Emergent Web intelligence : Advanced Semantic Technologies, Badr Y., Chbeir R., Abraham A., Hassanien A., Springer Publishing Company, Incorporated, New York, NY, 2010. 544 pp. Type: Book, *ACM Computing Reviews*, January 20, 2011, Published Online.
- Semantic Web information management : a model-based perspective Virgilio R., Giunchiglia F., Tanca L., Springer Publishing Company, Incorporated, New York, NY, 2009. 549 pp. Type: Book, *ACM Computing Reviews*, July 29, 2010, Published Online.
- The impact of cognitive machines on complex decisions and organizational change Nobre F., Tobias A., Walker D. AI & Society 24 (4): 365-381, 2009. Type: Article, *ACM Computing Reviews*, June 23, 2010, Published Online.
- A distributed, service-based framework for knowledge applications with multimedia Dupplaw D., Dasmahapatra S., Hu B., Lewis P., Shadbolt N. ACM Transactions on Information Systems 27 (4): 1-29, 2009. Type: Article, *ACM Computing Reviews*, May 21 2010, Published Online.
- Essential Facebook development: build successful applications for the Facebook platform, Maver J., Popp C., Addison-Wesley Professional, Upper Saddle River, NJ, 2010. 480 pp. Type: Book, *ACM Computing Reviews*, March 25 2010, Published Online.
- Artificial life models in software (2nd ed.), Komosinski M., Adamatzky A., Springer Publishing Company, Incorporated, 2009. 442 pp. Type: Book, *ACM Computing Reviews*, February 26, 2010, Published Online.

- Beginning iPhone development: Exploring the iPhone SDK
  Mark D., LaMarche J., Apress, Berkeley, CA, 2009. 536 pp. Type: Book, *ACM Computing Reviews*, January 25 2009, Published Online.
- Advances in Web semantics I: ontologies, Web services and applied semantic Web, Dillon T. (ed), Chang E. (ed), Meersman R. (ed), Sycara K. (ed) Springer-Verlag, Berlin, Heidelberg, 2009. Type: Divisible Book, *ACM Computing Reviews*, November 10 2009, Published Online.
- Pervasive healthcare computing: EMR/EHR, wireless and health monitoring Varshney U., Springer Publishing Company, Incorporated, 2009. 288 pp. Type: Book, *ACM Computing Reviews*, October 8 2009, Published Online.
- Implementing automated software testing: how to save time and lower costs while raising quality, Dustin E., Garrett T., Gauf B., Addison-Wesley Professional, 2009. 368 pp. Type: Book, *ACM Computing Reviews*, September 8 2009, Published Online.
- Disability, age, and informational privacy attitudes in quality of life technology applications: results from a national Web survey, Beach S., Schulz R., Downs J., Matthews J., Barron B., Seelman K. ACM Transactions on Accessible Computing (TACCESS) 2: (1): 1-21, 2009. Type: Article, *ACM Computing Reviews*, September 3 2009, Published Online.
- Learning in communities: interdisciplinary perspectives on human centered information technology, Carroll J. (ed), Springer Publishing Company, Incorporated, 2009. 264 pp. Type: Book, *ACM Computing Reviews*, September 2 2009, Published Online.
- Using social data as context for making recommendations: an ontology based approach Noor S., Martinez K. Context, information and ontologies (Proceedings of the 1st Workshop on Context, Information and Ontologies, Heraklion, Greece, June 1, 2009) 1-8. 2009. Type: Proceedings, *ACM Computing Reviews*, July 27 2009, Published Online.
- Pairwise ANFIS approach to determining the disorder degree of obstructive sleep apnea syndrome, Polat K., Yosunkaya S., Güne S. Journal of Medical Systems 32: (5): 379-387, 2008. Type: Article, *ACM Computing Reviews*, July 15 2009, Published Online.

COMPUTER SKILLS

- Operating Systems: Windows 95, 98, ME, XP, 2000, Linux and Solaris.
- Languages: C, Java, JSP, HTML and XML.
- Tools and frameworks: GME, AspectJ, AspectC++, Jena 2, CMAP Tools, and Telelogic TAU.
- Databases: MS Access and Oracle7.x.

OTHER ACTIVITIES

- *President*, Society for Entrepreneurship in Business and Engineering (Student's Chapter) between 2007-2009.
- *Member,* Institute of Electrical and Electronics Engineers (IEEE) national chapter, 2008-present.
- *Member,* Program Support Committee, Society for Design Process Science (SDPS) 2010 conference.
- *Member*, SDPS, 2008-present.
- *Member,* SDPS transition committee, 2008-present.
- Nominated as an executive member of Indian Society for Technical Education (ISTE) Students' Chapter for the year 2000 – 2001.
- *Participant*, Workshop, "How to Achieve Transdisciplinarity in Software Engineering

Education," November 3, 2009, AUM, Montgomery, AL.
- *Participant,* Workshop, "Design and Process Methodologies for Complex Social Systems," November 3, 2009, AUM, Montgomery, AL.
- *Participant,* Workshop, "On Integration: Software as a Product of Transdiscipline," November 4, 2009, AUM, Montgomery, AL.
- *Participant,* Workshop, "The Significance of Informatics in the 21st Century," November 4, 2009, AUM, Montgomery, AL.

Name : Sandra C. Huerter
ID# : 101-47-673
Year Appointed : 1981
Department: Computer Science and Information Systems

Academic Degrees

East Texas State University M.S. in Computer Science, 1980
Kansas State University B.S. in Mathematics, 1970

Professional Experience

Texas A&M University - Commerce
Instructor of Computer Science, Sep 1981 to present

East Texas State University
Ad Interim Instructor of Computer Science, Jan 1981 to Aug 1981

East Texas State University
Assistant Instructor of Computer Science, Jan 1980 to Dec 1980

AT&T Long Lines Division, Kansas City, Missouri
Programmer (COBOL, Assembly), Jun 1970 to Dec 1971

Faculty and Administrative Load

Spring 2010	CSCI 126.01W	Microcomputer Applications (online)
	CSCI 126.002	Microcomputer Applications
	CSCI 152.001	Programming Fundamentals II
	CSCI 270.001	Data Structures
	CSCI 405.001	Internship

Fall 2009	CSCI 151.001	Programming Fundamentals I
	CSCI 151.002	Programming Fundamentals I
	CSCI 152.001	Programming Fundamentals II
	CSCI 270.001	Data Structures
	CSCI 405.001	Internship

Spring 2009	CSCI 151.003	Programming Fundamentals I
	CSCI 152.001	Programming Fundamentals II
	CSCI 152.002	Programming Fundamentals II
	CSCI 270.001	Data Structures

Fall 2008	CSCI 151.001	Programming Fundamentals I
	CSCI 151.002	Programming Fundamentals I
	CSCI 152.001	Programming Fundamentals II
	CSCI 270.001	Data Structures

| Spring 2008 | CSCI 151.003 | Programming Fundamentals I |
| | CSCI 152.001 | Programming Fundamentals II |

CSCI 152.002 Programming Fundamentals II
CSCI 270.001 Data Structures

Fall 2007   CSCI 151.001 Programming Fundamentals I
CSCI 151.002 Programming Fundamentals I
CSCI 152.001 Programming Fundamentals II
CSCI 270.001 Data Structures

Service Activities

University:

- Serving as a member of the Mayo Scholarship Selection Committee for approximately 17 years.

- Serving as a member of the University Discipline Committee for approximately 11 years.

- Serving as a member of the departmental Tenure Evaluation Committee evaluating the performance of faculty in the pre-tenure probationary process.

- Served as Manager of the Degree Audit component of the Student Information System from pre-implementation of the system to Fall 2006.

  o Served as head of the implementation team and was primarily responsible for implementing all undergraduate programs.

  o Implemented doctoral and master's programs for the degree audit. Created training materials, conducted training workshops for doctoral advisors, and trained Graduate School personnel to handle exceptions.

  o Worked with the offices of the Registrar, Educator Certification, Transfer Admissions, Testing, Graduate School, and individual academic departments to upgrade and maintain the degree audit system database.

  o Worked with SCT programmers to complete upgrades to the degree audit program and to resolve errors and conflicts in the program code. Participated in a list with other schools using the same software to help with identifying and troubleshooting problems.

  o Worked with Web Services to create web pages containing degree audit information. Any student or advisor will now be able to access via the Internet a file detailing the audit requirements for any major, second major, minor, teaching field, or program add-on. A student can get a list of all possible majors, all possible minors, second majors, and teaching fields when exploring his/her choices.

  o Implemented the new catalog for the degree audit each summer, creating new programs and modifying existing programs according to the catalog changes submitted. Notified each department of any course renumberings or deletion of courses required by their programs to keep them advised of changes made by other departments. Aided in keeping the undergraduate catalog current by notifying departments of any discrepancies in their catalog copy.

- o Wrote a 44-page manual for faculty advisors on using the degree audit. This manual was updated every semester as needed.

- o Created course materials and documentation and trained all faculty advisors and staff on the use of the degree audit. Training sessions are held every semester for new faculty and staff.

- o Trained representatives from each college to code exceptions for student degree plans using the degree audit.

- Researched and developed a document detailing the university's electronic network capability. This document provided instruction for faculty, staff, and students in all departments on using electronic mail.

- Researched and created documentation for mainframe and personal computer applications critical to students and faculty in Computer Science courses and used by students and faculty in other departments as well.

- Developed and conducted electronic mail workshops for Faculty Development Committee, 1993

Departmental:

- Hired and supervised undergraduate student tutors working to help students in lower-level undergraduate programming courses

- Served as a member of :   Undergraduate Curriculum Committee
                            Master Teacher Committee
                            Computer Science Certification Committee
                            Computer Science Seminar Committee
                            Admission Standards Committee
                            Student Evaluation Committee

- Served as undergraduate advisor, writing degree plans, advising incoming freshman and transfer students, disseminating information regarding our programs to prospective students, counseling students already in the program.

- Helped to create new curricula for Computer Science and for Computer Information Systems programs as well as a new teaching program leading to secondary certification in Computer Science.

- Helped to prepare documentation for an ABET accreditation visit.

- Created and maintained student handouts detailing all degree options offered by the department and approved courses for technical electives and University Studies. These documents are used as informational brochures for prospective students, by faculty in advising students, by students in tracking their degree progress, and by the Academic Advisement office to provide better information to potential Computer Science or Information Systems majors.

- Reviewed the undergraduate curriculum each spring and often prepared the documentation for changes to the undergraduate catalog to be submitted to the Coordinating Board.

- Served as a member of search committees (Computer Science 1992 and 1994, 1998, 1999, 2000, 2001, 2007, 2008; Math 1992 and 1993).

Community:
Served as Contest Director for the regional (and sometimes also district) Computer Science contests (both written exam and programming component) from approximately 1995 to present.

Professional Association Memberships

Association for Computing Machinery
Computer Society of the IEEE
Consortium for Computing Sciences in Colleges

Professional Assignments, Activities

Received a series of part-time appointments (25 - 75%) from 1995 to 2006 to work for the Vice-President for Academic Affairs on the Degree Audit component of the Student Information System. Headed a team to develop the encoding for degree programs in all departments of the university.   Primarily responsible for implementation of the Degree Audit. Served as Manager of the system until the switch-over to the Banner SIS in 2006.

Produced editorial reviews of Computer Science textbooks and prepared marketing reviews for MacMillan Publishing Company and Holt, Rinehart and Winston.

Publications

In-house documentation written for use by university students, faculty, and staff:
- Degree Audit Manual, 1998-2004
- Tutorial Supplement for the Ada Language, 1987-2004
- Tutorial Supplement for the COBOL Language, 1987-2004
- Using Object Ada, 2000-2004
- Using Fujitsu COBOL 3.0, 1998-2004
- Using Gnat Ada, 1997-2004
- UNIX COBOL User's Guide, 1995
- UNIX C/C++ User's Guide, 1995
- Beginner's Guide to Electronic Mail at ETSU, 1994
- User's Guide to Turbo Pascal, 1992
- Tutorial Supplement for the C++ Language, 1992-2001
- A User's Guide to Electronic Mail at ETSU, 1991
- VM/CMS User's Guide, 1987-2000
- VS COBOL II (and Debugger) User's Guide, 1987-1991
- ETSU VAX/VMS User's Guide, 1991
- VM Ada User's Guide, 1991
- Using Quick C in the Library Microcomputer Lab, 1991
- Using Turbo Pascal in the Library Microcomputer Lab, 1991
- MicroSoft Quick C User's Guide, 1989
- Tutorial Supplement for the C Language, 1988
- VAX Ada User's Guide, 1988

Research

- Developed new courses:
    - CSci 152 Computer Programming II
    - CSci 321 Survey of Algorithmic Languages
    - CSci 523 Computer Languages.
- Devised significant revisions to at least six existing courses.
- Researched methods for effectively using new features and for solving problems in the Degree Audit system.
- Researched and created documentation for mainframe and personal computer applications critical to students and faculty in Computer Science courses and used by students and faculty in other departments as well.

Honors and Awards Received

- 'Best Service to the College' Award presented by the Dean of Arts & Sciences, 2000
- 1989-90 TACT Teaching Excellence Award
- Nominated for the 1990 Distinguished Faculty Award

JINOH KIM

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Email: `Jinoh.Kim@tamuc.edu`
Web: `http://faculty.tamuc.edu/jkim/`

EDUCATION

University of Minnesota, Twin Cities, Minnesota   2005–2010

Doctorate in Computer Science (Ph.D.)
DISSERTATION: *Data Dissemination for Distributed Computing*
Advisors: Dr. Jon B. Weissman and Dr. Abhishek Chandra

Inha University, Incheon, South Korea   1991–1994

Master of Science in Computer Science (M.S.)
THESIS: *Routing Algorithms for Multipoint Connection in Hierarchically Structured Networks*
Advisor: Dr. Kyun-Ha Lee

Inha University, Incheon, South Korea   1985–1991

Bachelor of Engineering in Computer Science and Engineering (2-year military service in-between)

EMPLOYMENT

Assistant Professor, Texas A&M University–Commerce   August 2012–present

Assistant Professor, Lock Haven University of Pennsylvania   October 2011–July 2012

Postdoctoral Researcher, Lawrence Berkeley National Lab   March 2010–August 2011

Research Counselor, Beckman Coulter Inc.   August 2009–February 2010

Teaching Assistant, University of Minnesota   September 2008–May 2009

Research Assistant, University of Minnesota   June 2006–August 2008

Senior Researcher, ETRI, Korea   July 2001–August 2005

Senior Researcher, PaxComm Inc., Korea   January 1999–June 2001

Researcher, ETRI, Korea   January 1991–January 1999

RESEARCH INTERESTS

- Distributed Systems; Computer Networks and Security
- Big Data Computing; Cloud Computing; High-performance Computing
- Energy-proportional Computing; Energy-efficient Systems

TEACHING EXPERIENCE

Assistant Professor: Computer Science Department, Lock Haven University of Pennsylvania, 2011–2012.

- **Courses**: Introduction to Computers, Advanced Microcomputer Applications

Teaching Assistant: Department of Computer Science & Engineering, University of Minnesota, 2008–2009.

- **Courses**: Introduction to Computer Networks

RESEARCH EXPERIENCE

Postdoctoral Research: Scientific Data Management Group, Lawrence Berkeley National Lab, March 2010–August 2011.

- Developing mechanisms for *energy proportionality* for datacenter storage systems and MapReduce clusters
- Algorithm design for parallel bitmap index (or *FastBit*) generation for high-performance, data-intensive scientific computing

Doctoral Research: Department of Computer Science & Engineering, University of Minnesota, August 2005–February 2010.

- Developing a framework for passive network performance estimation for data-intensive applications
- Empirical study of node characterization to estimate data access capability for each node based on past downloading history
- Algorithm design for efficient data dissemination for global sharing of measurements with limited communication overheads
- Performance modeling for collective data access for bag-of-task applications with a quantitative group performance metric (communication makespan)

Research Counselor: Beckman Coulter Inc., August 2009–February 2010.

