AKSHAY ARALIKATTI

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Experience

Software Developer, Virtual Labs – IIIT Hyderabad   Nov 2022 – Mar 2024

- Led design and development of 7 interactive Operating Systems labs using the MERN stack and TDD, deployed as part of a national Ministry of Education initiative serving 8.5M+ participants across 46M+ page views.
- Refactored 800+ lines of legacy code and resolved 95+ defects. Integrated automated tests with Jest, Cypress, Pytest, and Postman, improving platform stability by 30%.
- Built and documented REST APIs for experiment management, authentication, and analytics. Added MongoDB/PostgreSQL persistence and GitLab CI/CD pipelines for reliable deployments.
- Facilitated 60+ GitLab syncs and coordinated 100+ tasks in a 5-member cross-functional team, consistently meeting quarterly milestones.

Full-Stack Engineer/Trek Leader, Indiahikes   Sept 2017 – Dec 2022

- Built and maintained the core booking platform and website with full-stack ownership across Node.js/Express, React, and PostgreSQL, handling 20,000+ trekkers and 35,000+ bookings annually.
- Developed RESTful APIs for trek discovery, payments, and logistics. Containerized services using Docker and deployed cloud-native microservices on AWS/GCP to ensure reliability and horizontal scalability.
- Implemented Twilio-based workflows for SMS/WhatsApp notifications, integrating payment gateways and internal logistics tools to provide real-time trip updates and confirmations.
- Introduced caching and query optimization via Redis and database indexing, reducing booking-flow latency and page load times by over 40%.
- Led 80+ high-altitude Himalayan expeditions managing group safety, route planning, and on-ground operations while gathering user feedback to drive product and UX improvements.

UI/UX Design Intern, Wissen Technologies   Apr 2024 – Jul 2024

- Designed six production-ready web layouts in Figma. Applied usability testing and information architecture principles to improve navigation efficiency by 30%.
- Collaborated with full-stack engineers to translate wireframes into responsive React components, standardizing design tokens and reusable UI patterns.

Projects

Voice-Controlled Human-Following Robot (Create3 + ROS 2)   Dec 2024
- Built an edge-deployed AI robot on Raspberry Pi 5 integrating Picovoice wake-word detection ($<$10 ms), OpenAI Whisper ASR (39M params), and Gemma-3-1B intent parsing—achieving 1.5s end-to-end command latency and 95% wake-word accuracy.
- Implemented MediaPipe + OpenCV hybrid human-following at 5 FPS, publishing velocity commands via ROS 2 Jazzy to iRobot Create3 with sub-120 ms control-loop latency.

Eluvio RAG Agent   Sept 2024
- Built a RAG pipeline using llama3.2:3b (Ollama), including a Selenium crawler that scraped 10K+ JS-rendered blocks, chunked and embedded them with Sentence Transformers, and indexed via FAISS for sub-1s retrieval.
- Deployed the system as a production-ready Flask REST API enabling real-time autonomous querying of Eluvio's decentralized network.

EcoLocator – SF Hacks 2025   Apr 2025
- Built a Dockerized Django full-stack app on GCP with PostGIS and the OSM Overpass API to map 150+ composting sites on Leaflet.
- Developed a responsive React+Bootstrap UI with authentication, impact tracking, and leaderboard module.

YOLOv8 for Small Object Detection   Mar 2025
- Trained YOLOv8 on the Mapillary dataset (40K images) using NVIDIA A100, achieving 89% mAP and exported to ONNX.
- Optimized inference with TensorRT for ROS-based ADAS simulation at 30 FPS and $<$50 ms latency.

ADAS – Lane Detection   Apr 2025
- Engineered a real-time C++ OpenCV lane detection pipeline with camera calibration, perspective transform, and sliding-window polynomial fitting.
- Integrated into ROS visualization with traffic/pedestrian detection at sub-40 ms latency for high-speed ADAS tasks.

Education

California State University, Chico, Master of Science in Computer Science   Aug 2024 – Present
Coursework: Advanced Algorithms, Machine Learning, Computer Vision, Robotics, Distributed Systems

Visvesvaraya Technological University, India, Bachelor of Engineering   May 2016

Skills

Languages & Frameworks: C/C++, Python, Go, Java, JavaScript, Bash, Django, Flask, FastAPI, Node.js, Express, React, Spring Boot

ML & AI: PyTorch, TensorFlow, scikit-learn, LLM fine-tuning, prompt engineering, RAG pipelines, model compression (quantization, pruning), TensorRT, FAISS, vector databases

Systems & Robotics: Multithreading, concurrency, memory management, low-latency pipelines, ROS 2, OpenCV, MediaPipe, Linux, TCP/IP, sockets, IPC

DevOps & Cloud: Docker, Kubernetes, CI/CD (GitHub Actions, Jenkins, GitLab CI), AWS (EC2, S3, EKS), GCP (GKE, Cloud Run, Vertex AI), Terraform, Prometheus, Grafana

Data & MLOps: PostgreSQL, MongoDB, Redis, BigQuery, MLflow, Weights & Biases, Airflow, feature engineering, data labeling