ARCHANA TIKAYAT RAY

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INTERESTS

I am predominantly interested in data science, machine learning, and Natural Language Processing problems and their applications.

EDUCATION

Doctor of Philosophy, System Design and Optimization — **Expected: May 2022**
Georgia Institute of Technology, Atlanta, GA

Master of Science, Aerospace Engineering (System Design and Optimization) — **December 2018**
Georgia Institute of Technology, Atlanta, GA — **GPA: 3.92/4.0**

Bachelor of Science, Aerospace Engineering — **May 2017**
Florida Institute of Technology, Melbourne, FL — **GPA: 3.94/4.0 (summa cum laude)**

WORK EXPERIENCE

SOCIAL MEDIA DATA ANALYSIS — **Apr 2020 – Present**
Atlanta,GA (Role: Graduate Research Assistant)
Thesis Work

- Working on social media data collection and analysis
- Making use of Natural Language Processing techniques for extracting information

LEADER-X (Learning, Exploration, And Discovery by Research And Experimentation) — **Aug 2019 – Sep 2020**
Atlanta,GA (Role: Graduate Research Assistant)
Sponsored by IARPA

- Utilized data fusion techniques to combine data sources available at Georgia Tech, to provide situational awareness
- Created data-driven models of key metrics to enable prediction of future performance (for energy usage, building use, mobility on campus) under defined conditions
- Used uncertainty quantification and management techniques to determine confidence in predictions
- Worked in a team of 4 people where I led the data collection, pre-processing and exploratory analysis part of the project and helped with the development of ML model

ACCIDENT ANALYSIS FOR GEORGIA TECH ATLANTA CAMPUS — **Oct 2018 – Jul 2019**
Atlanta, GA (Role: Graduate Research Assistant)

- Identified the hotspots (areas where accidents are more likely to occur) and the contributing factors – this is of concern since GT campus has a high pedestrian traffic concentration (people on foot, bicycles, skateboards)
- Used data analytics to analyze the data in the accident database (provided by the police department) to gain insights into the correlations (if any) between different variables
- Created a dashboard (interactive environment) for the police department to use to evaluate certain scenarios (surge events on campus, street closure and their effect on pedestrian and vehicular flow, etc.)
- ***Results:*** Most of the accidents (49.5%) involving pedestrians were caused due to 'No improper action' by the pedestrian; level of distraction (use of mobile phones, etc.) among pedestrians results in few accidents but this might be a concern since the distraction levels are on a rise; the hilly terrain of GT campus served as a contributing factor that led to accidents; a high amount of accidents involving pedestrians were going unreported since students are usually in a rush to get to class or due to minimal damage caused

SKILLS

- Multidisciplinary design analysis and optimization, conceptual modelling, statistical analysis
- Programming Languages: Python (scikit-learn, Tensorflow, keras), R
- Miscellaneous: Git, SQL
- Data Visualization: Tableau, Python (matplotlib, seaborn)

CERTIFICATIONS

- Neural Networks and Deep Learning (Coursera)
- Natural Language Processing in TensorFlow (Coursera)

PUBLICATIONS

- Saleh JH, **Tikayat Ray A**, Zhang KS, Churchwell JS (2019) Maintenance and inspection as risk factors in helicopter accidents: Analysis and recommendations. PLOS ONE 14(2): e0211424. https://doi.org/10.1371/journal.pone.0211424