- Design and performance analysis of scheduling algorithms for time-critical clinical automation systems
- Developing a simulator for both qualitative and qualitative comparisons for scheduling algorithms

Research Assistant: University of Minnesota Medical School, 2007–2008.

- *Project: ePCRN (electronic Primary Care Research Network)*
- Middleware design for a secure, distributed data service over OGSA-DAI/Globus standard toolkits
- Design and implementation of a directory service based on jUDDI

Research Assistant: Department of Computer Science & Engineering, University of Minnesota, 2006.

- *Project: MINDS (Minnesota Intrusion Detection System)*

- Performance evaluation for parallel execution of intrusion detection and analysis software in Grid computing environments
- Developing a framework for distributed retrieval and subscription of intrusion detection analysis data

Senior Researcher: ETRI, Korea, 2001–2005.

- Correlation analysis of intrusion alerts and classification of network attacks based on alert correlations for anomaly detection
- Design of policy-based security management framework based on role-based policy control model
- Division task force work for designing high-level pictures of next-generation security architecture for nation-wide network protection and monitoring

Senior Researcher: PaxComm Inc., Korea, 1999-2001.

- High-level design of ATM switching systems for system and network management
- Collaborating with the ADC Telecommunications for ATM switching system development (Visiting Engineer)

Researcher: ETRI, Korea, 1991–1999.

- Developing system management functions on embedded Platforms (**Award**: *ETRI Prize Winner of Outstanding Research Staff*, 1997)
- Inter-operability study of IP accommodations in ATM networks (IP over ATM, Next Hop Resolution Protocol, MPLS (Multi-Protocol Label Switching))
- Design and implementation of standard network management functions for ATM systems (SNMP MIBs)
- Design and implementation of standard ATM protocols (ATM UNI signalling, P-NNI, ILMI, etc)

AWARDS AND HONORS

- Travel grant for ICDCS (*IEEE International Conference on Distributed Computing Systems*), National Science Foundation, 2008.

- Travel grant for ICDCS (*IEEE International Conference on Distributed Computing Systems*), Graduate and Professional Student Assembly, University of Minnesota, 2008.

- Prize Winner of Outstanding Research Staff, ETRI, Korea, 1997.

PROFESSIONAL ACTIVITIES AND SERVICES

Member of ACM and IEEE.

Reviewer for:

- IEEE International Conference on Networking, Architecture, and Storage (NAS 2011)
- Scientific and Statistical Database Management Conference (SSDBM 2011)
- IEEE/ACM International Symposium on Cluster Computing and the Grid (CCGrid 2007,2009,2010)

- International Conference on Parallel Processing (ICPP 2009)
- IEEE International Workshop on Quality of Service (IWQoS 2009)
- IEEE/ACM International Conference on Grid Computing (Grid 2008)
- ACM International Symposium on High-Performance Distributed Computing (HPDC 2008)
- Journal of parallel and Distributed Computing (JPDC 2007,2008,2009,2010,2012)
- IEEE Transactions on Computers (ToC 2010,2011)
- Future Generation of Computer Systems (FGCS 2010)
- Cluster Computing (CC 2009,2010)
- Journal of Systems and Software (JSS 2007)
- Hossein Bidgoli, The Handbook of Computer Networks, Wiley Publishing Inc., 2007

PUBLICATIONS

Book Chapters:

- Jon Weissman and **Jinoh Kim**, "Network Awareness for Volunteer Networks," in *Desktop Grid Computing* (Editor: Christophe Cérin and Gilles Fedak), Chapman & Hall/CRC Numerical Analysis and Scientific Computing Series, ISBN-10: 1439862141, ISBN-13: 978-1439862148, June 2012.

- Jerry Chou, **Jinoh Kim**, and Doron Rotem, "Energy Saving Techniques for Disk Storage Systems," in *Handbook of Energy-Aware and Green Computing* (Editor: Sanjay Ranka and Ishfaq Ahmad), Chapman & Hall/CRC Computer & Information Science Series, ISBN-10: 1466501162, ISBN-13: 978-1466501164, January 2012.

Journal Articles:

- **Jinoh Kim** and Doron Rotem, "FREP: Energy Proportionality for Disk Storage Using Replication," *Journal of Parallel and Distributed Computing* (**JPDC**), Vol.72, Issue 8, pp.960–974, August 2012.

- **Jinoh Kim**, Abhishek Chandra, and Jon B. Weissman, "Passive Network Performance Estimation for Large-scale, Data-intensive Computing," *IEEE Transactions on Parallel and Distributed Systems* (**TPDS**), Vol.22, Issue 8, pp.1365–1373, August 2011.

- **Jinoh Kim**, "Data Parallelism for Large-scale Distributed Computing," *International Journal on Internet and Distributed Computing Systems* (**IJIDCS**), Vol.1, Issue 1, pp.1–11, June 2011.

- **Jinoh Kim**, Abhishek Chandra, and Jon B. Weissman, "Using Data Accessibility for Resource Selection in Large-scale Distributed Systems," *IEEE Transactions on Parallel and Distributed Systems* (**TPDS**), Vol.20, No.6, pp.788–801, June 2009.

Selected Conference Papers:

- **Jinoh Kim**, Hasan Abbasi, Luis Chacon, Ciprian Docan, Scott Klasky, Qing Liu, Norbert Podhorszki, Arie Shoshani, and Kesheng Wu, "Parallel In Situ Indexing for Data-intensive Computing," in *Proceedings of the IEEE Symposium on Large-scale Data Analysis and Visualization* (**LDAV**), October 2011.

- **Jinoh Kim**, Jerry Chou, and Doron Rotem, "Energy Proportionality and Performance in Data Parallel Computing Clusters," in *Proceedings of the 23rd Scientific and Statistical Database Management Conference* (**SSDBM**), July 2011.

- Jerry Chou, **Jinoh Kim**, and Doron Rotem, "Exploiting Replication for Energy-aware Scheduling in Disk Storage Systems," in *Proceedings of the 31st International Conference Distributed Computing Systems* (**ICDCS**), June 2011.

- **Jinoh Kim** and Doron Rotem, "Energy Proportionality for Disk Storage Using Replication," in *Proceedings of 14th International Conference on Extending Database Technology* (**EDBT**), March 2011.

- **Jinoh Kim** and Doron Rotem, "Using Replication for Energy Conservation in RAID Systems," *in Proceedings of the 2010 International Conference on Parallel and Distributed Processing Techniques and Applications* (**PDPTA**), July 2010.

- **Jinoh Kim**, Abhishek Chandra, and Jon B. Weissman, "Accessibility-based Resource Selection in Loosely-coupled Distributed Systems," in *Proceedings of the 28th IEEE International Conference on Distributed Computing Systems* (**ICDCS**), June 2008.

- **Jinoh Kim**, Abhishek Chandra, and Jon B. Weissman, "Exploiting Heterogeneity for Collective Data Downloading in Volunteer-based Networks," in *Proceedings of the 7th IEEE International Symposium on Cluster Computing and the Grid* (**CCGrid**), May 2007.

- Krishnaveni Budati, **Jinoh Kim**, Abhishek Chandra. and Jon B. Weissman, "NGS: Service Adaptation in Open Grid Platforms," in *Proceedings of the IPDPS NSF Next Generation Software Workshop* (**IPDPS/NGS**), March 2007.

PATENTS

- **Jinoh Kim**, et al., "Apparatus and method of detecting network attack situation," Patent No. 7596810, 2009, USA.

- Beomhwan Chang, Soohyung Lee, **Jinoh Kim**, et al., "Apparatus and method for detecting and visualizing anomalies in network traffic," Patent No. 7539147, 2009, USA.

- **Jinoh Kim**, et al., "Apparatus for detecting attacks toward network and method thereof," Patent No. 100628317, 2006, Korea.

- **Jinoh Kim**, et al., "Method for analyzing network attack situation," Patent No. 100628296, 2006, Korea.

- **Jinoh Kim**, et al., "Cache structure of sliding window," Patent No. 100479328, 2005, Korea.

- **Jinoh Kim**, et al., "Method and recorded media for security grade to measure the network security condition," Patent No. 100466214, 2005, Korea.

- **Jinoh Kim**, et al., "Method and recorded media for attack correlation analysis," Patent No. 100432421, 2004, Korea.

- **Jinoh Kim**, et al., "Global Address Resolution Scheme for IPoA," Patent No. 100261291, 2000, Korea.

- **Jinoh Kim**, et al., "Apparatus for ATM/IP routing servers," Patent No. 100233256, 1999, Korea.

- **Jinoh Kim**, et al., "Method for bandwidth control and call admission control in a ring-based ATM access network," Patent No. 100146545 , 1998, Korea.

- **Jinoh Kim**, et al., "Call/connection admission control method by segment of an ATM access network with dual rings," Patent No. 1001159930000, 1997, Korea.

REFERENCES

- Jon B. Weissman
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  University of Minnesota
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  `jon@cs.umn.edu`

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  Associate Professor
  University of Minnesota
  (612) 626-1283
  `chandra@cs.umn.edu`

- Doron Rotem
  Senior Scientist
  Lawrence Berkeley National Lab
  (510) 486-7641
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- Arie Shoshani
  Head, Scientific Data Management Group
  Lawrence Berkeley National Lab
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Last updated: October 17, 2012

MUTLU METE, Ph.D.

Assistant Professor
Department of Computer Science and Information System
Texas A&M University - Commerce

P.O. Box 3011   Phone: (903) 886-5497
Commerce, TX 75429 919   Fax: (903) 886-5404
E-mail: Mutlu_Mete@tamu-commerce.edu

Education

2003-2008, University of Arkansas at Little Rock, Little Rock, AR, USA

Doctor of Philosophy, Applied Science, emphasizing Applied Computing

Research Interests

- Data Mining and Knowledge Discovery

  - Clustering of multidimensional data

  - Feature engineering

  - Text mining

- Computer Vision

  - Quantification of tumor regions

  - Vessel detection in histopathological images

  - Unsupervised image normalization

  - Hierarchical design of subimages

  - Color models

- Bioinformatics

  - Statistical analysis of microarray data

  - Protein-Protein interaction networks

  - Color models for medical images

- Complex Networks

  - Clustering of meaning groups

  - System level analysis

  - Centrality ranking of objects

- Grid Computing

- Parallization of sequence search algorithms
- Clustering of virtual slides
- Work load prediction
- Distributed GPUs

Research Experiences

Assistant Professor, 8/2009- present

      Computer Science Department, Texas A&M University - Commerce

Research Associate, 7/2008 – 8/2009

      Information Technology, University of Arkansas for Medical Sciences

Teaching Experiences

Graduate Courses, Texas A&M University – Commerce

      Database Systems, CSCI 526

      Neural Networks, CSCI 560

      Fundamentals of Programming, CSCI 515

Guest Instructor, UALR/UAMS Joint Graduate Program in Bioinformatics, Spring 2009

      Introduction to Bioinformatics Systems, BINF 2345

Publications

Book Chapters

1. Xiaowei Xu, **Mutlu Mete**, Nurcan Yuruk, Daniel Berleant, Knowledge Discovery in Textual Databases: A Concept-Association Mining Approach, Data Engineering: Mining, Information, and Intelligence by Springer, 2009

2. **Mutlu Mete**, Fusheng Tang, Xiaowei Xu, Nurcan Yuruk, Finding Functional Modules, to be published in Systems Biology of Signaling Networks by Springer

Journal Publications

3. **Mutlu Mete**, Nurcan Yuruk, Xiaowei Xu, Density Based Clustering Algorithm for Large Scale Networks, in submission, invited to **IEEE Transactions on Knowledge and Data Engineering**

4. Sinan Kockara, **Mutlu Mete**, Vincent Yip, Brendan Lee, and Kemal Aydin, A soft kinetic data structure for lesion border detection, **Oxford Bioinformatics** 2010, vol. 26: pages i21-i28, 2010. (Impact factor 4.328)

5. Sinan Kockara, **Mutlu Mete**, Bernard Chen, Kemal Aydin, Analysis of Density Based and

Fuzzy C-Means Clustering Methods on Lesion Border Extraction in Dermoscopy Images, **BMC Bioinformatics** 2010. (Impact factor 3.78)

6. **Mutlu Mete**, Nikolay Sirakov, Lesion Detection in Dermoscopy Images with Novel Density-Based and Active Contour Approaches, **BMC Bioinformatics** 2010. (Impact factor 3.78)

7. **Mutlu Mete**, Fusheng Tang, Xiaowei Xu, Nurcan Yuruk, A Structural Approach for Finding Functional Modules from Large Biological Networks, **BMC Bioinformatics** 2008, 9, S19, (Journal Impact Factor: 3.49)

8. **Mutlu Mete**, Xiaowei Xu, CY. Fan, Gal Shafirstein, Automatic Delineation of Malignancy in Histopathological Head and Neck Slides, **BMC Bioinformatics** 2007, 8, S17, (Journal Impact Factor: 3.61)

9. **Mutlu Mete**, Leah Hennings, Horace J. Spencer, Umit Topaloglu, Automatic Identification of Angiogenesis in Double Stained Images of Liver Tissue, **BMC Bioinformatics 2009**, 11, S13 (Journal Impact Factor: 3.78)

Conference Publications (Peer Reviewed)

10. Bernard Chen, **Mutlu Mete**, and Sinan Kockara, "Parameter-free Multi-level Fuzzy C-means Clustering For Unsupervised Structure Detection in Histological Images", SDPS 2010 Transformative Systems Conference, Dallas, USA.

11. Vincent Yip, **Mutlu Mete**, Umit Topaloglu, Sinan Kockara, Concept Discovery for Pathology Reports using an N-gram Model, AMIA Summit on Translational Bioinformatics, 2010

12. **Mutlu Mete**, Umit Topaloglu, Statistical Comparison of Color Model Classifier Pairs in Hematoxylin and Eosin Stained Histological Images, IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology, CIBCB 2009

13. Sinan Kockara, Vincent Yip, **Mutlu Mete**, Balls Hierarchy: Image Segmentation by graph spanner, The Sixth IEEE International Symposium on Biomedical Imaging, ISBI'09

14. Xiaowei Xu, **Mutlu Mete**, Nurcan Yuruk, Thomas A. J. Schweiger. Finding Clusters of Mixed Shapes in Large Networks, International Conference on Advanced in Social Network Analysis and Data Mining **(ASONAM'09)**

15. **Mutlu Mete**, Xiaowei Xu, Chun-Yang Fan, and Gal Shafirstein, A Machine Learning Approach for Identification of Head and Neck Squamous Cell Carcinoma, IEEE Bioinformatics and Biomedicine **(BIBM 2007)**, November 2-4, 2007, Silicon Valley, California

16. Nurcan Yuruk, **Mutlu Mete**, Xiaowei Xu, and Thomas Schweiger, A Divisive Hierarchical Structural Clustering Algorithm for Networks, International Workshop on Mining Graphs and Complex Structures, Seventh IEEE Int. Conf. of Data Mining **(ICDM 2007)**, October 28-31,

2007, Omaha, Nebraska

17. **Mutlu Mete**, Xiaowei Xu, Chun-Yang Fan, Gal Shafirstein, Delineation of Head and Neck Malignancy in Histological Slides, Fourth Annual Conference of the MidSouth Computational Biology and Bioinformatics Society, February 1-3, 2007 (**MCBIOS 2007**), New Orleans, Louisiana

18. **Mutlu Mete**, Xiaowei Xu, Chun-Yang Fan, Gal Shafirstein, Head and Neck Cancer Detection in Histopathological Slide, International Workshop on Data Mining in Bioinformatics, Sixth IEEE International Conference of Data Mining (**ICDM 2006**), December 18-22, 2006, Hong Kong

19. Xiaowei Xu, **Mutlu Mete**, Nurcan Yuruk, Mining Concept Associations for Knowledge Discovery from Large Textual Databases, 20th Annual ACM Symposium on Applied Computing (**ACM SAC 2005**), March 13-17, 2005, Santa Fe, New Mexico

