Nikhil Nair

Navi Mumbai, Maharashtra, India
+91 9820276733 codenik29@gmail.com linkedin.com/in/nikhilnair29 github.com/icebelly29
nikhilnair.works

Education

Vellore Institute of Technology - Chennai **Aug 2021 - Jun 2025**
Bachelor of Technology in Computer Science and Engineering with spec. in Cyber Physical System *GPA: 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 **Oct 2023 – Dec 2023**
AI and Robotics Intern in Transport Business Unit *Chennai, India*

- Contributed to the implementation of perception algorithms, achieving an improvement in 3D object detection accuracy through Lidar-Camera fusion.
- Utilized ROS2 and OpenCV to efficiently process the KITTI dataset, optimized data preprocessing time by ∼30%, enhancing perception system pipeline.
- Developed 3D point cloud projection onto 2D images, improving LiDAR-Camera fusion accuracy.

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 | *Kotlin, Android SDK, Jetpack Widgets, REST APIs* **2025**

- Developed a lightweight Android app that visualizes LeetCode stats in real time, including problems solved, daily submissions, and streaks, using API integration, local storage, and homescreen widget support, with a clean minimal UI designed to motivate consistent coding practice.

TTGO InfoDash: Real-Time ESP32 Smart Dashboard | *C++, Arduino, REST APIs, OAuth2* **2025**

- Designed and developed an interactive real-time dashboard on the TTGO T-Display ESP32, featuring live weather updates, a network-synced clock, Spotify playback data (via Web API and OAuth2 token refresh), and F1 driver standings. Leveraged REST APIs, JSON parsing, TFT graphics, and button-based screen switching to create a responsive embedded UI experience..

NAS-Optimized Deep Learning Model for Concrete Strength Prediction | *Python, Keras* **2025 (Capstone)**

- Developed a Neural Architecture Search-optimized deep learning model to predict compressive strength of concrete mixtures, integrating automated hyperparameter tuning to improve model generalization and accuracy. Achieved $R^2 > 0.90$ on the test set, outperforming the baseline model by ∼10%. The solution aims to assist civil engineers in formulating stronger, cost-effective, and sustainable concrete with minimal material waste.

Sentinel : Intelligent ADAS-Integrated Fleet Monitoring System | *Python, Open CV, Flask, JS* **2024**

- Developed a fleet management solution for buses and trucks with ADAS features, including collision detection, driver monitoring using dlib and OpenCV, and real-time overcrowding detection with YOLO, integrated with GPS-based vehicle tracking via a Flask backend and a web dashboard for fleet managers to access critical insights on vehicle location and driver behavior.

Eureka : Research Access Chrome Extension | *JavaScript, Chrome APIs* **2024**

- Created a Chrome extension to quickly find open-access versions of scientific articles for improved academic efficiency.

AI Gym Trainer/Assistant | *Python, Open CV, Mediapipe* **2023**

- Built a real-time fitness tracker using OpenCV, and Mediapipe to count reps via pose detection and angle analysis.

Technical Skills

Languages: Python, Java, C++, HTML/CSS/JavaScript, SQL, ROS
Developer Tools: Arduino, Overleaf, Google Cloud Platform, Figma, Git
Technologies/Frameworks: Linux, ROS2, OpenCV, TensorFlow, Keras, Qiskit, Pandas, NumPy, Matplotlib, Flask, APIs
Soft Skills: Creativity, Communication, Adaptability, Attention to Detail, Data-Driven Thinking
Interests: Language Learning, Weight Training, Sketching, Reading, Formula 1

Certifications & Achievements

Math-Based Introduction to Quantum Computing, Cryptography & Quantum Machine Learning: Completed via Udemy in 2025. Covered topics like Python, Q#, and Qiskit.
VITISH Hackathon 2024: Top 45 spot out of 548 for Smart India Hackathon 2024 and invited to pitch by the incubator.
PMSS Scholarship: Awarded for academic excellence and leadership potential.
Machine Learning Specialization: Completed via Coursera in 2023.
Google Cloud Career Practitioner Campaign: Completed in 2023.
Google Cloud Foundation Program: Completed in 2024.

Leadership / Extracurricular

U&I Trust **July 2024 – Present**
Teaching Volunteer *Online*

- Facilitated educational sessions for underprivileged students, fostering academic growth and personal development.
- Contributed to a nationwide education fundraiser that raised over 2.13 crore rupees by supporting outreach and awareness efforts for underprivileged students.

Business Innovation Community **Sept 2022 – April 2024**
Head of Design Team *VIT Chennai*

- Led and managed a team of 17 members and Initiated, supervised and worked on multiple design projects, including promotional materials, event posters, resulting in a $\sim$40% boost in event attendance and 3x increase in sponsorship funds.