Tahsin Mullick

Data Science | Machine Learning | Deep Learning | HCI

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PhD student with specialization in machine learning, deep learning and statistics. Currently performing research in behavioral health prediction through passive sensing, interested in internship opportunities in data science and machine learning.

EDUCATION

University of Virginia — Charlottesville, Virginia
PhD Systems Engineering (AI and Human Health), GPA: 3.92/4.00 — Aug. 2019 - Present

Virginia Polytechnic and State University (Virginia Tech) — Blacksburg, Virginia
Masters in Electrical Engineering — Aug. 2014 - Aug. 2016

North South University — Dhaka, Bangladesh
BS. in Electrical and Electronic Engineering — Aug. 2008 – Aug. 2012

RELEVANT COURSEWORK

- Statistical Learning and Graphical Methods
- AI For Social Good
- Deep Learning
- Statistical Computing with SAS and R
- Computer Vision
- Stochastic Signals
- Applied Time Series
- Robotic Autonomy

TECHNICAL SKILLS

Coding Languages:
Python, R, MATLAB, SAS, C, C++

Data Science / Machine Learning:
ScikitLearn, NumPy, Pandas SciPy, Stats model, Matplotlib Seaborn, Tableau

Deep Learning:
TensorFlow, TensorFlow-gpu, Pytorch, OpenCV

Database/ Cloud:
GCP: cloud pub sub, Vertex AI, cloud composer, BigQuery SQL

CERTIFICATIONS

Deep Learning Specialization — DeepLearning.AI
Neural Nets, Convolutional Neural Nets (CNN), LSTM, Hyperparameter Tuning, Regularization, Optimization — Sept. 2021

Introduction to Machine Learning with TensorFlow Nanodegree — Udacity
Regression, Decision Trees, Naïve bayes, Support Vector Machines, Ensemble of Learners, Evaluation Metrics — June. 2020

Fundamentals of Reinforcement Learning — Coursera
Sequential Decision Making, Markov Decision Process, Multi-armed Bandits, Dynamic Programming — May. 2020

Machine Learning — Coursera
Supervised/Unsupervised Learning, Dimensionality Reduction, Anomaly Detection, Recommender Systems — Jan. 2020

RESEARCH PROJECTS

Automated machine learning pipeline to predict and forecast depression in adolescents — Human AI-Technology Lab, UVA, February 2022
- Designed machine learning pipeline with generalized and personalized modeling approaches to query SQL database of cell phone and fitness tracker sensor data to predict depression in adolescent
- Achieved RMSE of 2.83 compared to a random baseline of 25.7

Framework for longitudinal multimodal sensor data (FLMS): — Human AI-Technology Lab, UVA, January 2022
- Developed novel framework to enable improved prediction of small and sparse passively sensed datasets
- FLMS achieved 0.66 average accuracy with a recall of 0.59 which are 7% and 13% higher than the best baseline performance for a multimodal longitudinal dataset with only 507 samples

GAN based data augmentation for skin lesions: — Human AI-Technology Lab, UVA, December 2021
- Applied deep convolutional GAN (DCGAN) on a small dataset of 2,726 images of three classes of skin lesions
- Reduced overfitting of the small dataset and achieved a accuracy improvement of 15% from baseline

GCP based machine learning pipeline — Human AI-Technology Lab, UVA, March. 2020
- Google cloud platform machine learning pipeline training and monitoring pipeline
- GCP using vertex AI with high volume data ingestion based on google cloud pub sub and google cloud composer orchestration

Anomaly detection to detect patients with suicidal symptoms — Human AI-Technology Lab, UVA, Jan. 2020 - ongoing
- Implemented DBScan based clustering to distinguish high risk patients
- Applied K-Nearest Neighbor and Isolation Forest based to detect participants at high risk of suicide

Image Processing to detect packages for autonomous pick and place last mile — VICTOR Lab, UVA, January. 2018 – July 2019
- Contour detection and depth sensing to calculate package volume using Raspberry Pi
- Achieved and accuracy of 95% for package classification