20. Nurcan Yuruk, **Mutlu Mete**, Xiaowei Xu, Thomas A.J. Schweiger, Finding Hierarchical Clusters in Networks, to be published in Acxiom Conference on Applied Research in Information Technology, March 14, 2008, Conway, Arkansas

21. Xiaowei Xu, **Mutlu Mete**, Nurcan Yuruk, Removing Redundancy and Inconsistency in Memory-Based Filtering, Acxiom Conference on Applied Research in Information Technology, February 2005, Conway, Arkansas

Dissertation

22. **Mutlu Mete**, Delineation of Malignant Areas in Histological Images of Head and Neck Cancer, University of Arkansas at Little Rock, August 2008

Invited Talks

- Structural Clustering Algorithms for Complex Networks, Research Seminar Series at Computer Science Department, University of Central Arkansas, November 2008, Conway, Arkansas

- Concept Associations in Large Textual Databases, Acxiom Conference on Applied Research in Information Technology, February 2005, Conway, Arkansas

- Mining Concept Associations for Knowledge Discovery in Medline Corpus, Second Annual Conference of the MidSouth Computational Biology and Bioinformatics Society, October 2004, Little Rock, Arkansas

Patents

- Image Processing Apparatus and Method for Histological Analysis, Gal Shafirstein, Xiaowei

Xu, **Mutlu Mete**, in progress (USPTO Application #: 20080205776)

Awards & Achievements

- Best Poster, 4th MCBIOS Conference, New Orleans, Louisiana
- Graduate Fellowship, 2003-2008
- Alpha Epsilon Lambda Member

Computer Skills

- Languages: Java, C++, Perl, Matlab, Python, Php, CGI, SQL, Pascal, Assembly (MASS, GAS), Unix Shell Scripts
- Tools: Oracle, MySQL, ArrayTrack, Agilent's Feature Extraction, Apple Grid Computing
- Libraries: ImageJ, BioPerl, LibTiff, OpenMPI, Java Advance Imaging
- Devices: Nikon Virtual Slider, Aperio ScanScope
- Trainings: Matlab Image Processing (4 days), Aperio ScanScope (3 hours)

Professional Services

- Reviewer for Evolutionary Bioinformatics, Libertas Academia
- Reviewer for IEEE Transactions on Knowledge and Data Engineering
- Reviewer for IEEE International Conference on Data Mining
- Reviewer for IEEE International Conference on Data Engineering
- Session chair at IEEE Bioinformatics and Biomedicine, November 2-4, 2007, Silicon Valley, California
- Member, Central Arkansas Statistic Association
- Reviewer for Algorithms for Molecular Biology
- Reviewer for Journal of Electronic Imaging
- Reviewer for Journal of Computerized Medical Imaging and graphics
- PC Member in 9th Int. Conf. on Information Technology and Applications in Biomedicine (ITAB 2009)

SHELLEY (SAM) SAFFER, Ph.D.
P.O. Box 3011
Commerce, Texas 75429
903-886-5401

EDUCATION:

1963-1968 B.A.   University of Texas at Austin
1968-1970 M.A.S. Southern Methodist University
1970-1973 Ph.D.   Southern Methodist University

Graduate Major: Computer Science
Graduate Minor: Operations Research

SUMMARY:

Former **Department Head** at two Universities, **tenured Full Professor,** Department of Computer Science, Texas A&M-Commerce. Career objectives include teaching undergraduate and graduate Computer Science courses. Research interests include **Non-Linear Signal Processing, Networking, Computer Graphics, Database Systems, Intelligent Database Systems, Expert Systems, and Artificial Intelligence**. Previous computer science experience in both academic and industrial environments with emphasis on software design and development. Strong background in real-time computing, database management systems, and communications.

TEACHING EXPERIENCE:

Texas A&M-Commerce - **Tenured Full Professor** (1995-present)
                                     Department Head (1995-2007)
Oklahoma City University - **Associate Professor** (1990-1995)
Texas Woman's University - **Associate Professor** (1980-1983)
University of Texas Health Science Center - **Assistant Professor**: Joint Computer Science Program with UT Dallas.

COURSES TAUGHT:

LAN Networking, Programming Languages, Systems Programming, Data Structures, Database Management Systems, Digital Logic Design, Computer Organization and Architecture, Computers Graphics, Software Engineering, Introduction to Artificial Intelligence, C++ Programming, Pascal Programming, Modeling and Simulation, Probability and Statistics, Assembly Language Programming, Nonlinear Signal Processing.

PROFESSIONAL EXPERIENCE:
May 2007 – Present Texas A&M University –Commerce
        Tenured Professor, Department of Computer Science

Jan 1995 – May 2007 Texas A&M University -Commerce
Department Head, Tenured Professor,
        Department of Computer Science and Information Systems.

Jun 1990 - Dec.1995: Oklahoma City University - Oklahoma City, OK.
        Department Chairman, Associate Professor,
        Department of Computer Science.
Responsibilities include graduate and undergraduate degree programs, schedule development and budget planning, development of "off-campus" graduate degree programs to increase enrollment, graduate teaching, graduate student advising, graduate and undergraduate Computer Science curriculum development.

Mar.1986-1989: AMDAHL COMMUNICATIONS DIVISIONS Richardson, TX.
        Senior Software Engineer.
Project manager for the Amdahl 4510 NMU. Responsible for the design and implementation of the Network Management Unit for the 4510 (X.25 network communications switch). Extensive "C" programming, Xenix, X.25. Member of the software development team responsible for the implementation a new "PAD",(Packet Assembler Disassembler) product. Project involved Pascal programming. Work in a special architecture group whose function is to study design and feasibility of new communication products,(T1 multiplexors, ISDN, SNA related products).

June 1985-Mar.1986: UNISYSTEMS INTERNATIONAL - Dallas, Tx.
        Senior Software Engineer
Responsible for the development of Unix and "training classes and training classes in SQL (Structured Query Language) for INFORMIX. Also responsible for Unix technical and sales support, and general support of Informix.

Feb.1984-May 1985: UNITED TECHNOLOGIES BUILDING SYSTEMS DIVISION, Dallas, TX.
        Senior Software Engineer
Work in database management systems applied to a communications switching (UTX-250); extensive "C"programming, Ingres, VAX-11/780.

Sept.1983-Feb.1984: AUTOMATED MANAGEMENT INCORPORATED, Dallas, TX.
        Technical Consultant.
Responsible for design and implementation of various database management applications.

1980-Sept.1983:TEXAS WOMAN'S UNIVERSITY, Denton, TX.
Associate Professor, Department of Math and Computer Science.
Developed Computer Science undergraduate curriculum and proposals for the establishment of an undergraduate and graduate Computer Science degree program. Teaching responsibilities included graduate and undergraduate Computer Science courses. Research in digital signal processing and prediction of ultrasound signals.

Consultant at the University of Texas Health Science Center, Dallas, Texas, where responsibilities included continuing maintenance of a relational database system, the development of data retrieval and reporting programs, statistical analysis programs as well as system hardware evaluation and software development of various small systems. Also responsible for writing and presenting proposals for project funding.

1975-1980: UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER, Dallas, TX.
Assistant Professor
Full member of graduate faculty with responsibilities for teaching, curriculum development, and dissertation supervision. Responsible for implementation of real-time computing software for the PDP-11/45, PDP-12, PDP-8 and DEC LSI-11 systems. Applications included real-time data acquisition and analysis of signals from transducers and electrodes. Other projects included an interactive graphics system for the Tekronix 4000 series, a database management system for EKG data, and a communications network linking various small computers to central host.

Obtained an NIH grant for a relational database management system for cardiovascular research. The system was implemented on a Tandem-16.

1970-1975: UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER, Dallas, Texas
Programmer Analyst.
Responsible for the design and implementation of real-time data acquisition and analysis programs. Designed small information systems using COBOL and FORTRAN.

HARDWARE: DEC PDP-11/45, DEC LSI-11, PDP-8, PDP-12,6800,6502,8086.
OPERATING SYSTEMS: RT-11, RSX-11M, RSTS-E, O/S-8,
DECSYSTEM-10, DECSYSTEM-20, UNIX SYSTEM V, XENIX.

SOCIETIES AND ORGANIZATIONS:
IEEE, IEEE Computer Society
ACM
Co-program Chairman, Dallas Chapter 1975.
Chairman of SIGBIO, Dallas 1974,1975.
Toastmasters International 1980,1981.

PUBLICATIONS: Shelley Irving Saffer, Ph.D.

Saffer,S.I., A stochastic simulation model of normal-abnormal liver function. Ph.D. Dissertation, Southern Methodist University,June, 1973.

Saffer,S.I., Mishelevich,D.J., Central real-time laboratory automation in a medical environment. Proceedings   of the Federation of North Texas Area Universities, Second Annual Computer Science
Conference., pp. 230-245. 1975.

Saffer,S.I., Mishelevich,D.J.: A definition of real-time computing. Comm. ACM (Forum) Vol.#18, No.9, pp.554-555, Sept. 1975.

Saffer,S.I., Mize,C., Bhat,U.N., Szygenda,S.A.: Use of non-linear programming and stochastic modeling in the normal-abnormal evaluation of liver disease. IEEE Tran. Biomed. Engineering. Vol.#3, pp.200-207, May 1976.

Saffer,S.I., Nixon,J.V., Mishelevich,D.J.: A simple method for computer-aided analysis of echocardiograms. American Jour. Cardiology. Vol 38, pp.34-37, July 1976.

Galosy,R., Saffer,S.I., Fox,S.J.: CARDAT, A computer program for acquisition and analysis of cardiovascular data. Behavioral Research Methods and Instrumentation. Vol#8,
pp.309-310, 1976.

Saffer,S.I., Daniel,P.L., Mize,C.E.: The comparison of a four-compartmental and a five-compartmental model of rose bengal transport through the hepatic system. Non-linear Systems and Applications. An International Conference Proceedings. Edited V.Lakshmikantham. pp.657-670. Academic Press, 1977.

Anderson,D.H., Eisenfeld,J., Saffer,S.I., Reisch,J.S., Mize,C.E.: The mathematical analysis for a four-compartment stochastic model of rose bengal transport through the hepatic system. Non-linear

Systems and Applications, Conference Proceedings. Edited V.Lakshmikantham. pp. 353-371. Academic Press, 1977.

Saffer,S.I., Mishelevich,D.J., Fox,S.J., Summerour,V.: NODAS - The Network Oriented Data Acquisition System for the medical environment. Proceeding National Computer Conf.#(NCC). AFIPS Vol#46. pp.295-299, 1977.

Lewis,M. Buja,L.M., Saffer,S.I., Mishelevich,D.J., Stokley,E.M., Lewis,S., Parkey,R., Bonte,F., Willerson,J.A.: Experimental infarct sizing utilizing computer processing and a three-dimensional model. Science. Vol#197, pp.167-169. July 1977.

Poliner,L.R., Buja,L.M., Parkey,R.W., Stokely,E.M., Stone,M.J., Harris,R., Saffer,S.I., Templeton,G.H., Bonte,F.J., Willerson J.T.:Comparison of different noninvasive methods of infarct sizing during experimental myocardial infarction. Journ. Nuc. Med. June 1977.

Mishelevich,D.J., Ward,D.L., Saffer,S.I.: A medical computer science program within a tri-institutional Mathematical Sciences Ph.D. program. Proceedings of the American Society for Information Sciences. Vol 15, pp.229-232, 1978.

Horn,V., Mullins,C.B., Saffer,S.I., Jones,D.C., Freeborn,W.A., Kapp,R.S., Nixon,J.V.: A comparison of mathematical models for estimating right ventricular volumes in animals and man. Clin. Card. Vol 2, pp.341-347, 1979.

Smith,D.B., Gatchel,R.J., Kroman,M., Saffer,S.I.: EEG and automatic responding to verbal, spatial and emotionally arousing tasks. Biol. Psy. Vol 9, pp.189-200. Nov. 1979.

Roan,P.G., Scales,F., Saffer,S.I., Buja,M., Willerson,J.T.: Functional characterization of LV segmental responses during the initial 24 hours and one week following experimental caninemyocardial infarction. Journ. Clin. Investigation. Vol 64,pp.1074-1088. 1979.

Lewis,M.H., Buja,L.M., Parkey,R.W., Mishelevich D.J., Bonte,F.J., Saffer,S.I., Richmond,J.R., Willerson,J.T.; A computer-based scintigraphic method for sizing acute inferior myocardial infarcts. Radiology. Nov, 1980.

Roan,P.G., Buja,L.M., Izquerdo,C., Hashimi,H., Saffer,S.I., Willerson,J.T.: Interrelationships between regional LV functional, coronary blood flow and myocellular necrosis during the initial 24 hours and 1 week after experimental coronary occlusion. Circulation Research. Vol#49, No.1, pp.31-40. July, 1981.

Saffer,S.I., Ward,D.L., Mishelevich,D.J.; Design of a relational database for the study of ischemic heart disease. Proceedings of the Fifth Annual Symposium on Computer Applications in Medical Care. Nov. 1981.

Sang C. Suh and S. I. Saffer, "Intelligent Expert Database System for General Physical Evaluation," Proceedings of the 7th International Conference on Artificial Intelligence and Expert Systems Applications, Nov. 9-10,1995, San Francisco, CA.

Sang C. Suh and S. I. Saffer, "Intelligent Expert Database System for Differential Diagnosis of Ear Diseases", The 7th International Conference on Artificial Intelligence & Expert Systems Applications, October 21-22, 1996, Paris, France.

Wen-Chang Weng, S. I. Saffer, "First Aid Advisor - An Expert System", Proceedings of the 2nd World Conference on Integrated Design and Process Technology, Austin, Texas, Dec. 1-4, 1996.

Saffer S. I. and Sang C. Suh, "Role of Orthogonal Vectoring of Data in the Reasoning of Expert Database Systems," The 9th International Conference on Artificial Intelligence and Expert Systems Applications, p.9-14, October 14-15, 1997, London.

Suh, Sang C., Saffer, S.I., "A Step Toward An Effective Method For Product Search, A User Model and Profile Based Search", Proceedings of the 6th World Conference on Integrated Design Process Technology, Session #16, No. 5, June 23-27, 2002, Pasadena, California.

Suh, Sang C., Saffer, S.I., Kincaid, V.N.,Yu, B., "Web Structure Reorganization for Adaptive Navigation Through Conceptual Clustering", Proceedings of Intelligent Engineering Systems Through Artificial Neural Networks, Vol. 13 , 2003, pp. 807-812.

Sang C. Suh, S. Saffer, D. Li, and J. Gao, "A New Insight Into Prediction Modeling System," Proceedings of The 7th World Conference on Integrated Design and Process Technology, 13 pages, December 3-6, 2003, Austin, Texas, U.S.A.

Sang C. Suh, S. Saffer, V. Kincaid, and B. Yu, "Web Structure Reorganization For Adaptive Navigation Through Conceptual Clustering," Intelligent Engineering Systems Through Artificial Neural Networks, Vol. 13, pp. 807-813, ASME Press, 2003, ISBN 0-7918-0204-3.

Sang C. Suh, S. Saffer, and Dan Li, "A New Insight into Prediction Modeling Systems", Journal of Integrated Design & Process Science, The Society for Design and Process Science & Software Engineering Society, Vol. 8, No. 2, pp. 85-104, June 2004.

Sang C. Suh, and S. I. Saffer, "Generating Meaningful Rules Using Attribute Concept Hierarchy", *Intelligent Engineering Systems Through Artificial Neural Networks* Vol. 16, pp. 406-411, ASME Press, New York, 2006, ISBN 0-7918-2222-0.

Sang C. Suh and S. I. Saffer, "Discovery of Useful Concepts Using the Hierarchy of Attributes and Concepts", Intelligent Engineering Systems Through Artificial Neural Networks Vol. 17, pp. 519-526, ASME Press, New York, 2007, ISBN 0-7920-2222-0.

