SHEMONTO DAS

St. John's, NL, Canada

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EXPERIENCE

Data Science Intern

Instrumar Limited

May 2022 - Present St. Johns, NL

- Working with complex manufacturing time series data.
- Performing data preprocessing, feature engineering, exploratory data analysis and model building for anomaly detection and classification.

Graduate Teaching Assistant

Memorial University of Newfoundland

Jan 2022 - Present St. Johns, NL

- Conducted lab sessions for undergraduate computer science courses.
- Provided consultations to the students and assisted the faculty members.

Machine Learning Engineer

Arthor Limited

Feb 2021 - Jul 2021 Dhaka, Bangladesh

- Working on computer vision based Autonomous Driver Assistance System
- embed machine learning and computer vision in embedded systems

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.
- 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, Scipy)

- Preprocessed and analyzed tactile sensing data
- Developed hypertuning function for optimizing 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

(Python, Sklearn, Pandas, Scipy)

- Automated 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.

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.

EDUCATION

MSc. in Computer Science

Memorial University of Newfoundland

Jan 2022 – April 2024 St. John's, NL

BSc. in Computer Science and Engineering

BRAC University

Jan 2017 – Jan 2021 Dhaka, Bangladesh

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.
- Placed on VC's list for multiple semesters at BRACU and graduated with high distinction.
- Champion, State level Inter School English Parliamentary Debate Competition.

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

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