SHRUTI VARADE

Boston, MA |+1(617)606-8865 | varadeshruti27@gmail.com | linkedin.com/in/shruti-varade | github.com/shrutivarade

EDUCATION

Master of Science in Computer Science — **Sept 2022 - May 2024**
University of Massachusetts, Boston | GPA 3.9/4.0 (Teaching Assistant) — *Boston, MA*

Bachelor of Engineering in Computer Engineering — **June 2016 - May 2020**
Mumbai University, Mumbai | GPA 8.32/10.0 — *Mumbai, IN*

EXPERIENCE

Software Engineer — **July 2024 - November 2024**
Massachusetts General Hospital – Harvard Medical School — *Boston, MA, USA*

- Developed **a 3D visualization tool** to display the Brain MRI data for Neural Connections on the web browser using **Typescript**.
- Reduced the time to fetch 1GB of data from **AWS Cloud** from 15 seconds to about 3 seconds, achieving an **80.91% improvement**.
- Used color mapping to highlight details in the brain, making it easier for doctors and researchers to understand its structure.

Software Engineer (AI/ML) — **May 2023 – Present**
Machine Psychology Lab, University of Massachusetts, Boston — *Boston, MA, USA*

- Developed Boostlet.js, **a JavaScript library** enables real-time **AI/ML** processing of medical images in web browsers, created a comprehensive solution supports various data formats (e.g., EEGs, ECGs, X-rays, MRIs, and CTs).
- Designed a feature for image segmentation, data visualization, and integration with **Hugging Face's machine-learning models** to enhance existing medical image processing libraries with client-side processing capabilities.
- Improved teamwork and iterative development processes using **Git** for Version Control, **NodeJS** for backend development, **GitHub Actions** for test automation and **Submodules** for external library integration.

[Presented Boostlet.js at BrainHack Hackathon 2024 (Massachusetts Institute of Technology, Boston)]

Software Engineer — **Sept 2020 - June 2022**
TATA Consultancy Services — *Mumbai, India*

- Implemented a clean and simple full stack recommendation platform following **microservices based architecture** with **React** as frontend framework, **Java** for user management and **C++** for analytics.
- Developed a C++ microservice for analytics and recommendation engine for processing user data.
- Developed a Java microservice for user authentication, authorization and profile management functionalities.
- Designed **a distributed system architecture** with components, running across multiple docker containers, enabling a seamless communication between all the three services.
- Implemented **a JSON based** data storage approach for user data and in-memory processing for Quick user session and **RESTful API endpoints** facilitating data exchange between the frontend and backend services.
- Used transport layer like **http**, containerized using **docker** and orchestrated with **docker compose** for local development and integration.
- Established a comprehensive testing protocol, including **JUnit for unit testing**, and **python-based integration testing** to validating cross service workflows across the application.

PROJECTS

Matching Researchers with Students via Machine Learning deployed Web App
Python, Natural Language Processing, Streamlit.py, LLM, AI

- Developed GuideGenie, an NLP-based Artificial Intelligence recommendation system (a web application) that pairs researchers with professors using cosine similarity and Gemini LLM embeddings for precise word representation.
- Deployed the ML model to a web browser using Streamlit.py, providing an intuitive interface for academic matching.

An app that prevents race conditions and deadlocks
Java, Design patterns, Multithreading, Memory Management, Stream API

- Designed and implemented a backend algorithm using software design patterns for a music app, demonstrating advanced software development concepts of multithreading to enhance concurrency and optimize memory management.
- Solved problems related to deadlocks and race conditions by implementing thread-safe algorithms, ensuring seamless playlist access and validated functionality through unit testing using JUnit.

Health Monitoring web dashboard to display graphs and charts
Python, Django, Chart.js, Postgres SQL

- Built a dashboard using Layered (MVC) architecture provides users with an interface to track step count, calories burned, distance covered, etc.

SKILLS

Frontend:	HTML, CSS, Bootstrap, JavaScript, TypeScript, React.js, **Next.js**, ECMAScript, Three.js, WebGL, 3D Graphics,
Backend:	Java, Android, JUnit 5, Apache Ant, Python, **Django**, Express, Node.js, C++, REST API, JSON, HTTP, Docker, **Linux**
Databases:	SQL, MySQL Relational, **Postgres** NoSQL, GraphQL, MongoDB, Cloud Computing – **AWS**, **Kafka, RabbitMQ**
Tools:	**AI/ML**, Git, GitHub, **Postman**, CI/CD tools, Agile Methodology, SDLC, **Data Structures and Algorithms**