

Madhura Ashok Satao

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EXPERIENCE

University at Buffalo

February 2024 - Present

Research Assistant, NLP

New York, USA

- Implemented emotion classification of 6-turn dialogue by collating 4 datasets and mapping to 6 custom labels to finetune **roBerta-large** LLM that achieved an **80% accuracy**
- Achieved emotion aware response generation by fine tuning **Flan-T5** LLM on conversation based dataset working on **Augmentative and Alternative Communication** module

HSBC Software Development

September 2020 - June 2022

Software Engineer

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

University at Buffalo

December 2023

Master of Science, Computer Science and Engineering

New York, USA

Coursework - Data Models and Query Language, Data Intensive Computing, Computer Vision and Image Processing, Information Retrieval, Machine Learning, Project Management.

Pune Institute of Computer Technology

May 2020

Bachelor of Engineering, Information Technology

Pune, India

Coursework - Data Structures and Algorithms, Object Oriented Programming, Database Management Systems, Machine Learning Algorithms, Data Science and Big Data Analysis.

SKILLS

- **Languages** - Java, Python, SQL, Typescript, Javascript.
- **Database** - MySQL, PostgreSQL, MongoDB(NoSQL), Elasticsearch.
- **Cloud and Dev** - J2EE, Spring Boot, Angular, React js, Django, GCP, AWS-S3, Glue, RDS, Athena
- **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.