Tanmayee Tajane

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Education

Indiana University Bloomington, IN
Master of Science in Computer Science May 2025
Relevant Coursework: Software Engineering, Applied Algorithms, Product Management, Big Data Applications, Engineering Cloud Computing, Applied ML, Advanced Database Concepts, Computer Networks, and Data Mining.

Vishwakarma Institute of Technology Pune, India
Bachelor of Technology in Electronics and Telecommunication Engineering May 2023
Relevant Coursework: Data Structures and Algorithms, Machine Learning, Computer Vision, Signal Processing, Embedded System Design, Computer Architecture and Operating Systems, Network Security, Project Management, Object-Oriented Programming. CGPA - 8.88/10

Skills

- **Programming:** Python, Java, JavaScript, C++, C.
- **Web Development:** ReactJS, HTML, CSS, JSON, YAML, XML, NodeJS, PHP, Express.js, Django.
- **Databases & Cloud Technologies:** SQL, MongoDB, PostgreSQL, Kubernetes, Firebase, Hadoop, Spark, Azure, AWS, SDLC.
- **Libraries & Frameworks:** Spring, NumPy, Pandas, Matplotlib, Seaborn, sci-kit-learn, TensorFlow, OpenCV, Pickle.
- **Other tools:** Docker, Slack, Git, JIRA, Selenium Testing, REST APIs, RabbitMQ, Visual Studio, Linux.

Work Experience

Teaching Assistant - CSCI-B 405 Applied Algorithms — CSCI-A 290 Tools for Computing Bloomington, IN
Luddy School of Informatics, Computing, and Engineering August 2024 - May 2025

- Supported learning for 100+ students by holding weekly office hours and clarifying concepts related to Python, JavaScript, PHP, and algorithmic problem solving, improving student grades by an estimated 15%.
- Ensured fair and timely assessment by grading assignments and exams, accelerating feedback delivery by 30%.

Computer Vision Research Intern Pune, India
E&TC Department, VIT January 2023 - May 2023

- Achieved an 18% improvement in BLEU score for image captioning tasks by designing and training deep learning models combining LSTM with Attention Mechanisms using TensorFlow and Keras.
- Processed the Flicker8k dataset, consisting of 8000 images, and delivered scalable models in a collaborative research setting, leading to a successful peer-reviewed publication in AIP conference proceedings.

Projects

DeliverEase — ReactJS, NodeJS, Express, CSS, Docker, MongoDB, Vercel, Firebase

- Spearheaded the end-to-end development of a delivery management platform that streamlined operational workflows, enhanced real-time communication between stakeholders, and reduced manual coordination overhead by 30%; collaborated closely with a cross-functional team to translate business requirements into scalable product features delivered on time.
- Integrated Firebase Authentication, MongoDB for backend operations, with Docker and YAML-based deployment pipelines, reducing production troubleshooting time and deployment bugs by 25% and ensuring CI/CD best practices using Git and GitHub Actions.

HaltWatch: Advanced Vision Recognition for Safe Autonomous Driving — OpenCV, Numpy, Pandas, Matplotlib

- Built a real-time hand signal recognition model using SIFT and OpenCV, achieving 92% accuracy.
- Curated a dataset of 17,920 images from real-world videos to train the model, improving generalizability across diverse scenarios.

LearnQuest — PHP, SQL, Firebase

- Led the design and implementation of a gamified learning platform that increased student engagement by 40% by introducing real-time score tracking and progress visualization; collaborated with peers to define user stories, integrate secure authentication, and ensure seamless data management via PHPMyAdmin for SQL backend schema, resulting in a scalable system adopted for educational demos.
- Integrated Google authentication(OAuth) for user registration, enhancing security to ensure compliance with user privacy practices, along with score tracking functionality to monitor user progress and performance.

Library Management System in Java — Java Swing, XAMPP, SQL

- Engineered a Java-based desktop application with an intuitive GUI for managing books, members, and issues, reducing manual workload by 60% while building an intuitive UI using Java Swing and AWT.
- Ensured a maintainable and scalable object-oriented architecture by applying encapsulation, inheritance, abstraction, and modular class design in Java, which improved code readability and reduced debugging time by 40%; followed SDLC best practices throughout the development lifecycle using Java Swing, AWT, and JDBC for seamless database interaction.

Papers Presented

- Vision-based Recognition of Slow and Stop Signals for Autonomous Driving — Published in AIP Conference Proceedings. Link
- Best Paper Award for “Study of Face Recognition Algorithms” at RTAR-2021, August 2021.