Pranav Mehta

Active Secret Security Clearance

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Education

University of California, San Diego – B.S. Computer Engineering | **IDEA Scholar** | **GPA: 3.93** **Expected Graduation:** Dec 2025

Awards and Honors: Jack Wolf Endowed Scholarship, OC Beckman Legacy Scholarship, member of Tau Beta Pi and Eta Kappa Nu

Skills & Relevant Courses

Languages: C, C++, Python, Java, x86/ARM Assembly, SystemVerilog | **Scripting:** CMake, Bash | **Certifications:** CompTIA Network+
Software: Git, Linux, Docker, Xilinx Vitis, FreeRTOS, Android, Arduino, LTSpice, MATLAB, Cisco Packet Tracer, Wireshark
Hardware: Soldering, PCB Design, Oscilloscope, Signal Generator, Multimeter, Logic Analyzer, RF Power Meter, Spectrum Analyzer
Courses: Data Structures & Algorithms, Machine Learning, Computer Vision, Wireless Embedded Systems, Robotic Systems, Analog & Digital Design

Work Experience

Embedded Software Engineer | AquaMesh **Feb 2024 - Present**

- Developing **AWS** backend, using Amplify for **Android** app, AWS IoT for device management, and DynamoDB for data storage
- Constructed data pipeline from LoRa mesh to AWS on ESP32 devices, utilizing **Protocol Buffers** and **MQTT**
- Developed Android application used to setup configure newly installed water quality monitoring devices over **BLE**

Embedded Software Intern | MITRE Corporation **June 2024 - Aug 2024**

- Developed tracking software for secure **GPS receiver** prototype
- Simulated software on CentOS Linux platform and tested on **Xilinx FPGA** hardware
- Produced technical documentation used to train team members on steps needed to setup and deploy on Xilinx testing environment

Research & Other Experience

Undergraduate Researcher | Wireless Communications, Sensing, and Networking Group @ UC San Diego **Oct 2023 -Present**

- Researched & developed configurable **LoRa** mesh network for research & industry using low cost Adafruit Feather boards
- Researched development of a low cost private **5G cellular** network using COTS equipment and open source RAN software for transmitting data from a mobile vehicle

Technical Chair | IEEE Student Branch @ UC San Diego **June 2024 -Present**

- Conducting electrical engineering and computer science technical workshops open to all UCSD students
- Scheduled to host Fall 2024 workshops on topics such as **ESP32**, soldering, and systems programming
- Advisor for the Robocup team on embedded systems design, with a focus on power efficiency improvements

Embedded Lead | Triton Robocup, IEEE Student Branch @ UC San Diego **Oct 2022 - June 2024**

- Spearheaded assembly of soccer robots and led team at UC San Diego's first Robocup competition in Germany
- Directed team members in fleshing out final hardware circuitry design including logic **level shifter**, and developed schematic used for ordering parts and connecting components during manufacturing stage
- Developed software for STM32F427IIH6 (ARM M4) board to receive encoded commands over **UART** which control the BLDC motors and kicker solenoid using the **CAN** bus and GPIO
- Implemented **PID control** and holonomic movement for precise control of robot via commands

Software Lead | Yonder Deep **Oct 2022 - June 2024**

- Yonder Deep pursues engineering projects for climate change research with researchers from Scripps Institute of Oceanography
- Led team of 5 to develop the Autonomous Underwater Vehicle software system, and represented the org through publicity events
- Developed a Python module on **Raspberry Pi** for encoding and processing data from onboard **GPS** sensor and changed the encoding scheme to be dynamic to future modifications
- Researched **computer vision** (stereo-vision) system used for obstacle avoidance and Kalman filters for the localization system

Projects

YouLostIt Project **Sept 2023 - Dec 2023**

- Developed a **Bluetooth tracker** device using a power-efficient real-time embedded application on a STM32 B-L475E-IOT01A board that enters "lost" mode when the board has not moved for 60+ seconds and starts sending BLE packets to nearby phones
- Designed bare-metal drivers in C for the GPIO and Timer peripherals, communicating with the accelerometer sensor using **I2C**, and communicating with the **Bluetooth Low Energy** chip using **SPI**