NIKHIL NAIR

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Education

Vellore Institute of Technology - Chennai | **Sept 2021 - Aug 2025**
B.Tech in Computer Science and Engineering (Cyber Physical Systems) | *CGPA: 8.21/10*
- **Relevant Coursework:** Data Structures and Algorithms, Operating Systems, Computer Networks, Embedded Systems, Network Security, Artificial Intelligence, Microprocessor, Cryptography, Control Systems, IoT Systems Design

Experience

TATA Elxsi – Transport Business Unit | **Oct 2023 – Dec 2023**
AI and Robotics Intern | *Chennai, India*
- Improved 3D object detection by implementing LiDAR-Camera fusion and projecting 3D point clouds onto 2D images.
- Optimized KITTI dataset preprocessing by ∼30% using **ROS2** and **OpenCV**, enhancing the perception pipeline.

Patent & Publication

A System to Recognize Number Plate and Allow Entry of a Vehicle 🔗 | **2024**
Patent Number: 202441051527 | *Published*
- Developed a system leveraging computer vision to automatically recognize vehicle number plates and control access based on recognition results, enhancing security and efficiency in restricted areas.

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. Implemented local storage and a minimal UI to encourage consistent coding.

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.

Sentinel : Intelligent ADAS-Integrated Fleet Monitoring System 🔗 | **2024**
- Built an ADAS fleet system using **Python** & **OpenCV** for collision and driver monitoring, **YOLO** for crowd detection, and **Flask** APIs for data flow. Integrated **GPS tracking** with a **JavaScript** dashboard for real-time insights.

Technical Skills

Languages: Java, Python, C++, Go, SQL, PHP, Kotlin, HTML/CSS/JS, PostgreSQL
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, JUnit, Mockito, ScyllaDB
Soft Skills: Communication, Teamwork, Problem-Solving, Adaptability, Precision, Data Thinking

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.

Leadership / 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.

Head of Design Team - Business Innovation Community, VITC | **Sept 2022 – Apr 2024**
- Managed 17-member team and oversaw design campaigns, boosting event turnout by 40% and tripling sponsorship revenue.