

Pranav Mehta

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Education

University of California, San Diego – B.S. Computer Engineering | **IDEA Scholar** | **GPA: 4.00** | **Expected Graduation:** June 2025

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

Skills & Relevant Courses

Languages: Python, C, C++, Java, x86 Assembly | **Scripting:** Bash, Shell, PowerShell | **Networking:** TCP/IP, UDP, ICMP, HTTP, DNS, ARP | **Software:** LTSpice, PSpice, JUnit, gdb, Android Studio, STM32CubeIDE (Eclipse), Arduino, RTOS, ROS, MATLAB, Docker, Git, Linux, ssh, Cisco Packet Tracer, Wireshark, srsRAN, iPerf3, Open5GS | **Hardware:** Soldering, Debuggers (JTAG and SWD), Multimeter, Oscilloscope, Signal Generator, Logic Analyzer, RF Power Meter | **Certifications:** AWS Certified Cloud Practitioner, CompTIA Network+
Courses: Data Structures & Algorithms, Computer Networks, Computer Vision, Wireless Embedded Systems, Signals & Systems, Analog Circuit Design

Work Experience

Industrial Automation Intern | Irvine Ranch Water District

June 2023 - November 2023

- Configured Cisco switches with CLI commands, Palo Alto firewalls, RAID5 storage, and VMs on separate VLANs to construct development environments on PowerEdge servers for testing and upgrading **SCADA** software used for industrial control systems
- Extracted IP addresses from ARP packets with Wireshark to connect to PLCs and modified **PLC** programs and firmware
- Wrote PowerShell scripts to automate server config, extract PLC drawings from vendor docs, and parse data from config files into Excel sheets, trained 10 full-time team members on using Octoplist version control software for fetching and updating objects

Research & Other Experience

Sustainable Robotics Software Lead & Researcher | Yonder Deep & WCSNG Lab at UC San Diego

October 2022 - Present

- Yonder Deep pursues projects for climate change research in collaboration with researchers from Scripps Institute of Oceanography
- Current project is an Autonomous Underwater Vehicle that collects data from environments that are difficult for humans to access
- Leading team of 8 on developing the AUV's **autonomous navigation** system, representing organization through outreach events
- Working with 2 researchers at WCSNG on developing a **5G** base station to provide high bandwidth communication with the AUV
- Solely developed Python module on Raspberry Pi for encoding and processing data from onboard **GPS** sensor and GUI map used to plot the AUV's course and made encoding scheme dynamic to future modifications, this is critical for the AUV's navigation system
- Developing **computer vision** (stereo vision based) system for obstacle avoidance used with path planning system of AUV

Triton Robocup Embedded Lead | IEEE Student Branch at UC San Diego

October 2022 - Present

- Leading team of 19 to develop hardware and embedded software in C used in soccer playing robots for the Robocup competition
- Developed software using STM32CubeIDE for **STM32F427IHH6 (ARM M4)** board to receive encoded commands over **UART** from the Raspberry Pi and control the motors using the **CAN** bus and **GPIO**, architected encoding scheme with the 2 software leads
- Compiled online resources and wrote 50+ pages of documentation to guide team on using **UART**, **PWM**, **CAN**, **GPIO**, **I2C**, and **SPI** using the **HAL**, spearheaded team training efforts and troubleshooted board and debugger issues to improve team efficiency

Embedded/IoT Software Developer | VAWT Project, Engineers for a Sustainable World

October 2022 - Present

- The Vertical Axis Wind Turbine Project (VAWT) is an engineering project under ESW that aims to develop and prototype an IoT connected wind turbine that will eventually be deployed at UCSD as a model for small scale urban renewable energy
- Developed software module using C++ and Arduino IDE for **ESP8266** wireless board that records readings of anemometer sensor using analog voltage values and receives data from wind direction sensor using **Modbus** protocol and RS485 serial interface

Projects

YouLostIt Project

September 2023 - December 2023

- Made 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
- Wrote **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**, read more: https://www.pranavmehta.com/you_lost_it.html

Donnez App

March 2022 - May 2022

- Solely developed an Android app in Kotlin that enables users to send others reward points for acts of kindness or volunteering
- Users set up accounts with cloud-based multi factor authentication using **AWS Amplify Auth** (AWS Cognito)
- Points are sent with P2P wireless communication using Android Nearby Connections and are stored in a local database that syncs to the cloud when the user connects to the internet, implemented with **AWS Amplify Datastore** (DynamoDB & GraphQL)