

Shezan Rohinton Mirzan

smirzan@umass.edu | [linkedin.com/in/shezan-mirzan](https://www.linkedin.com/in/shezan-mirzan) | [shezanmirzan.github.io](https://github.com/shezanmirzan) | (413) 695-7543

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

Machine Learning Engineer, Samsung Research America May 20 - Ongoing
· *Websocket-based client-server application for Anomaly detection on sensory data*

- Delivering an end-to-end client-server websocket-based application which can run anomaly detection algorithms for sensory data collected by wearable sensors hosted on AWS S3 to alert user.

Graduate Student Researcher, Microsoft's AI Acceleration Development Program Jan 20 - Ongoing
· *Enable SHAP's support for Griffon's root causes analysis algorithms*

- Perform comparative study to check potential of SHAP, an open source solution for model-agnostic interpretations to be implemented with Griffin, Microsoft's tree-based reasoning solution, to support its root cause analysis package.

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 [Published with Indian Patent Office #20184103833]
Applicant : Samsung Korea, Inventors : Shezan R. Mirzan, Jay Sharma

PROJECTS

Deep Multiple Instance Learning 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.

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