

Nandita Raj Kumar

San Jose, California | nanditarajkumar@gmail.com | <https://nanditarajkumar.vercel.app>

EDUCATION

University of California, San Diego, La Jolla, CA

June 2029

Jacobs School of Engineering

BS. in Computer Science

GPA: 4.0

EXPERIENCE

Engineers For Exploration, *Student Researcher*, La Jolla, CA

January 2026 - Present

- Developed ROS 2 publisher and subscriber nodes for an underwater ROV that processed camera feeds with OpenCV and object detection to classify whether objects were fish.
- Integrating Qualcomm Rubik Pi edge hardware with computer vision pipelines for low latency onboard inference.

Development Team at ACM at UCSD Student Org., *Backend Developer*, La Jolla, CA

November 2025 - Present

- Developed various backend services that served 1000+ people by implementing CRUD APIs using Typescript, PostgreSQL, and TypeORM.
- Assisted in building CI/CD pipelines for AWS infrastructure utilizing Docker, GitHub Actions and CapRover.
- Established a comprehensive testing base by implementing Playwright end-to-end tests and Jest unit and integration test suites.

Project: Empower, *Full Stack Developer Volunteer*, Remote

June 2021 - June 2023

- Developed and deployed 5+ full stack apps (React, Next.js, Node.js, PostgreSQL), collectively reaching 1M+ visits.
- Collaborated with 10+ engineers on a React Native mobile app.

California State Summer School for Mathematics and Science, *Participant*, Remote

June 2023

- Researched and implemented deep learning architecture (CNN, RNN, Transformers)
- Conducted experiments on the UCLA Speaker Dataset (100+ subjects, thousands of samples) using ECAPA-TDNN
- Authored and presented a research poster on speaker verification and model performance.

PROJECTS

Archo Warehouse Robot, *ROS 2 Robot System*

August 2026

- Built URDF for a differential drive warehouse robot including the robot's links, joints, lidar, and IMU sensors.
- Integrated ros2_control for robot hardware/control interfaces and configured SLAM for mapping and localization.
- Worked on the ROS 2 navigation stack and organized the project with launch files, configuration files, URDF/Xacro, controllers, and other required package files.

Waldo The Wellness Warrior, *Full Stack AI Health Voice Agent App*

June 2025

- Built real-time voice/chat health agent using LiveKit and RAG using LangChain on WebMD data.
- Integrated Next.js frontend, Google OAuth, and PostgreSQL for secure data storage.

Precision of Machine Learning Models in Classification of ASD, *Independent Research*

June 2023 - June 2024

- Published in Journal of Emerging Investigators
- Processed real-world health data with NumPy, Pandas
- Compared ML models (KNN, SVM, Random Forest, Naive Bayes) using cross-validation and confusion matrices.

SKILLS AND INTERESTS

Skills:

- Languages: *Rust, TypeScript, Python, JavaScript, Java, SQL, C/C++*
- Backend: *Node.js, Express, PostgreSQL, TypeORM, Prisma, REST APIs*
- Frontend: *React, Next.js, React Native, Tailwind CSS, ShadCN*
- Cloud & DevOps: *AWS, Docker, GitHub Actions, CapRover, CI/CD*
- ML / AI / Robotics: *PyTorch, LangChain, RAG, ROS 2, Gazebo / MuJoCo, OpenCV, Pandas, NumPy, scikit-learn*
- **Certifications:** AWS Cloud Foundations, Agile Scrum Certification