Madhura Ashok Satao

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EXPERIENCE

Research Assistant   *February 2024 - Present*
University at Buffalo   *New York, USA*

- Compiled dataset to classify dialogue utterances into **6** emotion labels for fine tuning **roBERTa** base and large LLMs while working on **Augmentative and Alternative Communication** NLP module
- Trained baseline model for classifying multi class emotion labels and generating emotion aware responses to assist speech impaired users

Software Engineer   *September 2020 - June 2022*
HSBC Software Development   *Pune, India*

- Designed schema for **Elasticsearch** indices and **Microservices** to manage multiple user roles and executed access rules to restrict access to data and APIs with **Spring Security, JWT** and **Hibernate**
- Spearheaded research and implementation of UI designs using **Angular** and **AG-Grid** for a data request-managing application with over **5000 users** enhancing overall user experience.
- Achieved **70%** improvement in operation workflow for data requests handling by implementing three-level approval control procedure, in **Angular AuthService** contributing to operational efficiency.
- Implemented an **XML** visualizer and comparator, resulting in **80%** faster and improved data analysis with intuitive custom filtering and threshold calculations. Utilized **Java**, **Spring Boot, Angular**.
- Automated **GIT** operations, to ensure business-critical configuration files were synchronized across environments facilitating **2 times** faster and concurrent modification by multiple team members with improved accuracy.
- Collaborated with stakeholders from HSBC UK office providing effective solutions for client queries, at least 10 per day, for a widely used **business-critical (tier-0)** application to ensure active production support.

EDUCATION

Master of Science,   *December 2023*
University at Buffalo   *New York, USA*
Coursework - Data Models and Query Language, Data Intensive Computing, Computer Vision and Image Processing, Information Retrieval, Machine Learning, Project Management.

Bachelor of Engineering,   *April 2020*
Pune Institute of Computer Technology   *Pune, India*
Coursework - Data Structures and Algorithms, Object Oriented Programming, Machine Learning Algorithms, Database Management Systems, Data Science and Big Data Analysis.

SKILLS

- **Languages** - Java, Python, SQL, C, Typescript, Javascript, R.
- **Database** - MySQL, PostgreSQL, MongoDB(NoSQL), ElasticSearch.
- **Cloud and Dev** - J2EE, Spring Boot, Angular, React js, Node js, Django, GCP, AWS
- **Machine Learning** - Numpy, Pandas, PyTorch, NLP, Transformers, Sklearn, LLM.

PROJECTS

Chat-Bot for Novels | NLP, LLM, Python, Apache Solr, React.js, GCP, Flask
- Developed chat-bot with microservice architecture and Retrieval Augmented Generation (RAG) to answer questions from 49,000 documents indexed in Solr.

Breast Cancer Analysis | Python, Flask, Machine Learning, Data Visualization, Data Analysis
- Led development of a predictive portal focused on forecasting mortality of breast cancer patients.

Audio Speech Emotion Recognition | Python, Machine Learning, Django, Librosa
- Developed a lightweight and interpretable ML model to recognize emotions in audio speech from hand-crafted audio signal features.

Mentor Bridge Portal | Java, JDBC, MySQL, Javascript, JQuery, HTML, Bootstrap
- Designed and integrated a robust communication platform facilitating seamless interaction between mentors and students.