SHRUTI VARADE

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EDUCATION

Master of Science in Computer Science | University of Massachusetts, Boston, MA | GPA 3.88/4 **Expected May 2024**
[Courses: OODP- UML, Design Patterns, OOSD- Stream API, Concurrency, Analysis of Algorithms, User Interface Design, Comp. Graphics]

Bachelor of Engineering in Computer Engineering | University of Mumbai, Mumbai, India | GPA 8.32/10 **June 2016 - May 2020**
[Courses: Machine Learning, Artificial Intelligence, Cloud Computing, Database Management System, Data Structures, Operating System]

SKILLS

Frontend Development: Proficient in **HTML**, **CSS**, **JavaScript (including ES6+)**, **UI/UX** and frameworks such as **React.js**, **Angular.js**, and **Streamlit.py**; experienced in creating responsive designs with **Bootstrap**, and interactive 3D scenes with **xtk.js**, **Three.js** and **webGL**
Backend Development: Skilled in developing backend using **Java** (**JUnit 5, Apache Ant**), **Python (Django, Flask)**, **Express.js** and **Node.js**; proficient in programming languages such as **C/C++**; adept in **RESTful API** integration and data interchange formats like **JSON** and **XML**
Databases: Experienced in DBMS and operations with **MySQL**, **PostgreSQL**, **MongoDB** and implementing **AWS** cloud storage solutions
Development Tools and Methodologies: Efficient in using version control with **Git, GitHub**; development environments like **IntelliJ** and **VS Code**; project management and collaboration tools including **JIRA** and **Confluence**; and **Agile,** and **Scrum** methodologies.

WORK EXPERIENCE

Teaching Assistant | University of Massachusetts | Boston, Massachusetts **Jan 2023 – Present**

- Supported professors from the Department of Computer Science by assisting in courses such as "***Introduction to Computing (python)***" and "***Programming in C***," facilitating group discussions, grading assignments, and enhancing student engagement and comprehension.
- Mentored students through challenges, providing constructive feedback and proctoring exams contributed to their academic success.
- Recognized as 'Best TA' for course CS110 for exceptional assistance during weekly discussion sessions, leading to improved student engagement and course success rate with my effective communication skills.

System Engineer | TATA Consultancy Services | Mumbai, India **Sept 2020 – June 2022**

- Collaborated on the architecture planning and development of webpages for the SBI's CRM software, using **Java** and **JavaScript** ensuring alignment with the Software Development Life Cycle resulting in a 20% improvement in user experience within a year.
- Implemented **RESTful APIs** and **SQL** to optimize data retrieval and process automation, seamlessly integrating them with the backend infrastructure. Utilized **Git version control** to ensure code integrity and collaboration across cross-functional teams.
- Performed comprehensive **unit testing**, achieving a test coverage of approximately 95% and reducing software defects by 50%.
- Employed **ATLASSIAN tools** for project documentation and knowledge sharing and provided hands-on mentorship to interns, imparting valuable insights into debugging and troubleshooting practices for full-stack application development.

ACADEMIC PROJECTS

BOOSTLET.js | Web-based Image Processing Library | JavaScript [Link] **Ongoing**

- Developed "Boostlet.js," a web-based image processing plugin that significantly extends the existing medical imaging libraries. This processing module works with various image visualization frameworks.
- Integrated the framework with advanced medical imaging libraries such as Cornerstone.js, Niivue.js, and Openseadragon.js.
- Implemented sophisticated image processing techniques, including applying the *Sobel filter* for edge detection and utilizing Meta's *Segment Anything Model (SAM)* for enhanced image segmentation.
- Executed data processing algorithms such as displaying a *plotly histogram* for analysis *and image captioning* using hugging face API.
- Integrated *TRAKO* (a tool for compression and visualization of MRI fiber tractography data) to display the 3D fiber bundle (for Niivue!).
- Implemented test automation using Puppeteer and GitHub Actions that compares the test images with ground truth.

BoxCraft.js | Widget library | JavaScript [Link] **Sept 2023 – Dec 2023**

- Created a library for selecting Region of Interest (ROI) on all DOM elements / HTML canvas using the Bounding Box (BBox) mechanism.
- Developed a resizableBBox for precision and a swift draggableBBox to enhance user efficiency for ease of selecting ROI.
- Integrated the widget library into Boostlet.js, ensuring uniform ROI selection across various libraries for the SAM model.

