

Madhura Ashok Satao

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EXPERIENCE

Barclays

June 2024 - Present

Developer

New Jersey, USA

- Architected enterprise integration patterns using **Apache Camel** within **Spring-boot microservices** enabling seamless interfacing between multiple event-driven services and message queues
- Designed and executed **XML** validation process using **custom annotations**, **XSLT** and **Hibernate** enforcing complex business rules with **cross-parameter validation** supporting up to **500** requests per minute.
- Developed comprehensive component and load tests using **Jmeter**, **Citrus**, and **WireMock** increasing test coverage to **97%**, ensuring high code quality, reduced technical debt, and enhanced maintainability

University at Buffalo

February 2024 - June 2024

Research Volunteer

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 scored **80% accuracy**
- Achieved emotion aware response generation by fine tuning **Flan-T5** LLM on a conversation dataset working on **Augmentative and Alternative Communication** module

HSBC

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, enhancing user experience of over **5000** users
- Improved up to **70%** 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 custom filtering and threshold calculations. Utilized **Java**, **Spring Boot**, **Angular**
- Automated Git operations to synchronize business-critical configuration files across environments, enabling 2X faster updates and concurrent modifications by an 8 member team
- Collaborated with stakeholders from HSBC UK office providing effective solutions for client queries, over 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

Pune Institute of Computer Technology

April 2020

Bachelor of Engineering, Information Technology

Pune, India

SKILLS

- **Languages** - Java, Python, Typescript, Javascript
- **Database** - MySQL, PostgreSQL, MongoDB(NoSQL), ElasticSearch
- **Cloud and Dev** - Spring Boot, Angular, React js, Django, Docker

PROJECTS

Chat-Bot for Novels | RAG, NLP, LLM, Python, Apache Solr, React.js, GCP, Flask

- A chat-bot using **Retrieval Augmented Generation (RAG)** to answer questions from **49,000** indexed documents.

Mentor Bridge Portal | Java, JDBC, MySQL, Javascript, JQuery, HTML, Bootstrap

- A robust communication platform facilitating seamless interaction between mentors and students

Audio Speech Emotion Recognition | Python, Machine Learning, Django, Librosa

- A lightweight and interpretable ML model to recognize up to 8 emotions in audio speech from hand-crafted audio signal features

Data Volume Reduction | Python, Django-Rest, Next.js, IBM Cloud, REST, SQLite, Swagger

- An advanced filtering and data sharing framework for large image datasets, enabling users to download only required data saving bandwidth