Sang C. Suh, Sam Saffer, and Naveen Kumar Adla, "Extraction of Meaningful Rules in a Medical Database", Proceedings of The 7th International Conference on Machine Learning and Applications (ICMLA'08),IEEE Systems, Man, and Cybernetics, 7 pages, San Diego, California, December 11-13, 2008.

ABSTRACTS:

Lewis,M., Buja,L.M., Saffer,S.I., Mishelevich,D.J., Stokely,E.M., Parkey,R.W., Bonte,F.J., Willerson,J.T.: Experimental infarct sizing utilizing three-dimensional computer processing reconstruction techniques. Am. J. Cardiol. Vol 39, p.316. 1977.

Nixon,J.V., Saffer,S.I.: Three Dimensional Echoventricolograpgy. Circulation. Vol 58 Supp.II. P.157, 1978.

RECENT FUNDED GRANTS:
Corvus I: Proposal: The Development of a Unified Macro-Net Framework (UMF) and Accompanying Plug-in Analysis Knowledge Modules (PAKMs) Principle Investigators: Sam Saffer, Ph.D.,Derek Harter, Ph.D. Shulan Lu, Co-Investigator: Sang Suh, Ph.D. Funded as the Corvus I Project for $60,000 Jan.2006-May. 2006. ($40,000 of $60,000 was funded for our projects within Corvis I).

Corvus II: A Continuation of the Development of a Unified Macro-Net Framework (UMF) and Accompanying Plug-in Analysis Knowledge Modules (PAKMs) Principle Investigators: Sam Saffer, Ph.D.,Derek Harter, Ph.D. Shulan Lu, Co-Investigator: Sang Suh, Ph.D. Funded as the Corvus II Project for $60,000 Jun.2006-Dec. 2006.

Corvus III, The Development of a Artificial Curiosity Cyberinfrastructure. Principle Investigators: Sam Saffer, Ph.D.,Derek Harter, Ph.D. Shulan Lu, Co-Investigator: Sang Suh, Ph.D. Funded as the Corvus III Project for $135,000 Jan. 2007.

Project Steem: A High-intensity, Team-based Approach to Increasing Enrollment and Graduation in STEEM (Science, Technology, Engineering, Education, Math) Disciplines Among Underrepresented Groups in the Northeast Texas Area. Co-Investigators: Ben Doughty, Rick Kreminski, Sam Saffer, Gilbert Naizer. Co-Writer, Shannon Ragland. Funded for 3 years for $1.5 Million.

National Science Foundation Grant: M2T2 - Maximizing Motivation, Targeting Technology. Investigators: Gilbert Naizer, S. I. Saffer, Tracy B. Henley, Bao-An Li. A three year grant for $990,000 under the NSF ITEST Program (Innovative Technology Experiences for Students and Teachers). Jan. 2009.

Federal Initiative: DOE Grant. The development of an artificial science and engineering research infrastructure to facilitate innovative computational modeling, analysis, and application to interdisciplinary areas of scientific investigation. S. Saffer, Ph.D. Principle Investigator. Co-PI's Derek Harter, Sang Suh, Shulan Lu, Frank Miskevich. Funded for $380,000 in 2009.

Unal Sakoglu, PhD

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Web: TBA

Education	• PhD, Electrical and Computer Engineering *University of New Mexico, Albuquerque, New Mexico, USA*	05/2006
	• MS, Electrical and Computer Engineering *University of New Mexico, Albuquerque, New Mexico, USA*	05/2002
	• BS, Electrical-Electronics Engineering *Bilkent University, Ankara, Turkey*	05/2000

Professional Experience	• Research Associate,
	  Functional Neuroimaging of Memory Lab
	  UT Dallas Center for Vital Longevity, Dallas, TX
		03/2011 – 08/2012

	• Senior Scientist, Image/Data Processing and Analysis
	  Translational Neuroimaging Department
	  Abbott Laboratories, Chicago, IL
		04/2010 – 03/2011

	• Senior Research Associate,
	  Gulf War Neuroimaging Program
	  Department of Neuroradiology
	  UT-Southwestern Medical Center at Dallas, TX
		11/2009 – 04/2010

	• Post-Doctoral Research Fellow,
	  Medical Image Analysis Lab,
	  The Mind Research Network, Albuquerque, NM
		05/2008 – 10/2009

	• Post-Doctoral Researcher,
	  BRAIN Imaging Center & Department of Neurology,
	  University of New Mexico, Albuquerque, NM
		05/2006 – 05/2008

	• Graduate Research Assistant,
	  Electrical & Computer Engineering Department, and
	  Center for High Technology Materials,
	  University of New Mexico, Albuquerque, NM
		01/2004 – 05/2006

	• Graduate Teaching Assistant,
	  Electrical & Computer Engineering Department
	  University of New Mexico, Albuquerque, NM
		08/2000 – 12/2003

Present and Past Professional Memberships

- Institute of Electrical and Electronics Engineers (IEEE)
- Cognitive Neuroscience Society (CNS)
- Organization for Human Brain Mapping (OHBM)
- International Society for Magnetic Resonance in Medicine (ISMRM)
- European Society for Magnetic Resonance in Medicine and Biology (ESMRMB)
- Alzheimers Association (AA)

Reviewing Activities for Journals

- Human Brain Mapping
- Medical Image Analysis Journal
- Imaging Science Journal
- Computational Statistics and Data Analysis
- Optics Communications

Curriculum Vitae

Nikolay	Metodiev	Sirakov
First name	Middle name	Surname

Affiliation and Official Address:

Dept. of Computer Science and Info Systems
Dept. of Mathematics
Texas A&M University Commerce
Commerce, TX 75 429
Ph: (903) 886 5943; Fax: (903) 886 5945; E-mail: **Nikolay_Sirakov@tamu-commerce.edu** ;
URL: http://etsuodt.tamu-commerce.edu/coas/math/FACULTY/SIRAKOV/

Education: (degrees, dates, universities)

Ph.D. degree: 1988-1991; Center of Mathematics, Comp. Science & Mechanics-Bulgarian Academy of Sciences (BAS); in the field of Pattern Recognition-Title: 3D objects recognition by help of regularities, order and set of identification. *Defended in 1991*. The work was developed under international project dedicated to develop a robot system capable of nuclear reactors inspection.

Master degree-1982-1983; Sofia University (SU)- School of Mathematics & Computer Science, in the field of Coding Theory, Title: New examples of (15,11) systematical, non-vasiliev's, non-linear, perfect codes correcting one error, *defended 1983*.

B.S - 1978-1982, Sofia University (SU) "Kl. Ohridsky"- School of Mathematics & Computer Science, *the top Math and Informatics Dept. in the country.*

In the army: September 1976 – October 1978.

Bulgarian National High School of Math and Informatics "Lubomir Chakalov", 1973-1976, *the top High School in the country.*

Career/Employment: (employers, positions and dates)

Texas A&M University Commerce, Dept CSIS, Dept of Math– Associate Prof.		*2010-present;*
	Assistant Prof.	*2004-2010*
Northern Arizona University- US– Dept. Math & Statistics		*2001- 2004;*
Institute of Mechanics and Biomechanics- BAS - *Associate Professor*		1999 –2001;
Instituto Superior Tecnico, Lisbon, Portugal- Senior Researcher, Invited Professor		1998-1999, 2000
Scientific Chair of Biomechanics and Telemanipulators Lab.		1996-1998;
Transport University - Invited Associated Professor		1995-1997;
Institute of Mechanics – BAS - Research Fellow I degree (RF I),		1992-1999;
Int. Lab of Artificial Intelligence – Slovak Academy of Sciences - RF I		1991
Technical University Sofia - Invited Assistant Professor		1988-1990;
Center of Mathematics, Comp. Sc. & Mechanics- BAS –RF III – I degree,		1985-1990.

Teaching Experience And Service

RECORD OF COURSES TAUGHT: Math and Computer Science
US EXPERIENCE, 2001-Present:
📖Texas A&M University Commerce

Recipient Excellence teaching Award: in Spring 2010, 2011 for Fall 2009, 2010
Lectures:

Lectures:

Fall 2012

*Dept. CSIS-***CSCI516** Fund Concepts Computing/Mach Organization –Graduate course,

CSCI518 Thesis, 1 student- Pravin Kandhare, **Title:** Tracking objects in video

Dept of Math – **Math-597/** CSCI546 Numerical Analysis – **6 students, new course**

Math 317 – Numerical Analysis- **18 students**

Summer II 2012 ,Comprehensive Exam

Dept. of Mathematics- Math 314, Calculus III, - **18 students** **;**

Math589 – Independent Study, Pravin Kandhare, Title: Advanced Image Analysis with Elements of Recognition;

Math489 – Rebecca Stewart, Title: Optimal Path Detection in Graphs

CSCI589- Independent Study, Sheena Mathew - Title: Experimental Validation of Integral Scaling Algorithms.

Spring 2012: Comprehensive Exam, for Mtah563

*Dept. CSIS-***CSCI-516** Fund Concepts Computing/Mach Organization –Graduate course, 24 students

CSCI518 Thesis, 1 student- Pravin Kandhare, **Title:** Tracking objects in video sequences

CSCI589 – Independent Study, Sheena Mathew, Title: Radial Integral Technique for Scale Invariant Image Region Matching.

Math589 – Independent Study, Pravin Kandhare, Title: Image Analysis Methods

Math595 - Project, Raghu Manur, Title: Software for Image Splitting using Delaunay Triangulation, we met on Feb. 03, 2012, I developed the method for him, provided John's Report , and the software by Frigo in C++. This software differs from what is required in the image tessellation.

*Dept of Math –***Math-331** Discrete mathematics, **35 students,**

Image Processing with applications – **CSCI567-1 students; Math563- 5, Math489 - 7 students**

Development of new course CSCI546 Numerical Analysis, Math546

Fall 2011

*Dept CSIS-***CSCI516** Fund Concepts Computing/Mach Organization –Graduate course, **32**

CSCI595 1 Student – Automatic Skin Lesions Features Extraction with S-ACES active contour.

*Dept of Math –***Math-314** Calculus III–Upper Level-course, **35 students,**

Math 317 – Numerical Analysis-Upper Level - **13 students, Undergraduate.**

Math589-Indipendant Study – **2** Master Students**, Title:** Integrals on Radial Lines for Scaling Invariant Regions Matching: **Title:** Delaunay Triangulations and Voronoi Diagrams for splitting and merging images.

Summer I, 2011- Calculus III, Math 314 – **9 students;**

Thesis Chakrader Nara, **Title**: Active contour on the exact solution of the active convex Hull Model Working with noise, published; Math 589 – Sheena Mathew, **Title:** Circular and Radial Techniques for Rotational and Scale Invariant Regions Matching**;**

Spring 2011:

*Dept CSIS-***CSCI-516** Fund Concepts Computing/Mach Organization –Graduate course, section 1 - **46, section 2- 39 students;**

CSCI518 Thesis, 1 student- Chakrader Nara, **Title:** Active contour on the Exact solution of the active convex Hull Model Working with noise

*Dept of Math –***Math-335** Linear Algebra, **32 students,**

Image Processing with applications – **CSCI567-5 students; Math563- 2, Math489 - 4 students**

Fall 2010

*Dept CSIS-***CSCI-516** Fund Concepts Computing/Mach Organization –Graduate course, section 1 - 28**,** section 2**- 18 students,** the latest edition of the text buck is used**;**

CSCI595 Research & Literature – Graduate- 1 student

CSCI518 Thesis, 1 student- Chakrader Nara, **Title:**

*Dept of Math –***Math-315** Differential Equations–Upper Level-course, 32 **students,**

   Math – Numerical Analysis-Upper Level - **13 students, Undergraduate.**

Math589-Indipendant Study – **1** Master Student**, Title:** Scaling, Rotation and Translation Invariant Region Matching Methods.

Summer 2010

Dept. of Mathematics- Math 314, Calculus III, - **15 students;**

   Math589-Indipendant Study – **1** Master Student**, Title:** Correlation and Shape Matching Methodology**;**

Dept. of Comp. Science- CSCI532-Algorithms Design- **20 students.** *The course is Web Enhanced.*

Spring 2010: Comprehensive Exam, April 15, for CS-

   Comprehensive Exam, February 15, 2010, Math- **1 master students**.

Spring 2010

Dept. of Mathematics- Math 314, Calculus III – **6 students;**

*Dept CSIS-***CSCI-516** Fund Concepts Computing/Mach Organization –Graduate course, section 1 - **40,** section 2-**28 students,** the latest edition of the text buck is used**;**

   Master Thesis- Karthik Ushkala- Tracking Objects-**1 Graduate student;**

Fall 2009: Comprehensive Exam, October 2009, for Math- **1 master students**.

Dept. of Mathematics- Math 315, Differential Equations - **35 students;**

*Dept CSIS-***CSCI-516** Fund Concepts Computing/Mach Organization –Graduate course, section 1 - **25,** section 2-**22 students,** the latest edition of the text buck is used**;**

   CSCI589- Image Segmentation and Analysis, **1 Graduate student;**

   CSCI595- 3 projects for **3 graduate students**.

Summer 2009

Comprehensive Exam, June 2009, for Math- **2 master students**.

Dept. of Math- Math 314, Calc III, - **16 students;** Math589-Indipendant Study – **1 Master Student;**

Dept. of Comp. Science- CSCI532-Algorithms Design- **5 students.** *The course is Web Enhanced.*

SPRING 2009

*Dept CSIS-***CSCI-516** Fund Concepts Computing/Mach Organization –Graduate course, section 1 - **36,** section 2-**26 students,** the latest edition of the text buck is used**;**

   CSCI-567 Image Processing w/Applications -Grad-course, **12 student**;

   CSCI489-Imame Processing with Applications Hours: 1-4, **1 Undergraduate**

*Dept of Math –***Math-563** Image Processing w/Applications–Grad-course, **05 students,**

   Math 489-Introduction to Partial Diff Equation Hours: 1-4, **1 Undergraduate.**

FALL 2008:

Comprehensive Grad Exam CS – around 50 students;

Comprehensive Grad Exam Math- Fall 2005-2007, 1 student.

*Dept CSIS-***CSCI-516** Fund Concepts Computing/Mach Organization –Graduate course, section 1 - **46,** section 2-**40 students,** the latest edition of the text buck is used**;**

CSCI532, Algorithms Design- 28, +**7** extra, graduate **students;** *CSCI595-* **9 students**;

Dept of Math – **Math-191** –Calc. I- **25 students, Bin 302**;

SUMMER II 2008:

Dept Math - Linear Algebra Math 335 – **29 students**.

Continuation of **Math 589**.

SUMMER I 2008:

Dept CSIS-**CSCI532- 35 graduate** students, Session I**;**

Dept Math-**Math314-**Calculus III- **17 students** Session I;

> **Math 589**- Title: Search optimization in image database, Session I and Session II-one student Shrinivas Komu, 50001262, CS graduate

SPRING 2008:

Dept CSIS-**CSCI-516** Fund Concepts Computing/Mach Organization –Graduate course, section 001, 21633-**37 students,** Jour 129**;**

> **CSCI-567** Image Processing w/Applications -Grad-course, **16 student**;

Dept of Math – **Math-192** –Calc. II,- **40 students**;

> **Math-563** Image Processing w/Applications–Grad-course, **22 students,** the latest

edition of the text buck is used.

FALL 2007:

Comprehensive Exam CS – 14 students; Comprehensive Exam Math- 5 students.

