

# Arnav Amit Angarkar

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## Summary

Computer Science undergraduate (B.Tech, IIIT Dharwad, graduating June 2028, CGPA 8.81) and Google Summer of Code 2026 contributor who builds distributed, real-time backend systems in Python and C++. Shipped a production ML inference platform that replaced a ~Rs. 2 Cr/year vendor, maintain a 6k+ star open-source platform with 100+ merged pull requests, and led a team to All India Rank 3 of 2,000+ in the ISRO IROC Grand Challenge. Seeking Software Engineer (SDE) internships and new-graduate roles.

## Education

**Indian Institute of Information Technology (IIIT) Dharwad** Aug 2024 - Jun 2028  
*B.Tech in Computer Science and Engineering, Minor in Quantum Computing; CGPA: 8.81/10 Dharwad, India*

- Coursework: Data Structures and Algorithms, Object-Oriented Programming, Operating Systems, Computer Networks, Database Management Systems; Quantum Computing minor GPA: 10.00/10

**Loyola High School and Chanakya Junior College** 2012 - 2024  
*SSC: 89.8% | HSC: 82% (Maharashtra State Board) Pune, India*

## Experience

**Google Summer of Code 2026, FOSSASIA (VoxBento)** May 2026 - Present  
*GSoC Contributor (Software Engineering) Remote*

- Architected VoxBento from scratch: a **distributed, low-latency multilingual audio platform** for conference-scale virtual and hybrid events, deployed on Linux servers.
- Designed a **concurrent multi-channel audio routing system** (WebRTC, Jitsi, MediaMTX) with synchronization primitives that keep parallel language channels free of drift and race conditions.
- Built **horizontally scalable backend microservices** in Python, FastAPI, PostgreSQL and Redis pub/sub, running Speech-to-Text, translation, subtitle and Text-to-Speech pipelines as asynchronous, event-driven services.
- Presented the system design and its trade-offs as a speaker at FOSSASIA Summit 2026; gave a live demo at Wikimania Paris 2026.

**FOSSASIA (Eventyay)** Oct 2025 - Present  
*Project Maintainer Remote*

- Maintain Eventyay, an open-source **conference management platform with 6k+ GitHub stars** used by Wikimedia and PyCon.
- Merged 100+ pull requests** across ticketing, schedule editor, speaker management and event settings (Django, Vue.js) before GSoC selection.
- Review community contributions, merge pull requests and keep production stable across Django and Jinja codebases.

**Poonawalla Fincorp** Jun 2025 - Jul 2025  
*ML/AI Intern Pune, India*

- Designed and deployed a self-hosted **distributed ML inference pipeline** for identity verification on AWS (VPC), **replacing a commercial vendor valued at ~Rs. 2 Cr/year** while meeting enterprise SLA requirements.
- Built self-hosted vector search infrastructure with **sub-50ms** approximate nearest-neighbour query latency at production scale, integrated into fraud-prevention and financial-verification workflows.

**Indian Institute of Science (IISc), RIMM Lab** Jun 2025 - Dec 2025  
*ML Systems Intern Bangalore, India*

- Built a modular ML inference system combining MediaPipe landmark detection with segmentation-based garment synthesis in a **GPU-parallel pipeline** for full-body virtual try-on.
- Built privacy-first inference APIs for edge devices; reduced latency through model quantization and on-device processing.

**ISRO IROC Grand Challenge (All India Rank 3, National Finalist)** Nov 2024 - Aug 2025  
*Systems Engineer India*

- Led a multidisciplinary team through a 10-month autonomous UAV challenge, finishing **Top 3 nationally out of 2,000+ teams**.
- Built a MAVLink-based Ground Control System with a real-time telemetry state machine, a **concurrent WebSocket event loop** for multi-sensor ingestion and 3D flight visualization (Three.js).
- Wrote embedded sensor fusion in **C/C++ on Linux** (Jetson Nano, Pixhawk, LiDAR, depth cameras) with a multi-threaded SLAM pipeline for real-time path planning and obstacle avoidance.

**IISc CPD Med TBI (Aarnaq)** Dec 2024 - Mar 2025  
*Machine Learning Intern Bangalore, India*

- Fine-tuned YOLOv8 for Automatic Number Plate Recognition on GoK-DULT urban mobility data; optimized inference with ONNX, FP16 and TensorRT for real-time embedded deployment.

