

Ashutosh Ambley Manoj

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Professional Summary: A Software Engineering & Machine Learning enthusiast with expertise in AI-driven systems, back-end development, and scalable application design. Passionate about integrating ML into real-world solutions, optimizing performance, and building robust architectures. Experienced in Python, FastAPI, TensorFlow, cloud technologies, and AI-powered automation. Seeking opportunities in Software Development, Machine Learning Engineering, and AI-focused roles.

Education

San Diego State University , Master of Science (MS) in Computer Science	Aug 2024 – May 2026
• GPA: 3.91/4.0	
SASTRA Deemed University , Bachelor of Technology (B.Tech) in Computer Science	Jul 2019 – Sep 2023
• GPA: 8.889/10.0	
• Achievements: Dean's top 10% honorary list for the academic year 2019-2020.	

Experience

Software Engineer Intern , ZoomRX Healthcare Tech and Solutions Pvt. Ltd - Chennai, India	Jan 2023 - July 2023
<ul style="list-style-type: none">Migrated 15+ legacy microservices to newer Python versions, resolving 80% of dependency conflicts and ensuring smooth transitions with Poetry.Refactored 10+ API endpoints from older frameworks to FastAPI, improving request-handling efficiency by 35% and reducing response times from 250ms to 160ms.Automated deployment pipelines, updating Docker images & Kubernetes manifests, leading to 30% better resource utilization and reducing manual deployment efforts by 60%.Integrated CI/CD workflows, reducing rollout time from 45 minutes to 20 minutes, minimizing downtime, and ensuring stable service delivery.Enhanced Ferma AI's knowledge graph, structuring 50+ new user queries and contextual updates, leading to a 25% improvement in AI-driven response accuracy.	
Machine Learning Intern , NWarehouse Pvt. Ltd. - Tiruchirapalli, Tamil Nadu, India	May 2022 – Sep 2022
<ul style="list-style-type: none">Developed a deep learning model for grain classification using TensorFlow & OpenCV, improving detection accuracy by 20% and reducing manual inspection errors.Built a predictive model for estimating grain shelf life using Random Forest & XGBoost, achieving 90% accuracy (measured via RMSE evaluation).Optimized real-time inference speed, reducing model latency by 40% through ONNX-based deployment, enabling faster decision-making.Integrated AI models into the warehouse management system, automating real-time grain quality monitoring, reducing stock wastage, and improving storage conditions.Enhanced agricultural supply chain efficiency, improving inventory forecasting accuracy by 30%, reducing losses due to spoilage.	

Projects

MLLeetcode: LeetCode-Style ML Coding Practice Platform
<ul style="list-style-type: none">Developed an interactive ML coding platform using Javascript, HTML5, CSS, React, Node.js, and MongoDB, covering topics from linear algebra to deep learning.Built dynamic test case execution, real-time feedback, and difficulty sorting, enhancing the learning experience.Designed a scalable backend handling problem storage, user submissions, and API-driven test case execution.Authored 50+ ML coding problems, creating a structured and engaging environment for learners.

JobsAI: AI-enhanced job application assistant

- Built an AI-powered job application assistant with a Chrome extension and full-stack integration using Javascript, HTML5, CSS, React, Node.js, and MongoDB.
- Developed an auto-fill assistant using Llama API & Puppeteer, streamlining applications by extracting and populating key details.
- Designed an interactive dashboard with resume parsing, job tracking, and AI-driven recommendations.
- Engineered a seamless user experience by integrating real-time updates between the extension, backend, and web platform.

LearnFlow: Interactive AI Learning Hub

- Developed an AI-powered learning platform with real-time tutoring, interactive exercises, and session tracking using Javascript, React (TS), Firebase, and Hugging Face.
- Built a drag-and-drop no-code editor for educators, reducing lesson creation time by 50%.
- Implemented real-time analytics using Firebase Firestore, enhancing student engagement and personalized learning.
- Optimized platform performance using serverless architecture (Firebase, Next.js SSR) for scalability.

MathCanvas: AI-powered Math Calculator

- Engineered an AI-driven math solver with Gemini Flash API, recognizing handwritten expressions with 95%+ accuracy.
- Developed an interactive React-based UI, allowing users to draw equations for instant solutions.
- Integrated a Python backend for real-time inference, delivering results under 500ms.
- Optimized model efficiency, improving processing speed by 30% while maintaining precision across arithmetic, algebra, and calculus.

Publications

Application of Deep Learning Algorithms in Medical Image Processing: A Survey	Jan 2022
10.1002/9781119821908.ch15	
Automated Image Captioning Using Multimodal Contextual Cues	Jul 2023
Preprint: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=452493	

Technical Skills

- **Software Development:** Backend systems, Distributed Systems, Parallel Programming, API design, Performance Optimization
- **Model Quantization & Optimization:** ONNX, TensorRT, PyTorch FX Graph Transformations
- **Deep Learning & Transformers:** Hugging Face, PyTorch, JAX, BERT, GPT Models
- **Performance Profiling & Custom Kernels:** PyTorch Profiler, NVIDIA Nsight, TVM
- **Cloud & DevOps:** AWS Lambda, EC2, Docker, Kubernetes, CI/CD, Cloud deployments
- **Databases:** MySQL, NoSQL (PostgreSQL, MongoDB, Redis), Distributed Databases, In-memory databases
- **Languages & Frameworks:** Javascript, HTML5, CSS FastAPI, Django, Node.js, React (TS), Next.js, PHP
- **Data Analytics & Visualisation:** Excel, Google Sheets, Tableau, Power BI, Streamlit, Matplotlib, Seaborn
- **Tools & Platforms:** Elasticsearch, Git, Linux, Operating Systems Concepts