> *Dept CSCI*-**CSCI-516** Fund Concepts Computing/Mach Organization –Graduate course,

Spring-2007, section 001, 81695-**32 students**; section 002, 82599 -**29 students;**

> **CSCI595** Research & Literature, Graduate Course– **5 students.**

Dept of Math – **Math-142** Pre-Calc, Spring 2007- **26 students, BA 257**;

> **Math-314** Calc. III, Spring 2007- **27 students, Bin 302**

SUMMER I, 2007:

Dept CSCI   Algorithms Design, CSCI532 – Graduate Course, **16 Students, Jour 104**

> Algorithms Design, CSCI489 – Undergraduate, **1 Student**

SPRING 2007:

Dept CSIS-**CSCI-516** Fund Concepts Computing/Mach Organization –Graduate course, Spring-2007, section 001, 21633-**34 students,** 3-4:15PM, Jour 129; section 002, 22074 -**35 students,** 12:30PM-1:45PM**,** Jour 129**;**

> **CSCI-597** Image Processing w/Applications -Grad-course, Spring 2007 – **3 student**;

Dept of Math – **Math-142** Pre-Calc, Spring 2007- **41 students, Bin 301,** 11-12:15PM;

> **Math-597** Image Processing w/Applications–Grad-course, Spring 2007- **7 students, Science 123,** 7;20-10PM;

> **Math-489** Image Processing w/Applications – Under Grad-Spring 2007 – **1 student**;

FALL 2006:

Dept CSIS-**CSCI-516** Fund Concepts Computing/Mach Organization –Graduate course, *two section 42 students each*, **total 84 students**;

> **CSCI-595** Research Lit & Techniques – *13 student*;

> *Dept of Math* – **Math-191** Calc I, - *26 students*; **Discrete Math 331** – *25 students*.

SPRING 2006:

Dept CSIS-**CSCI-516** Fund Concepts Computing/Mach Organization –Graduate course, Spring-2006-*33 students*;

> **CSCI322** Computer Organization – *9 students*;

> **CSCI-597** Image Processing w/Applications -Grad-course, Spring 2006 – *6 student*;

Dept of Math – **Math-191** Calc I, Spring 2006- *27 students*;

> **Math-597** Image Processing w/Applications –Grad-course, Spring 2006- *8 students;*

> **Math-489** Image Processing w/Applications – Under Grad-Spring 2006 – *1 student*;

SUMMER 2006: Math-252 Calc III, - *10 students*.

FALL 2005:

    Dept CSIS-**CSCI-516** Fund Concepts Computing/Mach Org –Grad-course, **TWO SECTIONS 32 students each, Total 64**;

    Dept CSIS - **CSCI-595** Research Lit & Techniques – Fall2004-Fall 2005, *10 students*;

    Dept of Math – **Math- 315** Differential Equations, Upper Level Under Grad; *31 students;*

    Math- 142 Pre-calculus, *34 students*;

SUMMER 2005: Math 335, Linear Algebra, **12 students.**

SPRING 2005:

    Dept CSIS-**CSCI-516** Fund Concepts Computing/Mach Org; **39 students**;

    Dept of Math – **Math-191** Calc I, **27 students**;

    CSCI-597, Math-489, Math-597 Image Processing w/Applications; **15 students.**

FALL 2004 : *Dept of Math* – **Math-192** Calc II, Math 225 Calc III, total **35 students.**

🕮   Northern Arizona University – Dep. Math & Statistics:

   - Summer 2004-Fall 2001 – Finite Math, Differential Equations and Numerical Methods, Calculus– total around 88 credit hours;

   - *The students' written evaluations, of my teaching techniques, are above average for Northern Arizona University;*

European Experience, in Computer Science:

🕮   School of Mathematics and Computer Science, Sofia University*, graduate students,* spring 2001:

    -   Modeling, Reconstruction, Visualization and Manipulation of 2D/3D objects;

🖪   CVRM-Instituto Superior Tecnico (IST) – Lisbon, Portugal, *Master and Ph.D. students*, 1998-2000.

    -   Introduction to 3D modeling and visualization technology-C++ implementation.

🕮   Institute of Mechanics (IM)- Bulgarian Academy of Sciences (BAS), *Graduate Students*-1995-1998: 2D/3D objects description, modeling, reconstruction and visualization – C++ implementation; 2D/3D Computer graphics; Image Processing; Pattern recognition; Coding Theory; Microcomputers and assembler language.

In Applied Math

🕮   Transport University Sofia, Dep. of Math and CS, *Undergraduate students* - 1995 –1997: Computational geometry; Numerical methods and linear programming.

🕮   Technical University Sofia, Department of Applied Math, *Undergraduate students*, 1987-1990: Discrete math; Numerical Methods- implementation by FORTRAN; Introduction to Optimization Techniques.

SUPERVISING UNDERGRADUATE STUDENTS' RESEARCH IN THE US:

NSF-REU program Dept. Chemistry June 04,2007-August 10,2007- one student researcher Reubin Hinman, Project **"Enhancement and Features Extraction from Surface Images.",** 3 seminars, during the program, one final presentation.

    1. *Rohan Narain*, Undergrad student CS Dept, *Project:* Content Based Image Retrieval Systems. 3D objects reconstruction and visualization, **Spring 2005**, **Spring 2008.** Title: Features used in 3D indexing and retrieval;

       - Given on Campus poster presentation -*Students Research Symposium* 10.22.05;

       - Given presentation for the *Pathway Young Research* meeting in Kingsville-November 03-05.2005;

       - A poster presentation for the Pathway Undergraduate Symposium – Prairie View Texas A&M Univ, Nov 10-11,2006, **Best CS presentation award**;

       - A poster presentation on the Pathway symposium, **Nov. 03,2007**;

- Presentation to the TAMUC Annual Research Symposium 2008, Thursday April 24, 2008; Title: Image semantics for indexing of large image databases. **Best undergraduate presentation –award;**

2. Will Harrell, Undergraduate student CS Dept, Title: 3D visualization from 2D cross sections, **Fall 2007.**
3. Bohannon, Derek, Undergraduate student CS Dept, an introduction to 3D visualization, September, **October 2006;**
4. Minh Tang (SID-342-65-988), Undergraduate student CS Department, *Project:* continuation of coding the Convex Hull algorithm to Image Database Indexing, C++ , Fall 2005, **Spring 2006;**
5. *Nathaniel Rowland*- Undergrad student CS Dept, C++ tool to implement a new Convex Hull Model based on the Geometric Heat Differential Equation, *funded by the Dean of College of Arts and Science under Undergraduate Student Research initiative*, **Spring 2005**. The submitted report was highly evaluated by the Dean of Arts and Science;
6. Mr. Christopher Rex- Boundary support and its applications, funded by the Dean of College of Arts and Science under Undergrad Student Research initiative, **Fall 2004.**

SUPERVISING GRADUATE RESEARCH:

1. **Pravin Kandhare** – Dept. of Computer Science – Tracking Objects in a Video**, Master Thesis** work **,** Since Fall 2011.
2. **Melendez, John M. -** Grad Student Dept. Math.- **Title:** Image Segmentation Using Delaunay Triangulation with a Predicate, Preparing a presentation for the Texas meeting of the Mathematical Association of America, April 2012.
3. **Sheena Mathew** – Dept. of CS**.** Region Matching of Objects using Scaling and Rotational Invariant Methods, Participation at the TAMUC Res. Sym.-April, TAMU-Pathway, 11, **2011.**
4. **Surendra Chakrader Nara** – Dept CS, Image Enhancement, Active Contours evolving on noise images, **Awards :** 2nd place Annual Research Symposium Texas A&M Commerce; 8th Annual Texas A&M University-System Pathways Research Symposium, West Texas A&M University, October 22-23,2010, **Master's Level, 2nd Place, CS, Title:** Enhancement of Skin Lesion Images to Remove Noise. *Defended Master Thesis* **2010-Fall 2011,**
5. **Srikanth Sriram** – Skin Lesions Features Extraction, and masks generation. **2011.**
6. **Jandhyam, Venkata N.** – Dept. CS, Matching Image Regions, Image Correlation, **2010, Awards:** 8th Annual Texas A&M University-System Pathways Research Symposium, West Texas A&M University, October 22-23,2010, **Overall Winner, Master's Level, 2nd Place & 1st Place Winner Mathematics** Discipline, **Title:** Correlation and Shape Matching Methods;
7. **Karthik Ushkala**, Dept. CS, Image Segmentation and Analysis, Coding in Java the Active Convex Hull Model based on the exact solution of the Heat Differential Equation, Active Contours, **Fall 2008-Spring 2010**;
8. **Santhus Karapathy** – Dept. of CS, Knowledge extraction from Image Databases, **Fall 2008-Fall2009**;
9. **Prathat Pollisetty: -** Dept. of CS, Completed and optimized the Java code of the Active Convex hull Model, Fall 2008;
10. **Kommu, Shrinivas** 50001262 – Web search and engines, for Content Based Image Retrieval. Google achievements, Spring-Summer 2007, 2D/3D Indexing **Fall2007, Spring Summer 2008;**
11. **Jason Moore,** 10056344, Graduate Student- Dept. of Mathematics, Gradient Methods to Image Enhancement, **Spring 2007;**
12. **Shah, Divyesh** R., 40475793, Graduate Student – Computer Science, *Project:* Data fusion in intelligent systems, Web Archives, DICOM image formats, **Spring 2007;**
13. **Archana Chada** , 50001103, Graduate Student – Computer Science, *Project:* C++ coding of a new active convex hull model, **Spring 2007;**

14. **Sudheer Musini** – Graduate Student CS Department– in the development of the NSF-CAREER proposal, summer 2006;

At NAU under REU Program, sponsored by NSF-2003-2004.
PROJECTS: http://odin.math.nau.edu/reuprojects.html

Title: 3D Edge Detection and Visualization based on the Geometric Heat Equation, 2004, the work was funded for presentation on the Young Mathematicians Conference, Ohio State University, August 19-22.2004;

Title: A Method for Rapid Edge Detection and Image Segmentation, 2004;

Title: An Application of Differential Equations to Image Processing, together Catherin Lichten *McGill University, 2003*;

Title: Objects Detection in an Image Database Using Shape Features, together with Andrey Kislauk, *University of California Berkley*.

Supervising Master and Ph.D. students in Europe:
- 3D visualization of bioorganic structures, School of Math and CS-SU, Summer 2002.
- 2D/3D visualization of multiple subsurface objects – modeling and interpolation, Image Analysis LAB (IAL) of CVRM-Instituto Superior Tecnico (IST)–Lisbon, Portugal, 1998-2000;
- 3D visualization. Shape from shading. IM-BAS, Technical University (TU) Sofia, Image Processing and Recognition Lab (IPRL), 1998;
- Virtual and Multimedia Libraries – architecture, content processing, TU-IPRG, 2000.
- Image Processing – objects partitioning, edge detection, image enhancement, IM-BAS and School of Math and CS –Sofia University, 1996-1998;
- 2D/3D visualization, modeling and reconstruction, IM–BAS and FMI-SU, 1996-1998;
- 2D/3D objects recognition approach to robot orientation in Power Nuclear Reactors, Center of Mathematics CS & Mechanics –BAS, School of Math and CS –Sofia University, 1989-1991.

DEPARTMENTAL SERVICE:
US EXPERIENCE, 2001- Present:
TAMUC-2004 present
- ✓ Joint-TAMUC-TUS- Comp. Sci. Master Program Development **Fall 2012**;
- ✓ Memorandum for Cooperation between TAMUC & Technical University Sofia (TUS)- **2012.**
- ✓ Faculty Search Committee Dept. of Mathematics, Dept. of Literature & Languages, **2012;**
- ✓ Tenure and Promotion Committee CoSEA. **Since Fall 2011, Chair since Fall 2012.**
- ✓ Defense committee for Math595 project, Aida, August 01, **2012;**
- ✓ Master Thesis Committee for Salih Turk – Spring 2012, defense June 06, **2012** ;
- ✓ Master Thesis Committee for Krishna Komandury - Spring 2012, defense June 06, **2012**.
- ✓ Dean of COSEA Search Committee, since April 20, **2011** from Math Dept;
- ✓ Task Committee for development of a Ph.D. Program in Comp Sci.–**2009**.
- ✓ CS Dept. Assessment Team – October 02, **2009-present;**
- ✓ Development Committee of the new CS- Professional Science Master's degree in Computational Science – **February 19, 2009, May 2009**, weekly meetings;
- ✓ Defense Com. Master Thesis of P. Kotturu – CS Dept, "Visual Autonomous Robots", **2009.**
- ✓ Judge for the Pathway students and Young Faculty presentation contest **November 7-8,2008**;
- ✓ Graduate School Representative at the Ph.D. defense of Nr. Campanaro, **Oct. 28, 2008**;
- ✓ Work with Dr. Kremisnki on enrolment of Bulgarian graduate student at Dept of Mathematics, Spring, Summer, **Fall 2008;**
- ✓ Work on the undergraduate program pamphlet of the CS Dept- **November 2008**.
- ✓ Advisory Committee of Caleb Grisham for his Math595 report- **August 01.2008**;
- ✓ Advisory Committee of Katsuhiro Iwao for his Math595 report- **August 07.2008**;
- ✓ Ad hoc Committee recruiting International students, **Fall 2007**.
- ✓ Independent Study Presentation Committee- Jeremy Gaime-Thursday, May 10, **2007**.
- ✓ Curriculum Committee – Computer Science Department;
- ✓ Undergraduate Research Committee- Department of Mathematics, **2006-2007**;

- ✓ Committee which initiated and ran TAMUC- 2005 Undergrad Summer Research Program.
- ✓ Proctor of the TMSCA content, January 29.**2005**.

Development of a graduate course "Image Processing with Applications", Dept of Math/CS-TAMU Commerce, **Fall 2004-2005**;

Undergraduate Research Development Committee- since **Fall 2004-Spring 2005**;

University Initiative Committee for development of Summer 2005 Undergraduate Research program- **Fall 2004-Summer 2005**.

NAU-2001-2004

Member of Discreet Math Textbook Selection Committee, Dept. Math and Stat, NAU, 2003;

Co-chair of the Modeling Team, Dept. Math and Stat, Northern Arizona University, 2001- 2004;

European Experience:

Development of a Graduate Course "Modeling and visualization of 3D subsurface objects", for the new program of Instituto Superior Tecnico-Lisbon, Portugal, end of 2000.

Program Development Committee of Robotic and Biomedical Engineering Dep. - Southwest University, Blagoevgrad, Bulgaria, 1994.

RECORD OF SEMINARS and INVITED LECTURES-IN THE US, 2001-Present:

Professional Meetings and Conferences 2005 - present:

Title: Weapon Ontology Annotation Using Boundary Describing Sequences, IEEE SSIAI, Santa Fe, New Mexico, April 22-24, 2012

Title: Automatic Boundary Detection and Symmetry Calculation In Dermoscopy Images of Skin Lesions, Poster session 10:15AM-1PM, IEEE ICIP2011, Brussels, Belgium, Sep. 13, 2011.

Title: Integration of Low Level and Ontology Derived Features For Automatic Weapon Recognition and Identification. *SPIE Defense, Security, and Sensing-Automatic Target Recognition XXI*, 25 - 29 April 2011, Orlando, Florida,

Title: Automatic Object Identification Using Visual Low Level Feature Extraction and Ontological Knowledge, SDPS'2010- *Society for Design and Process Science*, Dallas, Texas, June 09, 5PM.

Title: Tracking Neutrophil Cells by Active Contours with Coherence and Boundary Improvement Filter, IEEE SSIAI2010, Austin, Texas, May 24, 2010.

Title: An Active Vector Field for Boundary Extraction of Objects with Complex Geometric, SPPRA 2010, Austria, Innsbruck, Friday, February 19, 2010.

Title: An Integral Active Contour Model for Convex Hull and Boundary Extraction, International symposium on Visual Computing, Las Vegas, **Nov. 30-Dec. 02, 2009**.

Title: Shape's Related 3D Objects Indexing and Image Database Organization, IEEE Southwest Symposium on Image Analysis and Interpretation, Santa Fe, New Mexico, **March 25, 2008.**

Title: Monotonic Vector Forces and Green's Theorem For Automatic Area Calculation, IEEE International Conference on Image Processing, San Antonio, **Sep. 16-18,2007.**

Title: Content Based Search in Web Archives, World Congress in Applied Computing – Internet Computing 2007, Las Vegas, June 25-28, 2007.