GuideGenie | Web Application for Machine Learning model | Python [Link] **Feb 2024**

- Created Guide Genie: Developed during a hackathon, a web-based recommendation system seamlessly connects researchers with professors who share their interests.
- Leveraged Gemini LLM embeddings and cosine similarity: Engineered a system with precise research interest matching, beginning with meticulous web scraping of UMass Faculty data, followed by data cleansing and preprocessing, and generating word embeddings.
- Deployed machine learning (NLP-based model) on the web: Utilized Streamlit, an open-source Python framework, to deploy the system and facilitate effortless connections between individuals and professors.

FITNESS METRICS DASHBOARD | Web Application using Django | Python [Link] **Feb 2023 – Apr 2023**

- Built a responsive fitness dashboard using Django, Chart.js for visualization, and PostgreSQL as a database.
- Showcased dashboards, allowing users to easily track and monitor step count, calories burnt, distance covered, and workout duration.
- Used Docker to improve deployment time by 50%, reducing environment configuration issues by 70% and increasing scalability, resource utilization, and code consistency.

CERTIFICATES

- **Microsoft:** MTA**:** Introduction to Programming Using Python – Certified 2020
- **Microsoft:** MTA**:** Introduction to Programming Using Java – Certified 2019
- **Microsoft:** MTA: Software Development Fundamentals – Certified 2018
- **Automation Anywhere:** University Certified Essentials RPA Professional V11 (Blockchain ID: 570041)
- **LinkedIn Certificates:** Learning Java 17, Java: Lambdas and Streams, Git from Scratch, Introduction to Web Design and Development, Learning ECMAScript 6+ (ES6+), React.js Essential Training, Learning Confluence, JavaScript Essential Training

EXTRACURRICULAR ACTIVITIES

Professional Presentations:

- Presented Boostlet at Niivue Hackathon 2023 | **University of South Carolina, Columbia**

  Invited by Chris Rorden, the distinguished Chair of Neuroimaging at the University of South Carolina, our team, in collaboration with Professor Daniel Haehn, a Harvard PhD alumnus, showcased our innovative project, Boostlet.js, at the Niivue Hackathon in November 2023. The event was a prestigious platform to unveil our vision for a generic processing module, revolutionizing the use of leading medical imaging libraries. We also took the opportunity to introduce BoxCraft.js, a uniform Region of Interest selection tool designed for seamless integration across various DOM elements.

- Presented Boostlet at BrainHack 2023 | **MIT, Boston**

  At BrainHack 2023, hosted by MIT in Boston, our team demonstrated the latest advancements in Boostlet.js. A notable achievement was integrating TRAKO to render 3D fiber bundles, which is currently operational with the NiiVue.js library. This prestigious hackathon showcased our technical skills and facilitated mentorship from Professor Daniel Haehn. Collaborating with Edward Gaibor, an undergraduate member of our team, I embraced the role of mentor, imparting the professional ethos and practical knowledge I had acquired from Professor Haehn fostering an environment of growth and learning within our project.

- Presented GuideGenie at BostonBridge Hackathon 2024 | **University of Massachusetts, Boston**

  At the Boston Bridge Hackathon, hosted by the UMass Boston Computer Science Club, our team unveiled Guide Genie, a web-based platform designed to easily connect researchers with compatible professors. Leveraging advanced techniques like Gemini LLM embeddings and cosine similarity, we aimed to streamline the typically complex process of finding research mentors. Our journey involved web scraping for UMass Faculty data, refining this information, and employing machine learning for precise matching, culminating in a user-friendly application built with Streamlit. This project not only addressed a common challenge in the academic community but also enriched our hackathon experience with a practical solution.

Campus Leadership and Athletic Accomplishments:

- Member of Google Developer Student Club (GDSC), UMB CS Club, Investment Club | **University of Massachusetts, Boston**
- All India Football Federation' E' certificate course (AIFF/E/2021/MH/0081) | **All India Football Federation**
- Represented as a Team Player at the Inter-District Football Championship of Maharashtra, Jalgaon | **All India Football Federation**
- Led as Team Captain at Inter-collegiate and Intra-University Football Championship, Mumbai | **University of Mumbai**

Personal Interest:

Football (Soccer) |Cycling | Trekking | Painting | Marathon | Hackathon |Fitness!

STEM OPT Eligible