Shezan Rohinton Mirzan

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Education

University of Massachusetts Amherst - College of Information and Computer Sciences 2019-21
Masters in Computer Science GPA : 4.0
Relevant Coursework : Neural Networks, Algorithms for Data Science, Reinforcement Learning, Distributed Systems & Introduction to Data Visualization

Indian Institute of Technology, Guwahati 2013-17
B.Tech in Electronics and Communication with a Minor in Computer Science GPA: 9.03/10.0
Relevant Coursework - Data Structures and Algorithms, Software Engineering, Parallel Computing, Advance Machine Learning, Speech Technology, Computer Vision, Probability and Random Processes.

Experience

Senior Software Engineer at Samsung Research Bangalore India Jul 17 - Aug 19

- *IoT Data based Home user profiling using appliance's usage data*
  - Mined frequent device usage patterns for users from the SmartThings data using Apache Spark framework on top of Hadoop YARN cluster deployed on AWS EMR instances.
  - Automated scheduling of tasks (eg. Running spark-submit jobs on EMR) using Airflow on the AWS through DAG execution flows. Sharded Data on MongoDB to enable efficient GDPR implementation.
  - Implemented end-to-end Scala application running on Spark framework by using association rule mining. Project commercialized in 2019 with the release of Samsung Galaxy Note 10.
- *Light-weight User Presence Detection backend for memory-constrained embedded device*
  - Designed Neural Network based Voice Activity Detection application to detect human presence at Home for Smart Speakers.
  - Used MRCG features and Tensorflow Lite in C++ to optimize time and memory. Conferred with performance award for reducing inference time by 5-folds.
- *Behavioral AI framework to enable user personalization in Social Robots*
  - Designed Behavioral Intelligence framework on Java/Python by jointly employing Neural Network alongside Q- Learning for implementation of User Personalization among robots to achieve 3X faster convergence with twice the accuracy against standard Reinforcement Learning Techniques.

Publications & Patents

A Control System for a Health Monitoring System [India PS filed #20184103833]
Applicant : Samsung Korea, Inventors : Shezan R. Mirzan, Jay Sharma

Projects

Deep Multiple Instance Leaning based Video Classification

- Developed Anomaly detection algorithm for classifying real - Surveillance videos that spanned across different scenes.
- Converted the classification problem to a regression task by extracting C3D features and feeding it to deep Multiple Instance Learning based architecture to get higher scores on video segments that contained anomaly.
- Tried different model architectures and feature extraction and compared ROC curves to decide on the best model.

Tracking of Multiple Skin-Colored Objects Under Occlusion

- Developed Real-time tracking of skin coloured objects framework in MATLAB using object hypothesis tracking. removal and synthesis.
- Found applications in the field of hand-gesture recognition to detect gestures involving occlusion

Technical Skills

- **Languages:** C++, C, Python, R, Scala, Matlab
- **Data & ML Tools:** Apache Spark, PySpark, Numpy, Sklearn, Tensorflow, Keras, AWS, Pandas
- **Miscellaneous:** Agile, Git, LaTeX, MySQL

Honors

- **DAAD-Wise Scholar:** One out of 160 students selected pan-India to be awarded with DAAD-Wise Scholarship by DAAD Germany

Positions of Responsibility

- Sprint Task Owner, Samsung, Sub - managing and supervising various tasks of the project at Samsung to check progress and interact with the Samsung HQ about future developments.