Cory Diehl

RF Electrical Engineer

Graduated Spring 2019

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Objective

Develop and design professional systems in analog, digital, and RF electronics using applied math to solve problems and automate tests and metrics in the design process.

Experience

Research Assistant

Sacramento, CA

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

- Determined an optimal design of a piezo-electric battery charging system and designed 20 tests to meet the project milestones.
- Trained new team members on equipment, theory, and project time line.

Lab Technician

Rocklin, CA

Engineered Medical Technologies — *Dec. 2018 - 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.

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.

Projects

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.
- Won second place in the CSUS research symposium.

Home Automation System

- Designed Custom RF Antenna. Presentation: https://tinyurl.com/RF-LPTTA
- Custom google home out of a Raspberry Pi.
- Automated fans and TV with Infrared communication.

Helped Edit Real Analysis Text Book

- Editor of the published real analysis text book "Real Analysis: A Long-Form Mathematics Textbook" by Dr. Cummings.
- The book is on Amazon, and currently used at CSUS and other universities. https://tinyurl.com/Real-Analysis-Book

Real Time Time-Frequency Analyzer

- 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

Skills

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