SHEMONTO DAS

St. John's, NL, Canada | shemontod@mun.ca | shemonto | shemontodas

Education

Master of Science in Computer Science
Memorial University of Newfoundland
Jan 2022 - April 2024 (Expected)

Bachelor of Science in Computer Science and Engineering
BRAC University, Bangladesh
Jan 2017 - Jan 2021

Projects

Preprocessing & Data Labeling Pipeline
(Python, Matplotlib, Tkinter)

- Developed a versatile pipeline for preprocessing, event retrieval and annotation from sensor data.
- Utilized sliding overlapping window for feature generation from time series.
- Integrated scaling functions to standardize the data.
- Used PCA for visualizing data distribution in hyperspace.
- Combined matplotlib and tkinter for interactive event annotation and analysis interface.

Active Learning Framework for Texture Classification *(Python, Sklearn, Pandas)*

- Preprocessed and analyzed tactile sensing data
- Developed hypertuning function for window sizes.
- Performed Wilcoxon hypothesis testing.
- Integrated machine learning models namely random forest, xgboost for classification.

Instrumar's Active Learning Pipeline for Manufacturing Fault Classification

- Automate Fault classification in the industrial manufacturing process.
- Developed a balancement algorithm for handling data imbalance in Instrumar's time series data.
- Developed multiple active learning strategies and integrated ML models (xgboost, gradientboosting classifier) and Neural Networks.
- Performed anomaly detection, feature generation, selection and dimensionality reduction techniques.
- Reduced data annotation cost and time for Instrumar, making fault classification efficient.

Bracu Duburi Control and Communication Protocol *(Arduino, Raspberry pi, OpenCV)*

- Founding member and sub-team lead of Bangladesh's first autonomous underwater vehicle.
- Developed the underwater control and automation protocol of the rover.
- Performed OpenCV based underwater object detection for the AUV.

Work Experience

Data Science Intern *May 2022- Present*
Instrumar Limited

Graduate Teaching Assistant *Jan 2022- Present*
Memorial University of Newfoundland

Contractual Lecturer *Oct 2021-Jan 2022*
Department of Mathematics and Natural science, BRAC University

Machine Learning Engineer *Feb 2021-July 2021*
Arthor Limited

Skills

- **Language and Frameworks:** Python, Java, HTML, SQL, Tensorflow, Keras, Pandas, Numpy, Latex.
- **Software and Tools:** VS Code, Google Colab, Anaconda Navigator, Git, Tableau, Arduino, Raspberry pi, Nvidia Jetson Nano.

Awards

- Graduate Research Award 2023 for strong research contribution, Department of Computer Science, Memorial University.
- Awarded for Best Graduate Talk at the SEA 2023 conference by the Faculty of Science, Memorial University.
- Recipient of Vice Chancellor Certificate at BRACU during residential semester.
- Secured 7th position at Singapore Autonomous Underwater Vehicle Challenge, 2018.
- Champion (Line following Robot), DUET Tech Fest 2018.
- Champion, State level Inter School English Parliamentary Debate Competition.
- Placed on VC's list for multiple semesters at BRACU and graduated with high distinction

Publications

- Active Learning Strategies for Robotic Tactile Texture Recognition Tasks, Journal: Frontiers in Robotics and AI, section Robot Learning and Evolution
- Unbalanced Fault Classification Using Active Learning in Synthetic Fiber Manufacturing Process, IEEE Syscon 2024

Extracurricular Activities

- President(Highest executive position), Robotics Club of BRAC University (2020-2021).
- Debating(English Parliamentary Debate).