Dhilan Patel

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EDUCATION

University of California, Davis (UC Davis) GPA: 3.61
M.S. in Electrical Engineering and Computer Engineering *Expected to Start September 2026*
B.S. in Electrical Engineering and Computer Engineering *Expected Graduation in June 2026*

- **Coursework:** Graduate Analog MOS Circuits, Computer Architecture, Digital Systems I & II, Signals and Systems, Embedded Systems, Electromagnetics I & II, Electronic Circuits I & II
- **Planned Coursework:** IC Design & Tapeout, VLSI Design

WORK EXPERIENCE

Applied Micro/Nano Electromagnetics Research Laboratory *September 2024 – Present*
Undergraduate/Graduate Researcher

- Developing counter logic on custom PCB for precise actuation of a 3D positioner system.
- Configuring Biospectral hardware imaging techniques for time-domain spectroscopy to analyze electromagnetic interactions in biological and synthetic materials.
- Designing custom FTIR/Raman use cases to determine sample metamaterial characterization.
- Advancing research towards a Master's Thesis and authoring two publications in IR/Optics.

Entegris – Advanced Purity Solutions *June 2025 – August 2025*
Gas Purification Control Systems Engineering Intern

- Standardized Human Machine Interface (HMI) of the PS7 carbon dioxide purifier family to meet modernized ISA 101 guidelines.
- Published a sitewide FTOptix library to dynamically upgrade and reference HMI software; fast tracking Entegris's 2030 modernization goals.
- Designed PID controller tuning ideology used in the purification process of new products.

UC Davis Robert Mondavi Institute For Wine Research *April 2024 – June 2025*
Electrical Systems Winery Intern

- Upgraded and maintained 152 integrated fermentation control systems (IFCS) units that collect temperature and Brix data to automate vessel modifications.
- Operated a Raman Spectroscopy unit and designed postprocessing algorithms to evaluate the concentration of specific headspace gases.
- Debugged power regulation boards for aeration pumps, RF transmitters, and sensor interfaces.
- Authored SOP documentation for standardized diagnostic techniques.

PROJECTS

Terahertz Laser Capstone Design Project *October 2024 – June 2025*

- Designed a tunable Terahertz device using centrosymmetric perovskite thin film oxides.
- Upgraded an automated instrumentation calibration system, collecting 10,000+ tests per material.
- Implemented postprocessing algorithms to validate low power beam steering functionality.
- Awarded most outstanding independent senior design project in ECE department, and placed top 3 finalist in Sandia Design Competition against 173 teams in UCD College of Engineering.

AI Powered Spotify DJ *April 2024 – June 2024*

- Integrated a TI CC3200 to poll ChatGPT via AWS for information about a song and display it alongside spotify user status on an OLED.
- Combined SPI and UART communication protocols to manipulate graphical UI from a television remote's commands.

TECHNICAL SKILLS

Hardware: Oscilloscope | Function Generator | DMM | Logic Analyzer | Tera K 15 | FPGA | RISC-V Architecture | Spectrum Analyzer | Power Supply | 3D Printing | Soldering
Software: MATLAB | Java | C++ | Python | Altium | FactoryTalk Optix | RSLogix 5000 & 500 | Studio 5000 | Verilog-HDL | SPICE Simulation | ARM ISA | TI CCS | AWS IoT | REST API
Communication Protocols: SPI | I2C | UART | MODBUS TCP & RTU | CAN | RS-232