**Bramhand Exploration Pvt. Ltd.**  
*Research Intern*

Nov 2024 - Apr 2025  
*Pune, India*

- Built an NLP chatbot over the company's satellite-development knowledge base and revamped the company website (front end, back end, performance and UX).

**QWorld, QIntern 2025**  
*Project Intern and Team Lead*

Jun 2025 - Aug 2025  
*Remote*

- Led a team of 7 building QPlay, a game-based quantum computing learning platform.

## Projects

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**DataMind: Verifiable Natural-Language Data Agent** 2026  
*Python, Gemma (Ollama), Snowflake, SQL* | 1st Place, ZeroDay MLH National Hackathon (Open Source Track) | [github.com/ArnavBallinCode/ZeroDay](https://github.com/ArnavBallinCode/ZeroDay)

- A local LLM turns a question into a constrained plan; deterministic code validates and compiles it into **read-only, parameterized SQL**; every answer returns its evidence (executed SQL, rows, Snowflake query ID).

**RagVault: Offline Enterprise RAG System** 2025  
*Python, FastAPI, LangChain, ChromaDB, Llama.cpp* | Runner-up, HAL Aerothon '26 | [github.com/ArnavBallinCode/RagVault](https://github.com/ArnavBallinCode/RagVault)

- Built a fully offline Retrieval-Augmented Generation system with quantized on-device LLM inference, vector search and a modular document ingestion pipeline, with zero external API dependencies.

**CampusDabba: Campus Marketplace (Founder and CEO)** Feb 2025 - Dec 2025  
*Django, PostgreSQL, WebSockets, JWT* | Pre-incubated startup, 2,500 USD seed funding

- Built a full-stack marketplace from zero to production with **real-time WebSocket communication**, JWT-secured REST APIs and optimized PostgreSQL queries.

**Transmon-QKD-ML: Quantum Hardware Benchmarking** 2025 - Present  
*Python, Qiskit, GitHub Actions* | Supervised by Prof. V. Ravishankar (IIT Delhi) | [github.com/ArnavBallinCode/transmon-qkd-ml](https://github.com/ArnavBallinCode/transmon-qkd-ml)

- Automated a **CI/CD data pipeline** on IBM Quantum hardware collecting calibration metrics across 156 physical qubits; Random Forest models predict BB84 QKD fidelity from hardware drift.

## Technical Skills

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**Languages:** C++, C, Python, TypeScript, JavaScript, SQL

**Backend:** FastAPI, Django, Flask, Node.js, REST APIs, Microservices, WebSockets, WebRTC, Redis Pub/Sub

**Frontend:** React, Next.js, Vue.js, Tailwind CSS

**Databases:** PostgreSQL, MySQL, MongoDB, Redis, Snowflake, ChromaDB, Milvus, Pinecone

**Cloud and DevOps:** AWS (EC2, VPC), Docker, Git, GitHub Actions (CI/CD), Linux

**AI/ML:** PyTorch, TensorFlow, scikit-learn, LangChain, Hugging Face, LLMs, RAG, Prompt Engineering, ONNX, TensorRT, OpenCV

**CS Fundamentals:** Data Structures and Algorithms, Object-Oriented Programming, Operating Systems, Computer Networks, DBMS, Distributed Systems, System Design, Concurrency and Multi-threading

## Achievements

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- Google Summer of Code 2026** contributor (FOSSASIA), one of ~1,200 selected globally.
- 1st Place**, ZeroDay MLH National Hackathon, Open Source Track (2026); **1st Place**, HACKMAZE '26 National Hackathon (2026); **1st Place**, DevHack '25, IIT Dharwad (2025); **Winner**, Hack2Future (2024).
- All India Rank 3**, ISRO IROC Grand Challenge, out of 2,000+ teams (2025); **Runner-up**, HAL Aerothon '26 (2026).
- 4th Place**, UIDAI BioChallenge Face Match, 0.993103 AUC (2026).
- Speaker:** FOSSASIA Summit Bangkok, Wikimania Paris, Opportunity Open Source Conference 4.0, OpenTech Summit Mumbai (2026).
- Bug bounty:** responsibly disclosed vulnerabilities to Netflix, Google, 1Password, Cursor and Udemy (2022 - 2025).
- 96.6 percentile**, JEE Main, among ~2.5 million candidates (2024).

## Publications

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- Angarkar, A. A. *Temporal Graph Neural Models for Predicting Organizational Silos in Evolving Communication Networks*. Under review, 2026.
- Angarkar, A. A. *Quantum Error Correction: Understanding from Bell States to Surface Codes*. ResearchGate, 2025.