

# Sathwik P. Kallapur

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## SUMMARY

Driven and determined software engineer with a keen sense of morality and objectivity, and an appetite for knowledge and cognitive strength. 2.5+ years of industry experience in backend systems, high-performance computing, and AI chatbot development. Proven track record in optimizing API performance (50x speed increase at Latlong) and refactoring mission-critical financial logic. Recently completing Master of IT at Monash University with strong academic performance.

## EDUCATION

### Monash University

*Master of Information Technology (MIT)*

Clayton, Australia

Feb 2024 – Dec 2025

- GPA: 3.31/4.0. Key units: Cloud Computing, Advanced DBMS, Multi-Agent Systems, Discrete Optimisation.

### PES University

*Bachelor of Technology in Electronics and Communications*

Bengaluru, India

July 2018 – July 2022

- Major GPA: 8.16/10. Minor in Computer Science (GPA: 8.25/10).
- Focused on Generic Programming, Data Structures, and Operating Systems.

## EXPERIENCE

### Software Development Engineer (SDE) 1

July 2023 – Dec 2023

*Medpho (Telimedica Technologies)*

Remote, India

- Developed full-stack features and AI chatbots from scratch using Node.js, Next.js, and PostgreSQL.
- Integrated Google Dialogflow to build intuitive healthcare chatbots for Tier 2/3 Indian cities.

### Software Development Engineer (SDE) 1

July 2022 – July 2023

*CoffeeBeans*

Bengaluru, India

- Refactored financial calculation logic by replacing floats with a custom type, ensuring perfect precision.
- Optimized backend data handling for e-commerce and AI recommendation engines, increasing throughput.
- Maintained multi-DBMS architectures and implemented complex concurrency patterns in Go.

### Software Engineering Intern

Sep 2021 – June 2022

*Latlong (ONZE Technologies)*

Bengaluru, India

- Migrated API infrastructure from Ruby on Rails to Go, yielding 50x faster execution and 20x less memory usage.
- Built high-performance RESTful APIs for Geocoding and Driving Directions using PostGIS.
- Developed a Geocoding algorithm 2x more accurate than Google Maps API for the local context.

## TECHNICAL SKILLS

**Languages:** Golang, C/C++, Python, Java, Rust, Ruby, HTML/CSS, JavaScript

**Backend:** Node.js, Next.js, FastAPI, Flask, Django, REST APIs, Microservices, Concurrency

**Data & ML:** PostgreSQL, MongoDB, Redis, OracleDB, PostGIS, Reinforcement Learning, Computer Vision

**Infrastructure:** OCI, AWS, Docker, Terraform, Git, CI/CD, Nginx

## PROJECTS

### SafeTrek | FastAPI, Vue3, PostGIS, Docker

2025

- Interactive road safety analysis platform using geographic visualization to support urban policy decisions.
- Implemented complex geospatial queries in PostGIS and containerized the entire stack for deployment.

### Racing Line Mapper | Golang, Reinforcement Learning, OpenCV

2025

- Reinforcement Learning system mapping optimal racing lines using MDP and image-processed track skeletons.
- Developed a custom arcade physics engine and transformed raw track maps into semantic Frenet frames.

### Road Lane Detection | Python, OpenCV

2022

- Detected road lane boundaries in dash-cam video using Sobel operators and perspective transforms.

### Generic Red-Black Trees | C++ Template Programming

2021

- STL-compatible RBT implementation with bidirectional iterators and custom predicate support.

## INTERESTS

High Performance Software Design, Systems Engineering, Game Development, Physics Engines, Rock Music, Simulation Racing, Mindfulness, Intellectual Discourse.