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ROHINI DESHMUKH

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EDUCATION

University of Massachusetts, Boston — **Boston, MA**
Master of Science in Information Technology | ***GPA 3.7/4*** — ***September 2022 - May 2024***
Teaching Assistant *at UMass, Boston for courses such as 'Introduction to Computing Engineering using Python'.*

University of Mumbai, Maharashtra — **Mumbai, India**
Bachelor of Engineering in Information Technology | ***GPA 7.87/10*** — ***June 2018 - May 2021***
Courses*: Data Structure and Analysis, Database Management Services, Cloud Computing, Object Oriented Prog., Operating System, Machine Learning, Artificial Intelligence, User interface Design, Big Data Analysis, Graphical User Interface, Computer Science Fundamentals.*

SKILLS

Frontend: HTML, CSS, JavaScript (ES6+), UI/UX, React.js, Typescript, Streamlit.py, xtk.js, Three.js, webGL, SQL
Backend: Java, Python (Django, Flask), Express.js Nodejs, C/C++, API
Databases: MySQL, PostgreSQL, MongoDB, Snowflake, AWS cloud storage
Technologies: Git, Docker, Kubernetes, Jira, CI/CD, Agile, Scrum methodologies

EXPERIENCE

Software Engineer (Research Fellowship) | Machine Psychology | UMass Boston, MA — **September 2023 – Present**

- Conducted research on **JavaScript** based medical image processing libraries such as Cornerstone.js, Niivue.js, OpenSeaDragon.js, Papaya.js and XTK.js that helps us visualize the high-resolution medical scans on 2D and 3D web canvas.
- Developed and presented project PowerBoost at **BrainHack 2024**, leading a three-person team to enhance the functional capabilities of the UI widget my integrating image processing Boostlets with a draggable bookmarklets.
- Co-authored a paper at **IEEE VIS 2024** aiming to provide web plugin for image processing.

Advisor: Prof. Daniel Haehn | mpsych lab

API Integration Intern | Calix | San Jose, California — **May 2023 - August 2023**

- Assisted in the integration of third-party **APIs** using **Flask**, enhanced data flow and application functionality.
- Developed **RESTful API** endpoints and conducted extensive testing to verify integration success. Utilized **SQL** for database management tasks, including querying and updating data. Created comprehensive documentation for API integrations.

Software Developer | Germin8 | Mumbai, Maharashtra — **June 2021 - July 2022**

- Collaborated in revamping the user interface of Germin8's social media analytics platform by migrating from traditional front-end to React framework, enhancing software development life cycle resulting in a 30% increase in user engagement.
- Developed a scalable backend service using **Node.js** by implementing data processing pipelines and optimizing database interactions, ensuring that our services could efficiently handle up to 200,000 requests per day.
- Wrote comprehensive unit and integration tests, achieving 100% test coverage. This rigorous testing process guaranteed that the application remained reliable and stable, even as new features were added.

PROJECTS

Floating UI Widget for web browser with expanding and collapsing action menu:

- Designed a project *PowerBoost.js*, a floating UI widget with an expand and collapse action menu, compatible with any browser via JavaScript injection, featuring a search recommendation system listing all possible Boostlets.
- Developed an editor mode using **Ace.js**, allowing users to compile and run **JavaScript** code, and integrated Powerboost.js with *Boostlet.js* to display Boostlets according to their categories, following a modular architecture and **OOP** principles.
- Utilized Node Parcel for bundling the source code into a minified JS file, providing easy installation using a bookmarklet for users to dynamically load the script on any host website by dragging and dropping PowerBoost onto the bookmark bar.

Visualize a 3d model of the human heart in response to the ECG signals:

- Developed a project *Cardiowave*, an ECG visualization tool utilizing **Three.js** to render a 3D model of the human heart on a web browser, enabling interactive and realistic heart visualizations.
- Researched and evaluated various 3D visualization canvases, including **xtk.js**, **three.js**, and **WebGL**, to determine the most effective approach for rendering the heart model and accurately visualizing ECG data.
- Implemented an interface that allows users to drop ECG data files into a browser drop zone, extracting and analyzing P, Q, R, S, and T peaks, and dynamically pumping heart atriums and ventricles based on the analyzed peaks, transitioning from Python libraries (**Biosppy.py** and **NeuroKit.py**) to a full **JavaScript** implementation for enhanced performance and flexibility.

Web scrapping and analysis tool used to perform 4 types of analysis:

- Extracted extensive financial data from *Yahoo Finance*, including stock prices, historical data, and financial news. The data was then subjected to detailed **descriptive** and **regression** analysis to uncover patterns and trends.
- Utilized **Matplotlib** to create visualizations, such as line plots, and performed **text** analysis to generate word clouds, providing a visual representation of the most frequently occurring words in financial news articles.
- Using the **NLTK** library, the project conducted **sentiment** analysis on Yahoo Finance news articles. This analysis revealed a strong correlation between stock prices and the sentiments expressed in the news.

HACKATHONS

BostonBridge 2023 | UMass Boston *(Deployed ML model on web addressing the problem related to Brain Tumor Detection)* — **Nov 2023**
BrainHack 2024 | UMass Boston *(Led a team of 3 developers to enhance the capabilities of project PowerBoost)* — **Feb 2024**