

NIKHIL NAIR

Kochi, Kerala, India

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Education

Vellore Institute of Technology - Chennai

B.Tech in Computer Science and Engineering (Cyber Physical Systems)

Sept 2021 - Aug 2025

CGPA: 8.21/10

- **Relevant Coursework:** Data Structures and Algorithms, Operating Systems, Computer Networks, Embedded AI, Network Security, Artificial Intelligence, Core Java, Cryptography, Control Systems, Secure Networking

Technical Skills

Languages: Java, Python, C++, Go, SQL, PHP, Kotlin, HTML/CSS/JS

Frameworks/Tech: Spring Boot, Docker, Kubernetes, Flask, TensorFlow, Keras, OpenCV, ROS2, Jetpack, Qiskit

Tools/Platforms: Git, GitHub Actions, GCP, AWS, Arduino, Figma, Overleaf, CI/CD, Jenkins

Soft Skills: Communication, Teamwork, Problem-Solving, Adaptability, Precision, Data Driven Thinking

Experience

TATA Elxsi – Transport Business Unit

Oct 2023 – Dec 2023

AI and Robotics Intern

Chennai, India

- Improved obstacle detection by fusing 3D LiDAR with 2D vision, extending range in tough conditions.
- Optimized KITTI dataset preprocessing by ~30% using **ROS2** and **OpenCV**, enhancing the perception pipeline.
- Supported internal tooling and automation within a robotics pipeline, building services with **Spring** and lightweight shell scripts to streamline version control.

Patent & Publication

A System to Recognize Number Plate and Allow Entry of a Vehicle

2024

Patent Number: 202441051527

Published

- Developed a **Python**-based system using computer vision to recognize vehicle number plates and automate access control through **REST APIs** and efficient backend processing.

Inverter-Integrated ECC with Torsion Points as Black Box Alternatives in Aircraft Security

2025

Soft Computing Applications in Modern Power and Energy Systems

Accepted

- Proposed ECC-based inverter integration using torsion points as black box alternatives to strengthen aircraft security.

Isogeny-Based Security for Marine Genomic Insights

2024

INTERNATIONAL CONFERENCE ON ICT DIGITAL, AND SUSTAINABLE DEVELOPMENT

Accepted

- Contributed to the field of marine genomic insights through Isogeny-based security research.

Projects

LeetCode Connect – Leetcode Streak Tracker App

2025

- Built a real-time LeetCode stats tracker app in **Kotlin**, leveraging **Android SDK** for native development, **Jetpack Widgets** for dynamic homescreen stats, and **REST APIs** for live problem, submission, and streak data.

TTGO InfoDash: Real-Time ESP32 Smart Dashboard

2025

- Built a real-time dashboard on **TTGO T-Display ESP32** using **C++**, **Arduino**, and **REST APIs** for live weather, F1 data, and **OAuth2**-based Spotify playback. Implemented JSON parsing, TFT graphics, and button-based UI.

NAS-Optimized Deep Learning Model for Concrete Strength Prediction

(Thesis Project) 2025

- Engineered a **Neural Architecture Search**-optimized model in **Python** & **Keras** for concrete strength prediction; improved accuracy by ~10% ($R^2 > 0.90$). Supported design of stronger, cost-effective, and sustainable mixes.

Certifications & Achievements

Certifications: Quantum Computing (Udemy, 2025) – covered **Python**, **Q#**, **Qiskit**; ML Specialization (Coursera, 2023); Google Cloud Career Practitioner & Foundation Programs (2023–24).

Achievements: Top 25/548 in VITISH (SIH) Hackathon 2024; invited to pitch at VNEST incubator. Awarded **PMSS Scholarship** for academic excellence and leadership; **Open source contributor** - merged PRs in projects with 1K+ stars.

Extracurricular

Volunteer Teacher - U&I Trust

July 2024 – Present

- Led academic sessions for underprivileged students; supported a INR 2.13 crore education fundraiser through outreach and awareness.