

Ruthvik Reddy Gade

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TECHNICAL SKILLS

Programming: Python, SQL, Bash, Java & C/C++

Frameworks & Libraries: FastAPI, SQLAlchemy & TensorFlow

Technologies & DevOps: Git, Google Cloud Compute, Docker & Linux

EXPERIENCE

ADCS ENGINEER - 1U CUBESAT MISSION (ICARUS) Bengaluru, India | 2025 - Present

- Contributed to **ADCS design** for a **1U CubeSat**, including **magnetorquer hardware**, **attitude sensors** (sun sensors, magnetometer, IMU), and **system-level architecture**.
- Designed and implemented **attitude determination and control algorithms**, integrating **multi-sensor data** for **real-time estimations** on a **STM32** using **FreeRTOS**.
- Authored a formal **ADCS design report** covering **system architecture**, **control modes**, and **subsystem interfaces**.

"HACK-A-BOT" HACKATHON Bengaluru, India | 2025

- Developed **OFNIR**, an AI personal trainer using **LangGraph** for multi-step orchestration and **Gradio** for a custom Obsidian-themed interface.
- Integrated **Groq-powered LLMs** with strict **safety guardrails** and **biometric validation** to provide structured, safe fitness and nutrition protocols.

PROJECTS & TECH DEMOS

AUTONOMOUS AIRCRAFT LANDING & TAXI CONTROL SYSTEM Website | [Source Code](#)

- Designed an **autonomous ATC system** implementing **real-time aircraft sequencing**, **constraint-based pathfinding**, collision avoidance, **emergency handling**, and runway scheduling.
- Built a **live web-based visualization interface** to simulate aircraft movement, visualize taxiway/runway paths, and monitor ATC-managed operations in real time.

ZERO-TRUST SHAMIR'S SECRET SHARING TOOL [Website](#) | [Source Code](#)

- Architected a **high-performance secret sharing service** using **FastAPI**, featuring a **stateless architecture** that processes sensitive data in-memory.
- Developed a **stateless FastAPI backend** that validates **cryptographic shares** and **prevents secret reconstruction** under partial system compromise.

SERVERLESS REAL-TIME CHAT & VIDEO PLATFORM Website | [Source Code](#)

- Built a **decentralized chat and video platform** designed to operate without **centralized servers**, ensuring **resilience against internet shutdowns**.
- Enabled **peer-to-peer communication using WebRTC**, with **FastAPI + WebSockets** for signaling and **end-to-end encrypted** audio/video streams.

EDUCATION

MANIPAL ACADEMY OF HIGHER EDUCATION

Bengaluru, India | 2024 - 2028

BTech, Electronics & Computer Engineering