

# TUSHAR PARMANAND BUDHWANI

+1(413)-466-1132    [tbudhwani@umass.edu](mailto:tbudhwani@umass.edu)    [tusharbudhwani.works](https://tusharbudhwani.works)    [tusharbudhwani](https://www.linkedin.com/in/tusharbudhwani)    [tusharbudhwani](https://github.com/tusharbudhwani)

## EDUCATION

---

### University of Massachusetts Amherst

*Master of Science in Computer Science*

May 2025

GPA: 3.93/4.0

- **Teaching Assistant** for the graduate course “**Algorithms for Data Science**” under Prof. Andrew McGregor (Spring 2025)

### University of Mumbai

*Bachelor of Engineering in Computer Engineering*

May 2023

GPA: 3.8/4.0

- Patent Granted: Proposed a faster alternative to the AES algorithm for secure communication between IoT devices
- Community Service: **Led 250 volunteers** for over 80 events including Blood Donation Drives, Cleanup Drives, etc

## EXPERIENCE

---

### Data Scientist - LLM

Jan 2025 - present

*Adobe Inc. (with University of Massachusetts Amherst)*

- Reduced **LLM-as-a-Judge** miscalibration in evaluation tasks by designing a novel hybrid approach that integrates LLM-generated critiques with **supervised learning**, conducting **ablation studies** that boosted alignment with human judgments by 24%
- Utilized **vLLM** to generate **sentence embeddings** from LLM generated critiques, applied **feature engineering**, **OLS** and **Multinomial Logistic regression**, implemented **cross-validation** to enhance alignment of scores with human ratings
- Leveraged **Plotly** and **Matplotlib** to build comparative charts across four datasets and multiple evaluation criteria

### Full Stack Development Intern

Aug 2021 - Jan 2022

*Infovue Solutions Inc.*

- Developed **AWS Glue ETL** scripts using **Python** and **SQL** to migrate over 2 TB of transaction data from 70+ tables from on-premises **MySQL database** into **AWS Redshift** data warehouse, streamlining analytics
- Redesigned database schemas and **indexing strategies** of eight high-traffic tables (each containing over 1 million rows), effectively reducing query execution time by 30% and ensuring consistent performance under rapid growth
- Developed a **MERN** internal employee portal with adaptive dashboard for HR/payroll data, integrating **Tableau** for analytics
- Migrated a legacy monolithic application into three **containerized microservices** using **Docker**, integrated with **CI/CD pipelines**, and deployed on **AWS EKS**, enabling automated builds and modular scaling

## PROJECTS

---

### Microservices based E-Commerce platform | *MERN, Docker, AWS*

Jan 2025

- Built a **MERN web app** with a modular UI using reusable **React components and Bootstrap**
- Orchestrated five microservices with **Express.js**, and integrated **RabbitMQ** for asynchronous messaging
- Containerized the microservices with **Docker** and orchestrated via **Docker Compose**
- Wrote **90% coverage tests** with **Jest**, **React Testing Library**, **Cypress**, ensuring stability across user flows and edge cases

### Predictive Diagnostics Web Platform | *Python, Streamlit, Scikit-learn*

Feb 2023

- Trained and evaluated eight ML models (SVM, Random Forest, XGBoost, AdaBoost), using **hyperparameter tuning** and **k-fold cross-validation** to identify the best-performing model for six diseases, and deployed models as web applications using **Streamlit**
- Performed **data preprocessing** techniques such as **feature engineering**, **SMOTE** for **class balancing**, and **normalization**, implementing **outlier detection** and **feature scaling** methods, boosting **prediction accuracy** by up to 4%
- Assembled a **Stacking Ensemble** model combining **Logistic Regression**, **KNN**, and **Decision Trees**, attaining 91.3% accuracy for heart disease detection, outperforming individual models

### Smart Food Management app | *Laravel, SQL*

Jan 2022

- Engineered a **full-stack web app** using **Laravel(PHP)** with individual modules for expiration tracking, recipes, inventory management, nutrition optimization, and notifications for items nearing expiration
- Created a **responsive and visually engaging front-end interface** using **HTML5, CSS3, Bootstrap, and Sass**, ensuring **cross-device compatibility** and an **intuitive user experience**
- Implemented a smart recipe **recommendation engine** using keyword-based matching against an **API-based** recipe dataset

## TECHNICAL SKILLS

---

**Programming Languages:** Python, Java, C, C++, SQL, JavaScript, R, Git

**Python Libraries:** NumPy, Pandas, Streamlit, Plotly, Scikit-learn, NLTK, Matplotlib, TensorFlow, Keras, PyTorch, Seaborn

**Databases & Visualization Tools:** PostgreSQL, MySQL, Redshift, PowerBI, Tableau, SQLite, MongoDB

**Full Stack Development:** Express.js, React.js, Node.js, HTML/CSS, AJAX, Bootstrap, Tailwind.css, JQuery, PHP, Laravel

**Cloud Platforms & DevOps:** AWS (EC2, S3, EKS, Lambda, Glue, RDS, Elastic Beanstalk), Docker, Kubernetes