

Darby Hanes

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EDUCATION

Texas Tech University

Applied Physics and Electrical Engineering Dual Degree
Sigma Pi Sigma Honor Society | Fulbright Scholarship Candidate

Fall 2021-December 2025

Lubbock, TX

GPA 3.8

Certificates: L2 High Power Rocketry, Google Data Analytics, Mathworks Systems Engineering

PROFESSIONAL EXPERIENCE

Whitacre College of Engineering

Controls Systems Tutor

Lubbock, TX

September 2024-Present

- Led weekly problem solving sessions and guided students through root locus design, PID controllers, etc.

JT4

Las Vegas, NV

Digital Signal Processing Intern

June 2024-August 2024

- Created measures of performance and test matrices for Least Mean Squares Adaptive Filters for testing on an analog test bench including spectrum analyzers, signal generators and an FPGA
- Simulated filter convergence using MATLAB and visualized via Power Spectrum and Wigner-Ville Distribution plots
- Measured power loss across N-type and SMA cables for use in analog test setup
- Collected and plotted signal to noise ratio data for verification of analog test setup validity

Whitacre College of Engineering

Circuits Tutor

Lubbock, TX

January 2023-May 2024

- Hosted tutoring sessions 3x a week, created project key for AC circuits oscilloscope project, led exam reviews

Sparx Engineering

Electrical Engineering Intern

Manvel, TX

May 2023-August 2023

- Built testing PCB from design to assembly, which included two adjustable filter circuits and an adjustable amplifier
- Using Altium, created new component footprints and schematics, then uploaded to internal SVN database
- 50+ hours soldering experience, especially with tiny surface mount components in sizes 0402, 0603 and 0805

Teaching, Learning and Professional Development Center

Calculus Learning Assistant

Lubbock, TX

August 2021- December 2022

- Tutored in class problem solving sessions for sections of 100+ students concepts from limits through integration

United States House of Representatives TX-19 District Office

Congressional Intern

Lubbock, TX

January 2022-May 2022

- Helped constituents open federal cases over phone, packaged and mailed correspondence, organized briefings

Countertrace

Chemical Laboratory Intern

Manvel, TX

September 2020-August 2022 (Seasonal)

- Handled chemical hazards for tests, including infrared spectrometry, luminosity and thin layer chromatography

RESEARCH

Joshi Bio-electrics Lab

2023-Present

Gold nanoparticle cancer therapy using COMSOL
Neuron simulations using NEURON software

Advanced Particle Detector Lab

2022-2023

Laser calibration, ISO 7 clean room monitoring via
Raspberry Pi weatherstations

INVOLVEMENT

Current

President

Society of Physics Students

Avionics Director

Raider Aerospace Society

Vice President

Women in Physics

Vice President

Sigma Pi Sigma

Previous

Human Rights and Advocacy Committee Head

Raiders Helping Others

2021-2022

SKILLS

Software and Programming: Altium Designer, Python, C,C++, MATLAB, Icarus Verilog, Visual Studio, Multisim, COMSOL, CAD, Linux, HTML, CSS, Data Analytics, SQL, R

Hardware: FPGA boards, soldering, PCB design and assembly, troubleshooting

Sidequests: Working on fluency in French, learning rocket propulsion with Rocket Propulsion Elements, beginning violin