

TANUSH SHETTY

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EDUCATION

The University of California, Davis

Davis, CA

Bachelor of Science in Electrical Engineering

Aug 2024 – Jun 2028

TECHNICAL SKILLS

Languages & Software: MATLAB, C/C++, Swift, SwiftUI, ThingSpeak API, Xcode, Scopy, LTspice

Hardware Instrumentation: ADALM2000, Oscilloscopes, ESP32, TI LaunchPad

PCB & Circuit Design: KiCad, PCB Layout & Fabrication, Load-Cell Calibration, Op-Amp & Instrumentation-Amp Design, Wheatstone-Bridge Circuits, ADC Data Acquisition

Digital Design: Finite-State Machines, Intel Quartus Prime, ModelSim, FPGA IP Integration

Data & Analysis: Signal Processing, Bode Plot Analysis, Statistical modelling

WORK EXPERIENCE

UC Davis School of Medicine, Department of Physiology and Membrane Biology

Davis, CA

Lead Engineering Intern

Oct 2025 – Present

- Leading development of a portable strain-gauge load-cell system with an accompanying iOS app to support athletes recovering from tendon and ligament injuries through quantitative rehabilitation monitoring.
- Designed the analog front end using a full Wheatstone-bridge load cell and INA125 instrumentation amplifier to amplify millivolt-level differential signals for ESP32 ADC acquisition. Integrated the circuit by designing a custom PCB via KiCad.
- Co-developed a SwiftUI iOS application using a 2-characteristic BLE protocol for real-time sensor streaming and bidirectional START/STOP session control, including a scrolling 20-second graph and timestamp inspection.
- Implemented a tare-based calibration workflow mapping differential ADC voltage to applied tendon load, using the slope of the voltage-versus-weight curve to predict live force, estimated stress, and tendon-loading feedback; validated the calibration against an unknown reference weight within 0.01 g.

VLSI Society of India

India

Research and Design Intern

Aug 2023 – Present

- Developed and managed content for 3 semiconductor-education programs delivered across 37 schools and pre-universities, reaching more than 1,350 students between 2023 and 2025.

Verification & Design Foundation, Accellera

India

Project Intern

Mar 2022 – May 2022

- Developed an Arduino-based soil moisture detection and automatic irrigation system using GSM modules and PCB-mounted sensors to control water pumps based on real-time soil data. Calibrated sensors to prevent corrosion and optimize irrigation efficiency, improving crop yield by 32% and reducing water usage.

PROJECTS AND ENGINEERING EXPERIENCE

Audio-Source-Following Robot | Embedded C, TI LaunchPad, ADC, PWM | EEC 10 Final Project

Spring 2026

- Built an autonomous robot using 2 amplified microphone channels and 2 ADC inputs to detect the direction of a music source and navigate toward it.
- Developed interrupt-driven embedded C firmware using a 10 kHz timer, 1,000-sample buffers per channel, cascaded digital filters, and PWM motor control.
- Compared filtered left- and right-channel audio amplitudes to command 5 motion states: stop, forward, left, right, and a 180° pivot when the source was behind the robot.
- Evaluated microphone calibration and filter performance using oscilloscope measurements, time-domain signals, and FFT analysis.

FPGA-Based Digital Die Game Controller | Intel Quartus Prime, ModelSim | EEC 18 Final Project

Summer 2026

- Designed a synchronous control FSM operating from a 50 MHz clock and integrated it with an FPGA IP shell containing a 1-to-6 die counter, 5-bit score datapath, turn counter, comparators, and drivers for 6 seven-segment displays.
- Implemented single-cycle control pulses, automatic score loading for a roll of six, Pass-over-Add priority, and latched win/loss states.
- Added a dedicated state to handle the required 1-clock-cycle comparator latency between updating the score and evaluating game results. Verified normal and edge-case behavior using gate-level ModelSim simulations in Intel Quartus Prime.