Suman Mandava

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Summary

Early-career software engineer with proven experience in full-stack development and building responsive applications. Successfully enhanced system performance and delivered real software solutions in collaborative environments. Eager to leverage technical problem solving and hands-on project experience in a Jr. Software Development Engineer role, contributing to impactful deliverables while benefiting from mentoring and team integration.

Education

University at Buffalo, The State University of New York **Aug 2024 - Dec 2025**
Master of Science, Computer Science and Engineering *Buffalo, New York*

- **GPA:** 3.8
- **Coursework:** Data Structures & Algorithms, Database Systems, Object-Oriented Programming, Operating Systems, Machine Learning, Deep Learning

St.joseph's institute of technology **Mar 2020 - Apr 2024**
bachelor of engineering, computer science *Chennai, India*

- **GPA:** 3.6
- **Coursework:** Operating Systems, Computer Networks, Microprocessors and Microcontrollers, Data Structures and Algorithms, Design and Analysis of Algorithms, Database Management System

Experience

University at Buffalo **Oct 2024 - Present**
Research Assistant *Buffalo, USA*

Developed a multi-head Transformer-based model for multi-label classification of cognitive-affective states (Engagement, Boredom, Confusion, Frustration) using Action Unit (AU) and Valence-Arousal (VA) features from the DAISEE dataset.

- Achieved a 78.08% test accuracy via late fusion of parallel Transformers for emotion recognition.
- Integrated Qwen3 (LLM) with LoRA and TRL's SFT for efficient cross-modal fine-tuning, enabling interpretation of structured AU/VA descriptors and generation of multi-head emotion predictions via instruction-style prompts.

Centum T&S **Apr 2024 - Jun 2024**
Software Engineer Intern *Bengaluru, India*

Developed responsive HMI applications for BMRCL and DMRC metro systems using protobuf, ZeroMQ, and web sockets, aligning with modern responsive HTML & CSS principles to achieve a 30% improvement in system responsiveness.

- Designed intuitive UI components using Handlebars.js and Node.js, enhancing driver control over console and audio configurations while adhering to software engineering best practices.
- Translated business requirements into detailed technical specifications to ensure accurate implementation and timely delivery of HMI features.

HCLTech **Jan 2024 - Mar 2024**
Software Engineer Intern *Chennai, India*

Constructed a full-stack Online Video Platform utilizing React.js for the frontend and Node.js with MongoDB for the backend, reflecting a commitment to scalable architecture and secure development practices.

- Implemented core features including JWT authentication, role-based user interfaces, and video streaming, thereby elevating user engagement by 20% and improving admin efficiency by 30%.
- Incorporated modern development workflows and CI/CD principles to streamline deployments and ensure adherence to automated testing frameworks and version control standards.

Projects

Online Video Platform | React.js, Node.js, MongoDB, Express.js, JWT Authentication. | Github

- Developed a full-stack online video platform with JWT authentication, React Hooks, REST API, Firebase, MongoDB, an admin dashboard, an analytics module, and a Google Dialogflow chatbot.

Know Your Customer Verification using Blockchain and CPABE Algorithm | Github

- Built a secure e-KYC platform integrating Ethereum and CP-ABE encryption, achieving 98% data accuracy and reducing verification redundancy by 70%. (ICIMA-2023, IEEE DOI – View here).

Visual Question Answering | PyTorch, CLIP, Transformers, Vision-Language, Multi-head Classifier | Github
University at Buffalo

- Developed a Visual Question Answering (VQA) system for real-world images from the VizWiz dataset, addressing challenges such as blur and poor lighting.
- Integrated pre-trained CLIP (ViT-B/32) vision-language encoder with a lightweight multi-head classifier, achieving 70% test accuracy in textual answer prediction.

Trip Planner CrewAI (Gemini + Serper) | Github

- Designed and shipped a multi-agent travel planner with CrewAI agents (city selector, local expert, concierge) collaborate to produce a personalized 7-day itinerary.
- Integrated Gemini LLMs via CrewAI's LLM and Serper web search; added DuckDuckGo fallback and a website reader tool for robust, real-world data gathering.

Technologies

- **Languages**: Java, C++, C, Python, HTML, CSS, JavaScript, Typescript
- **Frameworks**: React.js, Node.js, Express.js, Handlebars, Bootstrap, Material UI, Context API, JSON Web Token, NextJS
- **Databases & Libraries**: MySQL, MongoDB(NoSQL), PostgreSQL
- **DevOps/Cloud**: Git, Firebase, GCP, Docker, CI/CD
- **Tools & Technologies**: RESTAPIs, Postman, WebSockets, OAuth, Ganache, Nmap, Wireshark, Tableau, Google Dialogflow
- **AI & ML**: Linear/Logistic Regression, SVM, k-Means, CNNs, RNNs, Transformers, VAEs, GANs, Reinforcement Learning, scikit-learn, TensorFlow, PyTorch, NumPy, NLP