Ambarish G Kaliamurthi

San Jose, CA +1 408-590-1407 ambarishgk@gmail.com

ambarishgk.me ambarishgk AmbarishGK ambarishgk

Education

San Jose State University **May 2026**
Master of Science in Computer Engineering *San Jose, CA*

Experience

Autonomous and Robotic Systems Lab **Sep 2024 – Present**
Graduate Researcher, SJSU - ambarishgk *San Jose, CA*

- Built a **voice-operated teleoperation system** integrating a **LLM** and **Model Context Protocol (MCP)** via **ROS 2**, achieving **1–40 ms** command latency improving accessibility for human-robot collaboration
- Developed a **WebRTC-based video streaming client** in **Node.js/JavaScript** to stream real-time camera and telemetry data from edge devices, utilizing **GStreamer**, **Socket.IO**, and **WebSocket APIs**.
- Documented research methodology and system architecture, preparing comprehensive technical guides and datasets for reproducibility, and currently authoring a **research paper**.

Smarthub.ai **May 2021 – Jan 2024**
Software Engineer *Bengaluru, India*

- Redesigned **firmware upgrade** using **AsyncIO + multithreading**, reducing upgrade time by **95%** (**5h → 15 min**).
- Built **Docker, Edge** IoT monitoring with **90%** anomaly detection accuracy, cutting false downtime by **87%**.
- Wrote **Linux Bash scripts** for legacy devices to monitor services and trigger **cURL calls** to push logs for analysis.
- Developed a **Python Cloud SDK** to scale monitoring across **4,000+** IoT devices with built-in retry logic and logging.
- Developed a **Python SDK** and asynchronous **device simulator** with integrated **gRPC, REST, and GraphQL APIs** to emulate real IoT devices for **QA and testing**, enabling the simulation of **1000+ concurrent devices**.

Predigle India Pvt Ltd **Sep 2020 – Apr 2021**
Software Developer *Chennai, India*

- Wrote a **full-stack web app** (Flask, Angular/React, MySQL) handling **10M+** records with secure role-based auth.
- Built a **real-time network surveillance tool** in **Python** leveraging **scapy**, **nmap**, and **socket** libraries to monitor packets, fingerprint every user device, and alert on unauthorized access or anomalous behavior with nvdlib.
- Developed a **Golang CLI** that connects to a **MySQL** database, filters lead data by score, and stores output in **CSV**.
- Implemented a **GitHub Actions CI workflow** integrating static code analysis, linting, and dependency vulnerability scanning to enforce **coding standards and security policies**; prevented pull-request merges until it was verified.

Projects

Agentic Resume/Cover builder | *Python, LLMs*

- Engineered an **MCP based LLM agent** using **Python** and **RAG** to analyze resumes and generate job-specific enhancements and cover letters, improving alignment with job description by **60–80%**.

FirstResponder: MCP Enabled VLM for Intelligent Disaster Response | *Python, LLMs*

- Built a **RescueBot** with an on-device **VLM** and custom **MCP** server for real-time scene understanding; achieved **82% event classification accuracy** and automated alerts to **first responders** and **911** within **3 seconds**.

IoT Multi-Level Image Forensics Security Suite | *Python, Security Software, IoT, Open-Source Tools* [Code]

- Integrated open-source tools such as **PhotoHolmes**, **ExifTool**, **Sherloq**, **ImageMagick**, and **Scikit-Image** for cross-verification of image integrity, metadata tampering, and steganographic content and scored them from IoT devices

LeRobot Imitation Learning Framework | *Robotics, Imitation Learning, VLMs/VLAs (SmolVLA, Pi 0.5)* [Demo]

- Fine-tuned **LeRobot** policies using **VLA models** (**SmolVLA**, **Pi 0.5**) for autonomous oximeter placement; achieved **50% task success** in on-device inference and replay trials for medical manipulation.

ROS2 Wrapper for DualSense Haptic PS5 Joystick | *ROS2, C++, Robotics* [Code]

- Built a **ROS 2 Python driver** integrating **PS5 DualSense** 6-DoF control and adaptive haptics, achieving **50 ms response latency** for smooth, bidirectional robot teleoperation.

Technical Skills

Languages: Python, C, C++, Go, JavaScript, node.js, TypeScript, SQL, Java
Tools & Frameworks: Flask, FastAPI, React, PyTorch, matplotlib, visualization, Async, scapy, bs4
AI/ML: YOLO, vLLM, VLM, LLM, Computer Vision, VLA, MCP
Tools: Docker, Kubernetes, Git, AWS, GCP, Hugging Face, LangChain
Cloud tools: AWS Lambda, greengrass, dynamodb, ec2, GCP Vertex