Arjun Nair

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Career Profile

Full-stack, robotics, and machine-learning engineer with nearly three years' experience turning complex sustainability and business problems into intuitive, scalable software products. I design and build end-to-end web applications—from front end to data pipelines—while also delivering AI- and robotics-driven features that translate raw data and sensor inputs into clear, actionable insights for users.

Education

University of New South Wales 2018–2023
B.E. (Hons) Mechatronic Engineering; B.Sc. Computer Science (Artificial Intelligence) *Sydney, Australia*

Sydney Grammar School 2012–2017
Higher School Certificate (HSC) *Sydney, Australia*

Experience

Full Stack Software Developer and Machine Learning Engineer Oct 2022 – Present
NetNada *Sydney, Australia*

- Migrated legacy React to Next.js 15 + TypeScript, shipping a reusable UI kit that now powers all tenants.
- Integrated multi-tenant SSO and token-based role management with Kinde Auth, enabling fine-grained feature gating per tenant and custom auth flows for whitelabel tenants.
- Designed and built Prisma-managed PostgreSQL tables optimised for high-volume ingestion (50k+ records), replacing fragmented MongoDB/Firebase data stores and centralising all emission-factor and accounting data.
- Built high-volume ML workflows with OpenAI and Hugging Face AI models to classify suppliers, match emission factors, and generate carbon insights, achieving a 200%+ increase in matching accuracy.
- Developed interactive emissions dashboards allowing sustainability managers to slice emissions by supplier, category, or time period for tens of thousands of transaction lines.
- Built optimised RAG pipelines using LLMs, vector search, and prompt engineering to deliver precise, low-latency sustainability insights, enabling real-time querying and benchmarking of reports against industry peers.

Projects

Robotic Software Architecture (COMP3431) Mar 2023 – Nov 2023
UNSW *Sydney, Australia*

- Built a ROS2-based autonomous navigation system for TurtleBot3 using SLAM and wall-following logic in Python.
- Implemented real-time object detection and map annotation via camera–LiDAR sensor fusion and OpenCV.
- Developed custom ROS2 nodes for control, mapping, and computer vision, with state-driven motion logic.
- Led GitHub setup, launch file configuration, and live demos in both simulation and real-world environments.

Redback Racing UNSW Oct 2021 – Oct 2023
UNSW *Sydney, Australia*

- Worked on autonomous Formula SAE car, integrating a ZED stereo camera with an NVIDIA Jetson Orion for real-time perception.
- Implemented YOLOv7 with PyTorch for real-time object detection, gaining experience in hardware-software integration and sensor data processing.
- Completed onboarding with ROS2, Open3D, and LiDAR scan processing.
- Trained and deployed AI models using AWS cloud services.
- Collaborated in Agile sprints using JIRA and Notion.

Technical Skills

Languages: JavaScript, TypeScript, Python, Java, C++, C, Rust, Assembly
Front-End: Next.js, React, HTML, CSS, Tailwind, Material UI, Bootstrap
Back-End: Node.js, Express, PostgreSQL, Firebase, MongoDB
Cloud & DevOps: AWS, Vercel, Docker, GitHub, CI/CD
AI & Data: OpenAI, LangChain, Hugging Face, Pinecone, Faiss, PyTorch, YOLOv7
Robotics: ROS2, OpenCV, UE6, Robotic Arms, LiDAR, SLAM, sensor fusion, embedded systems