Cory Diehl

RF Electrical Engineer

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Objective

I have 2.5 years of experience working with startups to develop their products from paper to market. My passion is in developing professional systems in analog, digital, and RF electronics using applied math to solve problems and automate tests in the designing process.

Experience

Research Assistant

Sacramento, CA

CSUS Power Generation Project — *June 2018 - June 2019*

- Determined an optimal design for a piezo-electric battery charging system and designed 20 tests to meet the project milestones.
- Kept team up to date with current research in the field and presented our work at conferences
- Trained new team members on equipment, theory, and progress towards the project milestones.

Lab Technician

Rocklin, CA

Engineered Medical Technologies — *Dec. 2017 - Feb. 2018*

- Determined the thermal uncertainty in the lab equipment by designing a PID controlled thermal plate for all 600 devices to be tested on.
- Drafted extensive documentation that led to reduced thermal uncertainty metrics in 2 data sheets.
- Calibrated the analog circuits for 50 test units before moving the product to production.

Math & Physics Tutor

Rocklin, CA

Sierra College Math Center — *Aug. 2014 - May. 2017*

- Taught over 4000 students difficult concepts and solved their misconceptions in Calculus, Differential Equations, and Modern Physics.
- Developed my skills for working with a team to meet each students individual needs

Projects

Real Time Time-Frequency Analyzer

- Performed real time audio processing with the Gabor Transform and other similar short time Fourier transforms.
- Implemented as an embedded system on Spartan 6 FPGA.
- Used the interrupt handler on an ATmega328p to do real time graphics based on the analysis done by the FPGA

Emergency Service Communications

- Solved emergency service's inter-agency interoperability communications issues using GNU Radio and a BladeRF software-defined radio with a Cyclone V FPGA.
- Awarded second place for research on the automatic classification of modulation schemes in the CSU Sacramento research symposium.
- Improved the reliability of the system by using Mote Carlo analysis.

Home Automation System

- Designed Custom RF Antenna. Presentation: https://tinyurl.com/RF-LPTTA
- Made a custom google home out of a Raspberry Pi. With custom user commands written in python.
- Automated fans and TV with Infrared communication.

Editor of Real Analysis: A Long-Form Mathematics Textbook

- Editor of the published real analysis text book by Dr. Cummings.
- The book is on Amazon, https://tinyurl.com/Real-Analysis-Book
- Currently used by students at CSU Sacramento and other universities.

Skills

Languages	C, Python, Veralog, VHDL, Javascript, LaTex, and Matlab
Software and IDE's	Xilinx ISE, Quartus, RTOS, HFSS, ADS, Atmel Studio, PSpice, and GNU Radio
Hardware	OpAmp Design, Trans-linear Circuits, Analog and Digital Feedback Control, Microstrip Layout, and Antenna Design
Microprocessors	Xilinx Spartan 6 FPGA, Cyclone IV,V, and 10 FPGA, AVR Processors, ARM Processors, BladeRF, and ESP8266

Education

California State University Sacramento

Sacramento, CA

Bachelor of Science in Electrical Engineering - Minor in Math, GPA:3.8/4.0 — *Graduated May 2019*