Title: Automatic Concavity's Area Calculation Using Active Contours and Increasing Flow. IEEE International Conference on Image Processing, Atlanta Georgia, Oct. 08-11,2006.

Title: Multiple Surfaces Reconstruction from 2D Sections Using an Increasing 2D Vector Flow, The 2006 World Congress in Computer Science Computer Engineering, and Applied Computing, Las Vegas, June 26-29,2006

Title: A New Automatic Concavity Extraction Model, IEEE Southwest Symposium on Image Processing and Analysis, Denver, Colorado, March 26-28,2006.

Title: Heat Equation to 3D Image Segmentation, The 9th World Multi-Conference on SYSTEMICS, CYBERNETICS AND INFORMATICS, WMSCI 2005, Orlando, USA , July 10-13, 2005.

Title: A New Active Convex Hull Model for Image Database's Search Space Partitioning, *2005* World Congress in Applied Computing - VISION'05, Las Vegas, June 20-23, 2005.

Given Seminar Talks, 2004- present

Title: What You Can Do With a Mathematics Degree? – Math Club Meeting, Jan. 27, 2012

Title: About Visit Experience and Ideas on Identification, Matching and Tracking, Mathematical Colloquia Dept. of Mathematics, Nov. 30, 2011, 3:30PM-4:30PM.

Title: Mathematical Concepts with Image Analysis Applications, November 18, 2011, 1PM -2PM, *Invited Seminar,* University of Louisiana at Lafayette, Dept. of Mathematics.

Title: About Visit Experience and Ideas on Identification, Matching and Tracking, Mathematical Colloquia Dept. of   Mathematics, Nov. 30, 2011, 3:30PM-4:30PM.

Title: New Family of Active Contours with Image Enhancement & Region Matching, Math Department Colloquium, TAMUC, Nov. 23, 2010, 3:30PM-4:30PM.

Invited Seminar at UT Arlington, Applied Mathematics Seminar-Department of Mathematics at UT Arlington, **March 06, 2009**, 2:30, Pickard Hall, Room304, Title: The Exact Solution of the Active Convex Hull Model And Its Application to Image Segmentation, attended by both Math and CS Faculty, Ph.D. and Master Students,

Title: The Active Convex Hull Model Its Level Set Presentation and Exact Solution. Math Colloquium on **November 13, 2008**, 3PM-4PM;

Invited Seminar: Regular Seminar Dept of Physics TAMUC- **September 27,2007**, 4PM-5PM, Room 127, Science Build., Title: Image Databases to Science. Methods for Features Extraction.

Invited Seminar at UT Arlington, Applied Math Seminar, Dept of Mathematics, **Feb. 02,2007**-2:30, Room 304, Title: About An Edge Where Mathematics and Computer Science Meet;

REU seminar on June 06, 2007, Title: Enhancement and Features Extraction from Surface Images.

Title: Image Database Management and Indexing, Brain, Computation and Mind Seminar, Dept. of CS, December 08,2006, Science Building 355.

Title: Level Set Formulation of the Heat Differential Equation, Applications to Content Based Image Retrieval, Dept of Mathematics and CS, Jour 129, May 05,2006, 12-1:30PM.

Title: Introduction to Mathematica, and its Applications; An Application of Derivatives and Interpolation to 2D and 3D objects modeling, Image Evaluation and Retrieval; *TAMUC, Undergraduate Research Program, June 07-08,2005,*

Title: Digital Image Databases and 3D Visualization Applications to Science and Industry, *TAMU-Commerce, Department of Chemistry, February 10,2005.*

Title: A New Image-Region's Active Convex Hull Model For Content Based Image Retrieval, *TAMU-Commerce, Dept Math and Dept of CSIS, Sept. 30.2004.*

Title: Over Some Open 2D/3D Shape Features Extraction and Matching Problems, *TAMU-Commerce, Dept CSIS, Sept. 29.2004.*

Title: An Introduction to Digital Image Databases and Content-Based Image Retrieval, *TAMU-Commerce, Depts. of Math, CSIS, Sept. 16.2004.*

NAU, 2001-2004

Title: Heat Equation and Gradient Flow to Capture an Image Object in a Dynamic Image Database. *NAU- Department of Math and Statistics, Regular Seminar*, USA, 04/02/2003.

Title: Images interpolation and Image database querying. Active Contours. *Northern Arizona University- Department of Math and Statistics, Regular Seminar*, USA, 11/26/2002.

Title: Shape matching of words in Digitized Renaissance Books. Smooth Reconstruction and Visualization of Multiple 3D Objects in Case of Shortage Input Data. Computer Science Dept.- Eastern Michigan University, USA, 04/01/2002.

Title: Surfaces Construction Using Regularities and Sequences of Observation, *Northern Arizona University- Department of Math and Statistics, Regular Seminar*, USA, 03/19/2002.

Title: Over optimal surface reconstruction methods, *Applied Math Seminar, Department of Mathematics and Statistics- Northern Arizona University*, USA, 01/23/2002.

Title: Math and Statistics to Image Processing and Objects Reconstruction. An Example Approach, *NAU- Department of Math and Statistics, Regular Seminar*, USA, *10/23/2001.*

In Europe:

Title: 3D reconstruction and visualization of human tibia for prosthesis design, *IM-BAS*, *Bulgaria,* 2001.

Title: A software system, developed by Visual ++C, for shape matching of words in digitized Renaissance books. *Meeting of the International project DEBORA*, IST–Lisbon, *Portugal*, fall 2000.

Title: 3D surface modeling, reconstruction and visualization of multiple complex subsurface objects - ore bodies, ore types, groundwater units. *CVRM-IST–Lisbon, Portugal*, 1998-2000.

Title: Shape matching of Renaissance Words using regularities and finite numerical sequences. *General meeting of the International project DEBORA,* Attended by the members of RFV-INSA, Lyon, France, Comp. Sc. Dep. - University of Lancaster-UK, CVRM-IST, December 1999.

Title: Virtual Multimedia Library – architecture, contents, *INSA-Lyon, Laboratorie de Reconnaisance de Formes et Vision (RFV), France,* June 1999.

Title: Over some problems of Image to Text/Text to Image transfer system, the Group of Prof. Dr. Liming Chen- *Ecole Central de Lyon*, software developing Company –SGBI- *Lyon, France,* June 1999.

Title: Solving of 3D modeling, visualization and recognition problems using series of plane sections, *Technical University of Dresden* – Institute of Acoustics, *Germany,* September 1997.

Title: Regularities and finite numerical sequences to 3D objects representation, shape reconstruction and visualization, *CIMPA Institute "Virtual Reality"- Nice, France* – June 1995.

Title: Objects recognition by single view, *CVRM-IST– Lisbon, Portugal*, June 1994.

Title: New effective method and software tool to 2D/3D objects comparing, *CVRM-IST, Portugal,* 1994.

Title: 3D Objects Recognition Method to Robot Orientation and Control in Nuclear Reactors, *CVRM-IST, Lisbon, Portugal*, October 1993.

Title: Recognition of shape from finite series of plane figures. *NATO Advanced Study Institute "Shape in Pictures", Driebergen, the Netherlands*, 1992.

Title: Application of regular structures and identification sets to 3D objects recognition in robotics, *International Lab of Artificial Intelligence- Slovak Academy of Sciences-* Bratislava, October 1990.

Title: Application of FORTH language to robot's local motion control;

Title: An aspect graph based effective approach for 3D objects and scenes description to robot orientation in a global scene. *Polish Academy of Sciences-Institute of Biocybernetics and Bioengineering*, 1987-1989.

PRESENT RESEARCH ACHIVEMENTS in:

- Convex Active Contours – **2012 present;**
- Automatic skin lesion features extraction and identification- **2010 – present;**
- Ontology generation and indexing for automatic weapons identification from single image, since **Fall 2009-present**;
- Tracking objects in video sequences- **2009-present**;
- Emotions recognition through facial features, **started Fall 2008;**
- Steganography- hiding images, **started Fall 2007**;
- 2D/3D active contour models- Image Processing and Analysis;
- Content Based Image Retrieval –in 2D and 3D;
- Features extraction, and indexing in 2D and 3D;
- Scientific Visualization and reconstruction - 2D/3D objects modeling and interpolation;
- Image processing;
- Digital and Multimedia Libraries;
- Computer Vision; Pattern recognition;
- Robot control and vision.

Fields of application: Bio-medical Imaging, Internet, Robotics, Natural Resources.

NAU Dept of Mathematics and Statistics annual review committee evaluated my research for 2001-2002 academic year with max grade 4 out of 4; 2002-2003 academic year with 3.95 out of 4.

FELLOWSHIPS AND GRANTS:

- ♦ Competitive Travel Grant by Faculty Development Committee, TAMUC, 05, 06, 07, 08**,** 09,11.

- The undergraduate research I did was granted and funded for presentation by the Org Committee of the Young Mathematicians Conference, Ohio State University, August 19-22.2004.
- Invited Professor at CVRM-IST, under *European Community Project DEBORA*, fall of 2000;
- NATO Senior Research Fellow at IAL of CVRM-IST, *Lisbon, Portugal,* Title: Morphological and recognition techniques to geometrical modeling and visualization of multiple complex 3D objects, 1999;
- NATO Senior Research Fellow, at IAL-CVRM- IST, *Lisbon, Portugal,* Title: Image Analysis and Visualization to Quality, Environment and Natural Resources Control, 1998;
- Participant of NATO Advanced Study Institute "Deposit and Geoenvironmental Models for Resources Exploitation and Environmental Security", *Hungary*-Matrahaza, 1998.
- Visiting Assistant, Technical University of Dresden – Institute of Acoustics- fall 1997, DFG program;
- Visiting Lecturer, CIMPA Summer Institute "Virtual Reality", *Nice - France* – 1995;
- Research Fellow under European Community - PECO, CVRM- IST, Lisbon, *Portugal*, Title: Application of Pattern Recognition to Material Reconstruction and Defectology, 1993- 1994;
- Invited lecturer of NATO Advanced Study Institute "Shape in Pictures", *The Netherlands,* 1993.
- Research Fellow at the International Laboratory of Artificial Intelligence- Slovak Academy of Sciences- Bratislava, *Slovakia,* end of 1990-1991;
- The paper "Automatic Reconstruction of 3D Branching Objects" was granted as the best one developed at IM-BAS, 1996.

REVIEWER OF PAPERS: *IN THE US, 2002- Present.*

Journals:

International Journal of Computer Mathematics -**2012.**

The Arabian Journal for Science and Engineering, Published in Saudi Arabia, **2009, 2012**

Pattern Analysis & Applications Journal, Published by Springer Verlag, **since 2007, Impact Factor 1.367,** Journal Citation Reports®, Thomson Reuters,

IEEE Transactions on Information Technology in Biomedicine, **since 2007.**

IEEE Transactions on Image Processing, one of the top journals in the field of Image Processing- **Impact Factor 2.8, 2004-2007**;

IEEE Trans on Signal Processing, one of the top journals in the field of Signal Processing, **Impact Factor 2.35, 2005**;

The International Journal of Computers & Geosciences, published by Elsevier, devoted to all aspects of computing in geosciences, and an official representative of Mathematical Geology, **Impact Factor- 2004: 0.903**, **2001-2006**.

Conferences:

IEEE – ISSPIT symposium, IEEE International Symposium on Signal Processing and Information Technology**, since 2007-present.**

"Appl. of Mathematics in Technical and Natural Sciences", Bulgaria, Euro-American Consortium for Promoting the Application of Math, August **2009, 2012;**

IEEE International Conference on Acoustics Speech and Signal Processing, April 2009, Taipei Taiwan, **October-November 2009**;

Signal Processing, Pattern Recognition and Applications (SPPRA), **since 2008-present.**

The IEEE International Conference on Image Processing, ICIP, world wide top conferences in the field, rate of acceptance between 33% and 43%, since **2006, present;**

The 10-th – 19th International Conference on Computer Graphics, Visualization and Computer Vision'2004-2010, WSCG2004-2011. Czech Republic, since **2004-present.**

In Europe:

The 5th Ibero - American Symposium on Pattern Recognition - SIARP2000, *Portugal,* September 2000.

The Portuguese Conference on Pattern Recognition-RecPad2000, *Portugal,* May 2000.

✍The VII Congress of Theoretical and Applied Mechanics, Sofia, *Bulgaria*, September 1993;

✍The Journal Computers and Artificial Intelligence, Published by *Slovak Academy of Sciences*. 1991.

Review of a Computer Science Master Thesis for the Conference of Southern Graduate School Master Thesis Award 2006, November 2006.

REVIEWER OF RESEARCH PROJECTS PROPOSALS (dealing with image processing, 3D objects modeling and visualization) *for Natural Environmental Research Council*, Polaris House, North Star Avenue, Swindon SN2 1EU, *United Kingdom*. 2001.

PUBLICATIONS:

Total number of papers: above ninety;

\# of papers in reviewed journals, chapter of books, confer.:   above sixty five;

Books: two.

CITATIONS: above 150. List of selected citations:

☞ **IEEE Xplore –** 12 paper are in the server (years: 2011-2004, 1997);

☞ **Microsoft Academic/ Microsoft Research:** included 24 papers, CITED by 100 authors, G-Index-7, H-Index-4.

http://academic.research.microsoft.com/Author/368409/nikolay-metodiev-sirakov

☞ DBLP Bibliography Server – *12 of my papers* are listed in the server, Germany, Impact 1.21 out of max 3.31; in the top 15.56% sources (Journals, Conferences, Databases) with impact of publication venues in Computer Science - May 2003 (CiteSeer - http://citeseer.ist.psu.edu/impact.html), The server is listed as #190 out of 1221;

Selected Citations:

-Diagnosis of drug-induced skin reactions: a future role for computer-aided systems?
GJ Burbach… - Current Opinion in Allergy and Clinical …, 2011 - journals.lww.com

- [HTML] Proceedings of the 2011 MidSouth Computational Biology and Bioinformatics Society (MCBIOS) Conference, **[HTML] from biomedcentral.com**J Wren, D Kupfer, E Perkins, S Bridges… - BMC …, 2011 - biomedcentral.com
Cited Paper: M. Mete, **N.M.Sirakov, 2011,** "Application Of Active Contour And Density Based Models For Lesion Detection In Dermoscopy Images", *BMC Bioinformatics* 2010, 11(Suppl 6):S23, October 07, 2010.

-Alexis Reymbaut, Satya N Majumdar and Alberto Rosso, "**T**he convex hull for a random acceleration process in two dimensions", Journal Of Physics A: Mathematical And Theoretical, **44** (2011) 415001 (15pp)
Cited paper: Sirakov, N.M., 2006. A New Active Convex Hull Model For Image Regions, *Journal of Mathematical Imaging and Vision, Vol.26, Num 3, pp:309-325, December 2006.*

-Marcos Nieto, Carlos Cuevas, Luis Salgado, Narciso Garcı´a, "Line segment detection using weighted mean shift procedures on a 2D slice sampling strategy", Pattern Anal Applic (2011) 14:149–163 DOI 10.1007/s10044-011-0211-4
Cited paper: Sirakov NM, Kojouharov H, Sirakova NN (2010) Tracking Neutrophils cells by active contours with coherence and boundary improvement filter. In: IEEE Proc. SSIAI2010 5–8

-Richard Chiou, Yongjin (James) Kwon, Tzu-Liang (Bill) Tseng, Robin Kizirian1, and Yueh-Ting Yang1, Enhancement of Online Robotics Learning Using Real-Time 3D Visualization Technology,
http://www.iiis.org/CDs2008/CD2009SCI/EEET2009/PapersPdf/Q124TR.pdf
Cited paper: Nikolay Metodiev Sirakov, "Heat Equation to 3D Image Segmentation," *Journal of Systemics, Cybernetics and Informatics,* 2005, Vol. 4, Number 2, pp. 15-21.

