Kathiravan Natarajan

GitHub
LinkedIn
Google Scholar

Technical Skills

Languages and Tools: Python, C++, SQL, PostgreSQL, NoSQL (Cassandra, MongoDB), Matlab, Tableau, Weka, DataRobot
Frameworks/Libraries: TensorFlow, PyTorch, Keras, Pandas, Sklearn, NLTK, OpenCV, Scipy, Numpy, Statsmodel, Seaborn
Skills: Data Visualizations, Big data (Hadoop, Spark, Kafka, Hive, Spark MLLib, Structured Streams), Flask, RESTful APIs, Cloudera, Databricks (MLFlow), Containerization (Docker), Orchestration (Kubernetes, Docker Swarm), AWS EMR
Machine Learning Algorithms: SVM, KNN, K-means, Regression models, PCA, SVD, Boosting, Trees and Random Forests
Deep Learning architectures: BERT, RNN+LSTM, GAN, VGG, Resnet, Autoencoders, YOLO, Autoencoders, BiDAF
Cloud Platforms: AWS (SageMaker, Kinesis, Glue, Redshift, DynamoDB, RDS, Quicksight, MSK, DMS, S3, RDS)
Others: NLP, Computer Vision, Statistics, Linear Algebra, Time Series, Multivariate Calculus

Publications

1. Hand gesture Controlled Drones - An Open-Source Library, Accepted in ICDIS 2018. This paper is a computer vision-based work on hand gesture detection & classification using Haar + AdaBoost and integrates the work with drones. paper.
2. An Empirical Study on Network Anomaly Detection using Convolutional Neural Networks (CNNs), Accepted in ICDCS 2018. Created a CNN 1D classifier to classify the network security data for anomaly detection. paper.
3. Intersection Braking Advisor: A Connected Vehicle-Infrastructure Application, Accepted in TRB 2020 conference. Improved the braking dilemma of a driver through our intersection braking advisor application. paper

Patents

1. System and method for road condition monitoring - US20200262438A1

Work Experience

Texas A&M University Commerce - Adjunct Faculty ***Commerce, TX | September 2021-current***

- Teaching networking and machine language courses online
- Ideated research projects and helped students to achieve real time knowledge and industry standards

Honda Research Institute. - Lead Data Scientist ***Ann Arbor, MI | January 2019-current***

- Created prediction models for lane change detection in I-BSI application (estimated deployment for 26 model year)
- Optimized insurance costs for test fleet vehicles by providing a score based on driving pattern categories
- Predicted the driving behavior of the test vehicle drivers with respect to before and after V2X deployment
- Performed A/B testing on Smart Corridor safety features and proved the statistical significance
- Deployed driver style profile model in Docker containers with Kubernetes as orchestration engine in AWS instances
- Deployed road condition monitoring and reporting system in Honda server
- Tools/libraries/frameworks: Python, AWS EMR, Tensorflow, Keras, Spark MLLib, Docker, and Kubernetes

Verizon Enterprise Solutions. - Data Scientist ***Irving, TX | July 2018-January 2019***

- Created email classification system using word2vec embeddings and solved multi-label & multi-class classification problem
- Handled imbalanced data of rare classes and operationalized the model using RESTful API services using Flask
- Estimated the access cost of device installation using regression and achieved the state-of-the-art R^2 value
- Tools/libraries/frameworks: Python, DataRobot, Flask, Tensorflow, Keras, Spacy, NLTK, Gensim, Spark MLLib

Infosys Ltd. - Systems Engineer. ***Karnataka, India | December 2014-July 2016***

- Created a developer automation environment tool for Finacle E-Banking solution using Python
- Developed potential customer detection system in loans module based on the historical data and customer similarity
- Predicted financial market movement of EdgeVerve and clustered financial time series movement

Texas A&M University Commerce - Graduate Research Assistant ***Commerce, Texas | January 2017-May 2017***

Education

Texas A&M University Commerce - Computer Science, M.S. in AI, CGPA - 3.82 August 2018
SASTRA University - Computer science and Engineering, B Tech May 2014

Video Courses - Author

Learn Computer Vision with Python and OpenCV - OpenCV_Video_Course