Fuzzy skeleton by influence zones—Application to interpolation between fuzzy sets
I Bloch - **Fuzzy Sets and Systems, 2008** – Elsevier**, The paper cited is:** Granado, I., **Sirakov, N.,** Muge, F., 2000. A Morphological interpolation approach - geodesic set definition in case of empty intersection. *In John Goutsias, Luc Vincent, Dan S. Blooberg (Eds), Math. Morphology and its Applications to Image and Signal Processing*, *Kluwer series in computational imaging and vision*, *Kluwer Academic Publishers*, pp. 71-80. ISBN 0-7923-7862-8

Pornchai Mongkolnam, Thanee Dechsakulthorn and Chakarida Nukoolkit, Extracted Structural Features for Image Comparison, Book Innovations and Advanced Techniques in Computer and Information Sciences and Engineering, Springer Netherlands, Tuesday, **September 04, 2007. The cited paper is on pp**13-17, and the title is: N. Sirakov and P. Mlsna, "Search Space Partitioning using Convex Hull and Concavity Features for Fast Medical Image Retrieval", *IEEE* ISBI, Arlington, VA, Apr. 15-18, 2004;

N. C. Gabrielides , A. I. Ginnis a P. D. Kaklis a, M. I. Karavelas, "G1-smoothBranching SurfaceConstruction fromCross Sections", Preprint submitted to Computer-Aided Design, **11 June 2007. The Paper cited is:** Sirakov NM, Muge FH (2001) "A system for reconstructing and visualising 3D objects." Computers & Geosciences, 27(1):59–69;

种基于平面地质图的复杂断层三维构建方法侯卫生，吴信才，刘修国，陈国良-岩土力学　　　2007-万方数据资源系统　万方数据资源系统. 岩土力学 ROCK AND SOIL MECHANICS **2007** V.28 No.1 P.169-172. 数字化期刊. **The Paper cited is:** Sirakov NM, Muge FH (2001) A system for reconstructing and visualizing 3D objects. Comp & Geosciences, 27(1):59–69;

☞ J. Ponianto, Content-Based Image Indexing, CSE4402-Hons Project, Bachelor of Software Engineering Honours, Computer Science and Software Engineering, Monash University**,** September 2006. www.csse.**m**onash.edu.au/hons/se-projects/2006/Joel.Ponianto/data/Literature%20Review.pdf **The Paper cited is:** Mlsna, P., Sirakov, N.M., 2004. An Intelligent Shape Features Extraction and Indexing System for Fast Medical Image Retrieval, *Proc of IEEE* Southwest Symposium on Image Analysis and Interpretation, March 28-30, 2004, pp. 172-176. *ISBN:0-7803-8387-7*

☞ Requirements for Topology in 3D GIS - group of 2 » C Ellul, M Haklay - Transactions in GIS, 2006 - blackwell-synergy.com Page 1. Transactions in GIS, 2006, 10(2): 157–175 © 2006 The Blackwell Publishing Ltd Review Article **...The cited paper is:** An algorithm for 3D groundwater units reconstruction and visualization, **NM Sirakov**, L Ribeiro, P Pina, F Muge - Calibration and Reliability in Groundwater Modeling, Centre …, 2000

☞ Qiang Wu and Hua Xu, A three-dimensional model and its potential application to spring protection, Earth and Environmental Science, V 48, Number 4-5, pp. 551-558, August 2005. **Cited Paper**: Sirakov NM, Muge FH (2001) A system for reconstructing and visualising 3D objects. Comput Geosci 27(1):59–69

☞ JC Felipe, JB Olioti, AJM Traina, MX Ribeiro, A Low-cost Approach for Effective Shape-based Retrieval and Classification of Medical Images, Multimedia, Seventh IEEE International Symposium on, 2005 ; **Paper Cited:** PA Mlsna, NM Sirakov, Intelligent shape feature extraction and indexing for efficient content-based medical image, Image Analysis and Interpretation, 2004. 6th IEEE Southwest, 2004.

☞ J.C. Felipe, AJM Traina, Methods for extraction, comparison and analysis of intrinsic features of medical images, aiming for perceptual content-based retrieval, Brazil, http://netuno.icmc.usp.br/pn/files/2005/Joaquim_Felipe.pdf , **Paper Cited:** the same as above.

☞ Juan Carlos Caicedo, Bibliografa Filtrada, 299629, Septiembre 21 de 2005, http://piccoro.maintask.com/~jckaicedo/un/referencias/filtradas.pdf , #127, **Paper Cited:** Sirakov, N.M. Mlsna. Search space partitioning using convex hull and concavity features for fast medical image retrieval. Biomedical Imaging: Macro to Nano, 2004. IEEE Int. Sym. 2004;

☞ Zhong Gang, China, *Ph.D. Thesis*, in the Field of Reverse Engineering -curve and surface reconstruction from unorganized points, Chinese Language, 2005 http://www.google.com/search?q=N.M.Sirakov&hl=en&lr=&rls=GGLG,GGLG:2005-20,GGLG:en&start=20&sa=N

☞ Wu, Q., Xu, H., Zou, X.K., 2005. An effective method for 3D geological modeling with multi-source data integration. *International Journal Computers & Geosciences* 31 (1), 35–43. 2005.

☞ Xu, C., Dowd, P.A., 2003. Optimal construction and visualisation of geological structures. *International Journal Computers & Geosciences* 29 (6), 761–773. 2005.

- ☞ Catherine Lichten (McGill University), An Application of the Heat Diff. Eq. to Rapid Edge Detection, NSF sponsored REU, Northern Arizona Univ., report 2003, *two paper are cited;*
- ☞ Andrey Kislyuk (University of California, Berkeley), Shape Matching In Image Databases, NSF sponsored REU, Northern Arizona University, report 2003, *two paper are cited;*
- ☞ Valguima V.V.A., Odakura Martinez, Geraldo Lino de Campos; "Image registration of ancient documents", International Conference on Information and Knowledge Engineering - IKE'02, Las Vegas, June 2002. PDF paper: http://www.linodecampos.net/textos/p0202.pdf ;
- ☞ Valguima V.V.A., Odakura Martinez, Geraldo Lino de Campos, Uma técnica para alinhamento de imagens de documentos antigos, Anais do XII Congresso da Sociedade Brasileira de Computação, Florianópolis, 2002. PDF paper: http://www.linodecampos.net/textos/p0201.pdf;
- ☞ A, Rosenfeld, Image Analysis and Computer Vision: 1999 , Computer Vision and Image Understanding, Volume 78, Number 2, May 2000, pp. 222-302(81), **Publisher:** Academic Press, **Paper Cited: Sirakov, N.,** 1996. Automatic Reconstruction of 3D Branching Objects. *Volume II Track B, Pattern Recognition and Signal Analysis, Printed by IEEE Computer Society,* Los Alamitos CA, pp.620-624.

AZRIEL ROSENFELD (1931-2004) was a tenured Research Professor, a Distinguished University Professor, and Director of the Center for Automation Research at the University of Maryland in College Park, where he also held affiliate professorships in the Departments of Computer Science, Electrical Engineering, and Psychology. He held a Ph.D. in mathematics from Columbia University (1957), rabbinic ordination (1952) and a Doctor of Hebrew Literature degree (1955) from Yeshiva University, and honorary Doctor of Technology degrees from Linkoping University, Sweden (1980) and Oulu University, Finland (1994) an honorary Doctor of Humane Letters degree from Yeshiva University (2000), and an honorary degree from the Technion.

- ☞ Kalcovski, A, Simeonov, I, New Concepts for development of CAD oriented to tailoring, Proc. Int. Conference "Application of Math to Technology and Business, Sozopol, Bulgaria, 1996, pp.310-314, *one paper is cited*;

- ☞ Yuli Toshev, Biomechanics of human motions, Blagoevgrad, Bulgaria, 1995, ISBN 954-680-013-9, *one paper is cited.*

FOUNDER OF VIRTUAL RESEARCH GROUP:
I have founded this group in 2002 to deal with practical problems solution.
Under my leadership and working through Internet this group developed an approach and tool to volume calculation of subsurface objects and minerals. Using the obtained results we published two papers in the proceedings of International and US conferences.
1. Dan Hack-HalsteadGeo Inc, Portland - Oregon, USA, HalsteadGeo@aol.com;
2. Dr. Marcin Iwanowski - Warsaw Univ. of Technology, Poland, iwanowski@isep.pw.edu.pl;
3. Rumen Mironov, Technical University Sofia, IPRL, Bulgaria, rpm@vmi.bgcict.acad.bg.

MEMBERBERSHIP IN PROFESSIONAL SOCIETIES:
IN THE US:
- IEEE member, *2003-present*.
- Mathematical Association of America-*2006-present.*
- Virtual Society for Multinational Studies of Aggregate Resources – Coordinator Prof. William Langer – U.S. Geological Survey, Denver Colorado, USA, since 1998;

International:
- Spatial Data Laboratory Network – Coordinator Prof. Chung Chang-Jo- Spatial Data Analysis Laboratory, Geological Survey of Canada, Ottawa, Canada, since 1998;
- Scientific Council of Bulgarian Association of Pattern Recognition-member of IAPR, since 1994;
- Bulgarian Association of Robotics, since 1987;
- Union of Bulgarian Mathematicians, since 1985.

EDITORIAL BOARD of the Journal of WSCG [ISSN 1213-6972], invited **October 2007**.
SCIENTIFIC/PROGRAM COMMITTEES: IN THE US: 2001-PRESENT:

Member of the Program Organizing Committee of:

- IWCIA2012 – 15 Workshop on Combinatorial Image Analysis- Member of the Program Committee- Publication by Lecture Notes in Computer Science – Springer Verlag, **Nov. 2012.**
- Chairman Documentation Committee – SPDS2011, Seoul, South Korea, June, **2011**.
- IASTED- Int. Conf. on Signal Processing, Pattern Rec, and Appl. (SPPRA), since **2008 present**;
- IEEE Int. Symposium on Signal Processing and Information Technology, since **2008 present**;
- Technical Program Committee – IEEE International Conference on Image Processing (ICIP), top one in the field, **since 2006 present**.
- Program Committee of Image Processing and Computer Vision 2006- The 2006 World Congress in Computer Science Computer Eng, and Applied Computing, June 25-28, 2006, Las Vegas;

  http://www.world-academy-ofscience.org/worldcomp06/ws/IPCV/ipcv_committee

- Program Committee of The 10th World Multiconference on Systemic, Cybernetics and Informatics July, 2006 - Orlando, Florida, http://www.iiisci.org/wmsci2006/website/ProgramCommitte.asp
- Technical Program Committee – IEEE International Conference on Image Processing, top one in the field, since **2006-present;**
- The 2005 International Conference on Modeling, Simulation and Visualization Methods- MSV'05, World Congress of Applied Computing: June 27-30, 2005, USA;
- The 2005 International Conference on Computer Vision - VISION'05: World Congress of Applied Computing: June 27-30, 2005, USA;
- the International Conference on Computer Graphics, Visualization and Computer Vision, WSCG, in co-operation with EUROGRAPHICS, since **2002-present**;

In Europe:

- Member of the Scientific Committee of 5th Ibero-American Symposium on Pattern Recognition - SIARP2000, Lisbon, *Portugal*, September 11-13, 2000;
- Member of the Program Committee of the 7th Congress of Theoretical and Applied Mechanics (CTAM), Sofia, *Bulgaria,* September 1993;
- Member of the Organizing Committee of the 6th CTAM, Druzba-Varna, *Bulgaria,* September 1989.

Chair of sessions - International Conferences:

- IASTED- International Conference on Signal Processing, Pattern Recognition, and Applications (SPPRA), Austria, Innsbruck 2010;

Session: APPLICATIONS IN MEDICAL IMAGING, the 2006 World Congress in Computer Science Computer Engineering, and Applied Comp, June 25-28, 2006, Las Vegas;

Session: LOW- & HIGH-LEVEL SEGMENTATION + CLASSIFICATION + DETECTION, 2005 World Congress in Applied Computing - VISION'05*,* Las Vegas, June 20-23, 2005;

Session: Image and Multidimensional Signal Processing, The 9th World Multi-Conference on SYSTEMICS, CYBERNETICS AND INFORMATICS*)*, WMSCI 2005, Orlando, July 10-13, 2005.

- Chairman of the session "Modeling and Identification", International Conference Modeling Identification and Control, Insbruck, *Austria,* February, 1992.

RECORD OF RESEARCH PROJECTS:

   Image Data Base Queering and Features Extraction: IN THE US, 2002-Present:

- **Dr. M. Luong,** Convex Active Contours, skin lesion features extraction, University Paris 13, since **2011-present.**
- **Automatic skin cancer identification –** collaboration with Dr. Mete, 2009, Dr. Ou, Dr. Selvaggi MD-2011, present.
- Integrating geometric and ontology knowledge for Weapons recognition- **collaboration with Dr. Attardo 2008 present, Dr. Suh, 2009, Dr. Arslan -2011- present.**.
- Invariant Matching of objects using boundary geometric information, **collaboration with Dr. Arslan, since 2009.**

- ✍ Tracking neuthrophil in video sequences **-2009 present.**
- ✍ Matching objects boundaries – **collaboration with Dr. Arslan, 2009 present;**
- ✍ New active convex hull model on the exact solution of the geometric heat diff. eq., **2008.**
- ✍ Image Database indexing in 2D and 3D, TAMUC, 2007-present;
- ✍ Automatic concavities extraction of image regions, joint research with Dr. Italo Simonelli, Dept of Math-TAMUC, Fall 2005-Spring 2006;
- ✍ Intelligent Image Database Mining Systems, Dr. Sang Suh, Dept of CS-TAMUC, 2005;
- ✍ Active regions – an approach to combine level sets with statistics, joint survey and research with Dr. Italo Simonelli, Dept of Math-TAMUC, Fall 2004-Spring 2005.
- ✍ An application of Image Processing to segmentation of Chemical Images, a joint survey with Dr. Ben Jang, Dept. of Chemistry, Spring 2005.
- ✍ Image object's motion interpolation, joint survey and study with Dr. Hasan Coskun, Dept of Math-TAMUC, Fall 2004.
- ✍ A new convex hull model for image regions. An application to image database mining for image features extraction, indexing and management. TAMU Commerce, Dept of Math, Dept of CSIS, with the help of Dr. Richard Kreminski, Fall 2004.
- ✍ Biomedical Image Feature Extraction for Content Based Retrieval, PI Dr. Phillip Mlsna Elec. Eng. Dept. -NAU, USA. Funded by Department of Energy 2003-2004.
- ✍ Variational methods to 3D objects detection and visualization, Joint research with Assoc. Prof. John Nueberger, Math & Stat Dept., NAU, USA, 2004
- ✍ Shape support, regularities and B-splines to image database querying. Joint research with Prof. James Swift, at Math & Stat Dept., Dr. Phillip Mlsna Elec. Eng. Dept. -NAU, USA.
- ✍ Application of Heat Diff. Eq. to a new convex hull model for regions location in a dynamic image database. Joint research with Assoc. Prof. John Nueberger, Math & Stat Dept., NAU.
- ✍ A new approach to increase accuracy of 2D sections interpolation. Joint research with Dr. M. Iwanowski, Warsaw University of Technology, Poland, R. Mironov, Technical Uni. Sofia.
  - *In Europe:*
- ✍ 2D sections interpolation, at Image Analysis Lab at CVRM, IST- Lisbon, *Portugal,* 2000-2001.
- ✍ Image enhancement and edge detection, IST-CVRM- Portugal, RFV- INSA, Lyon, *France,* 1999-2000.
- ✍ Geodesic sets definition in case of empty intersection, at CVRM, IST- Lisbon, *Portugal.* 2000.
- ✍ Image segmentation, at IAL - CVRM, IST- Lisbon, *Portugal,* 1998-1999.
  - *Visualization and reconstruction Projects: IN THE US, 2001-Present:*
- ✍ A new effective approach to volume calculation of 3D reconstructed subsurface objects. Under development together with HalsteadGeo Inc, Dr. Michel Fever Portland - Oregon, USA, Dr. Marcin Iwanowski - Warsaw University of Technology, Poland, 2002-Present.
- ✍ 3D Reconstruction and visualization of gravel deposit. Segmentation and 3D visualization of inclusions, together with HalsteadGeo Inc and Dr. Fever Portland, Oregon, US, 2001-2002.
  - *In Europe:*
- ✍ 2D/3D objects reconstruction and visualization using sparse data, at Image Analysis Lab (IAL) - C.V.R.M. -Instituto Superior Tecnico (IST), Lisbon, *Portugal,* 1999-2001;
- ✍ Multiple surfaces reconstruction and visualization, based on order and sequences of observation, at Institute of Mechanics (IM)-Bulgarian Academy of Sciences (BAS), *Bulgaria,* 2000;
- ✍ 3D reconstruction and visualization of multiple subsurface objects. Application to ore deposit and groundwater units reconstruction, at IAL-CVRM-IST, *Portugal,* 1998-1999;
- ✍ 3D modeling and visualization of flaws and cracks in plastic and non-plastic materials, together with IM-BAS, 1996, 2001.
- ✍ 3D visualization using gray level image. Shape from shading, together with Technical University (TU)–Sofia, Dept. of Telecommunications, Image Processing and Recognition Lab (IPR), *Bulgaria,* 1998.

- ✍ Modeling, reconstruction and visualization of multiple, complex 3D objects. Branching problem. Overlapped objects. Surface visibility, *at IM-BAS,* 1994-1997;
- ✍ Pattern Recognition and Visualization to Material Reconstruction and Defectology, IAG-CVRM-IST, *Lisbon, Portugal,* 1993-1994.

Artificial Intelligence: Computer Vision and Decision Support Systems Projects:

- ▱ Dr. Benito Chen-Chanpentier, and Dr. H. Kojouharov, Dept. of Mathematics UT at Arlington, **In the field of** Math Modeling of Bacteria Destruction by White Blood Cells, since **2009.**
- ▱ Facial features extraction and emotions recognition, joint research with Dr. Mariofana Milanova, **CS Dep. University of Arkansas-Little Rock**, **Fall 2008.**
- ▱ Matching 3D reconstructed objects, together with CVRM-IST– Lisbon *Portugal*, 2001;
- ▱ Shape matching of words in digitized Renaissance Books, together with IST-CVRM-Portugal, RFV-INSA, Lyon, *France,* 1999-2000;
- ▱ 2D objects recognition to multiple complex 3D objects reconstruction and visualization and Image processing, together with IAL-CVRM-IST, 1995-1999.
- ▱ 3D defects detection in mechanism components, IM-BAS, Bulgaria, CVRM-IST, *Portugal,* 1997;
- ▱ Definition of the new notion Morphological Similarity and its application to 2D objects recognition and partitioning, at IM-BAS, *Bulgaria,* 1996.
- ▱ 2D/3D objects modeling and recognition by single and multiple viewpoints, at Center of Mathematics Comp. Science & Mechanics-BAS, 1991-1993;
- ▱ 3D modeling and recognition. New economic numerical algorithm to curvature calculation, at Slovak Academy of Sciences – Int. Lab of Artificial Intelligence, Bratislava, *Slovak Republic,* 1990-1991;
- ▱ 3D objects recognition by sets and order of identification, at IM-BAS, 1988-1990.
- ▱ Classification of objects in limestone cave, Artificial Intelligence Lab, Institute of Math – BAS, 1990.
- ▱ Environmental Decision Support System for Analysis, Evaluation and Management of Groundwater Resources Based on Integrated GIS Technology, together with CVRM-IST, *Portugal*, 1997.
- ▱ Decision Support System to 3D defects detection, together with CVRM-IST, *Portugal,* 1995.

Digital Libraries Projects:

- ▤ Automatic Feature Extraction and Recognition for Digital Access of Books of the Renaissance, at CVRM-IST, Lisbon, *Portugal*, *France,* 2000.
- ▤ Pages enhancements and segmentation to text and pictures, at CVRM-IST, Lisbon, *Portugal,* 2000.
- ▤ Multimedia Libraries, at Pattern Recognition and Image Proc. Lab –INSA, Lyon, *France*, 1999.
- ▤ Virtual Libraries – architectures, delivery and storage of contents, together with TU–Sofia, Dep. of Telecommunications, Image Processing and Recognition Group, 1998, 2000;
- ▤ Architecture, storage and transfer of contents, together with IPR-DT-TU, *Bulgaria*, 1999.

Robots Vision and Control Projects:

- ✎ 3D objects modeling and recognition in Nuclear Reactors, together with Russian Academy of Sciences, *Czech Academy of Sciences* (CAS), BAS, Bulgarian Nuclear Power Station "Kozlodui", 1987-1990.
- ✎ An optimal approach and software tool to robot's local motions control, together with *Russian Academy of Sciences*. CAS, BAS, Bulgarian Nuclear Power Station "Kozlodui", 1987-1990;
- ✎ 3D objects recognition to robot orientation in a global scene, together with Polish Academy of Sciences-Institute of Biocybernetics and Bioengineering, Warsaw, *Poland,* 1987-1989.

3D MODELLING, VISUALIZATION SOFTWARE TOOLS: 3D SORS, MatLab, Mathematica, SurfDrive.

SOFTWARE LANGUAGES: Assembler, C++, Fortran, FORT.

CHAIRPERSON OF SOFTWARE DESIGN AND DEVELOPMENT PROJECTS:

    IN THE US, 2002-Present:

SUPERVISING SOFTWARE DESIGN AND DEVELOPMENT PROJECTS:

    IN THE US, 2002-Present:

- Active Contour for noise surpassing, - **2011,**
- Rotational invariant objects matching **– 2011.**
- Expanding active contours for tracking **– 2010.**
- Rotational and scaling invariant regions matching – **2010.**
- Integral Active Contour Model, **2008- present, Java.**
- Active Convex Hull Model, on the approximation and exact solutions, **Fall 2008, Java.**
- Image Database indexing, Spring, Summer 2008, **VC++, C sharp;**
- Video compression**,** Iris Recognition**, Matlab, Fall 2008;**
- Stegonagraphy – C++, **2007;**
- Corners detection for tracking objects- C++, **2007;**
- A New Active Convex Hull model, C++, Sharp C, 2004-2005, **Completed in Java Fall 2008;**
- Image Segmentation guided by the Heat DE with elasticity features, C++, REU, 2004.
- 3D Edge Detection and Visualization by Heat DE, *Mathematica* tool, REU, 2004.
- Heat DE with shells to image segmentation, NAU-Math and Stat Dept., 2003.
- Shape to support transformation, C++, run under Windows/NT, NAU, 2003.
- Image Database querying, shape features extraction and matching, C++, run under Windows/NT, NAU-Math and Stat Dept., 2002-2003.

In Europe:
- Matching words in digitized Renaissance Books from 16 century. Run under Windows 95/98/NT, C++, Under European Community funded project DEBORA, 1999-2000;
- Matching 3D reconstructed subsurface objects. C++, 2000;
- Multiple 2D/3D objects reconstruction and visualization. Windows 95/98/NT, C++,1998.
- Filtering of 2D images. Run under DOS. Quick C. 1997;
- Multiple 2D objects recognition and visualization. Run under DOS, Quick C, 1993-1994.

DEVELOPED SOFTWARE TOOLS:
- Capable of 3D objects recognition using stereo data. Motorola 6800, FORTH language, 86-89;
- Capable of robot's local motions control. Motorola 6800, Assembler language, 1987;
- Capable of generating (15,11) systematical, non-vasiliev's, non-linear, perfect codes correcting one error, Fortran, 1984.

*PARTICIPATION IN FUNDED PROJECTS and GRANTS***:** IN THE US 2001-present:

Title: Delineation of Skin Cancer and Lesions by Filters Supported Active Contour, Research Enhancement Program, PI N.M. Sirakov, *$14,533*, **2010-2011.**

Title: 3D Segmentation and Features Extraction for 3D Database Indexing, School of Graduate studies, Research Enhancement Grant, **$ 5698, 2007-2008**.

Title: 2D Image Segmentation and Efficient Features Extraction for Indexing. A Step Toward the 3D Case, School of Graduate studies, Research Enhancement Grant, $5000, **2006-2007.**

Title: Segmentation, Matching and Features Extraction for Content Based Image Retrieval, School of Graduate studies, Research Enhancement Grant, $4030, 2005-2006.

Title: Undergraduate Science-Mathematics Research Program Summer 2005 Introduction, granted by Dean of the Graduate School, $620 ,March 2005.

Title: The Faculty Development Committee has awarded me with a Competitive Travel Grant in the amount of $500, Spring 2005.

Title: Image segmentation for Content Based Image Retrieval. Mini Grant funded by Dean of Graduate Studies and Research, $520, November 16.2004-August 31.2005, completed.

Title: Boundary support and its applications - Mr. Christopher Rex (my student in Math 192), funded -$384 by the Dean of College of Arts and Science, Undergraduate Student Research initiative;

Title: Biomedical Image Feature Extraction for Content Based Retrieval. PI Dr. P. Mlsna Elec. Eng. Dept. –NAU, **$43 000** funded by **U.S. Dept. of Energy** grant DE-FC08-01NV13974, 2004.

Title: An Application of Differential Equations to Image Retrieval and Visualization in 2D/3D, approved for funding by NSF-REU program-around $15 000, 2004.

Title: An Application of the Heat Differential Equations to Image Processing, funded by NSF-REU program-around $6000. Supervising the research of Catherine Lichten- McGill University, 2003. She was also funded to present our research on the Conference "Summer Undergraduate Research in Math"- august 2003, http://www.math.ohio-state.edu/conferences/surc/ .

Title: Objects Detection in an Image Database Using Shape Features, funded by NSF-REU program-around $6000. Supervising the research of Andrey Kislyuk- UC Berkeley, 2003.

In Europe:

- Title: Digital Access to Books of the Renaissance, DEBORA, DGXIII/Telematics Program/LB-5608/A, 4th EU Framework, Participants: RFV-INSA, Lyon, France, CS Dept - University of Lancaster-UK, CVRM-IST, Lisbon, Portugal, 1999-2001, funded – 1 000 000 EURO.
- Title: *Automatic Characterization of Ornamental rocks*, COSS - 4th EU Framework, University of *Bologna-Italy,* University of *Granada – Spain*, Instituto Superior Tecnico - *Portugal,* 1996-1998;
- Title: *Development of manipulator and tools capable of Nuclear Reactors inspection.* Project № 3.1.7, *Czech* Academy of Sciences, *Russian* Academy of Sciences, and Institute of Mechanics-*Bulgarian* Academy of Sciences. 1987-1990. *Institute of Mechanics was funded around $1000 000*;
- Title: *Biomechanics of Motions and Robots Control. Polish* Academy of Sciences-Institute of Biocybernetics and Bioengineering, Bulgarian Academy of Sciences –Center of Math. Comp. Sc. & Mechanics. 1986-1989. A*round $ 130 000 per year.*
- Group and differential-geometrical approaches to modeling and control of coupled-body mechanical systems, PI-Clementina Dimitrova Mladenova, 1997-1998.

Submitted PROJECT PROPOSALS: *In the US:*

NIH- PAR-12-144-R03 - $135,000, Title: Active Contours' Extracted Feature Vectors and Geometric Structures For Support Vector Machine Based Skin Cancer Diagnosis, PI Dr. N.M.Sirakov, Co-PI, Dr. M.Mete, Dr. Y. Ou, Consultants, R. Selvaggi, M.D., Dr. Luong, Ph.D. student Thieu.

NSF-China-Title: Image Segmentation by contours driven by a water pressure. PI, China, Wenjun Huang, Associate Professor, Guangxi University for Nationalities

NIH – PA-10-062_R03, $150 000: Title: Mathematical and Computer Modeling of Implant-Associated Infection, $150 000, two year, in collaboration with UT Arlington, Dept. of mathematics, Dept. of Bio Eng., sub**. Feb. 24, 2012.**

NIH-R15-PA-10-070, $399,000, Title: Skin Cancer Identification Using Active Contours' Extracted Features and Geometry of Manifolds, PI-Dr. N. M. Sirakov, Co-PI's- Dr. M. Mete, Dr. Y. Ou, Consultant Dr. Karina Parr, Scott and White Memorial Hospital, Texas A&M Health Science Center, submitted, **February 24, 2011. Revised after Review and resubmitted October 20, 2011.**

NHARP - $147,000- Title: Mathematical and Computer Modeling of Neutrophils Destruction of Bacteria on Medical Implants, Collaborative grant proposal with **Dept. of Mathematics, UT Arlington**-PI Dr. Hristo Kojouharov, **TAMUC**-PI Dr. Nikolay Sirakov, *approved for full proposal in a review panel with a rate of acceptance less than 25%, November 2009.*

FEDERAL Initiative- $1,771,964-Title: Center for Patterns and Abstractions Discovery in Image Collections, *Submitted October 01, 2009.*

NEH ≈$250,000- **Title:** New Approaches to Digitizing Native American Archival Materials, Milanova Mariofanna - Project Director US – Associate Prof., **Univ. of Arkansas at Little Rock** , Parins James - Associate Director of the **Sequoyah National Research Center**, CO-PI-Little Rock Arkansas , Sarakov Nikolay - Assistant Professor , PI-**Texas A&M University,** Mehdi Qasim- Project Director UK - Professor of the **University of Wolverhampton –UK,** Kountchev Roumen – Professor- Consultant, **Technical University of Sofia, Bulgaria**. *Submitted July 10, 2009.*

NSF, CDI-Type II: Visual Attention Models for Image Exploration, In Collaboration with: PI Assoc. Prof. Mariofna Milanova, U of Arkansas at Little Rock, Derrick Tate, Assistant Professor, Mechanical Engineering Department, Texas Tech University, Ahmed Emam, Assistant Professor, Department of Computer Science, Western Kentucky University, Professor Qasim H. Mehdi, University of Wolverhampton, UK. *Submitted on January 08, 2008,*

NSF CAREER Proposal- CAREER- Title: 2D/3D Dynamic Image Database with Learning Visualization and Tracking,. amount requested $**482,540**, *Submitted on July 17,2007,* Denied on November 19, 2007 after 6 reviews (3 good; 3 fair) by experts and 2 reviews by NSF panels;

NSF CAREER Proposal- CAREER- Title: Decisions Support-Content Based Image Retrieval System, DS-CBIR*,* amount requested $501,159, *Submitted on July 2006*;

Title: Intelligent Utilities for Brain Cancer's Features Extraction from Image Database, amount requested $96 672, PI Dr. Sirakov, together with Dr. Ye-Lin Ou, *submitted to the Advanced Research Program – Texas, 2007.*

Title: Diagnosis Support-Content Based Image Retrieval System, DS-CBIR amount requested $97000, PI Dr. Sirakov, together with Dr. Simonelli, Dr. Creider, *submitted to the Advanced Research Program – Texas, 2005.*

Title: Automatic Objects Location and Tracking in Image Sequences, together with Dr. Simonelli, amount requested $26850, PI Dr. Sirakov, *Fall 2005, submitted to L-3 Communication;*

Title: 3D Objects Reconstruction and Visualization, amount requested $ 28 075, *Fall 2005, submitted to L-3 Communication;*

Title: Image Database management, features extraction to Content Based Image Retrieval, Dr. Simonelli, amount requested $26850;

Title: Summer Undergraduate Research Program-TAMUC, together with Dr. Allan Headley, Dr. Ken Ashley, Dr. Ben Jang, Fall 2004-Spring 2005, funded for Summer 2005.

 In Europe:

Title: Networked Virtual Multimedia Library, Acronym: NeViLib. Participants: RFV-INSA, Lyon, *France,* Ecole Central de Lyon, France; INESC, Lisbon, *Portugal*; IAG, CVRM Instituto Superior Tecnico, Portugal; IM-BAS, *Bulgaria*. Submitted to 5th European Framework – IST program, 2000.

Commerce, Texas
October 12, 2012