

WORK EXPERIENCE

Electrical Engineer – Physical Oceanography Division

November 2017 – Present

National Oceanographic Atmospheric Administration – *Miami, FL*

- Develops megaAVR prototype systems in hardware and firmware for expendable oceanography sensors
- Designs and delivers schematic and PCB layouts for manufacturing of radiometer and temperature sensors
- Performs instrument maintenance, calibration, deployment and recovery operations during research cruises aboard federal and university vessels for oceanography data collection
- Creates software tools to validate instruments deployed out in the Atlantic Ocean
- Outlines operation requirements for unmanned autonomous vehicle (UAV) systems for aerial/marine use

Engineering Manager

September 2020 - June 2021

SafePass, Inc. – *Miami, FL*

- Performed design verification of sub-circuit applications used in SafePass hardware products prior to manufacturing
- Developed I2C, SPI, and UART driver support for Maxim Integrated chips utilized for PSoC 6 microcontroller applications in SafePass hardware design
- Created PSoC6 test environments to validate communication protocols for external devices in SafePass designs
- Conducted maintenance and updates of SafePass system in mobile and web development for existing clients

SAT/ACT Course Instructor

January 2017 – October 2017

Prepworks – *Miami, FL*

- Prepared students for standardized test (ACT/SAT/GRE/SSAT) in one-on-one sessions via test-taking strategies and foundational knowledge in reading comprehension and mathematics for score increases of 25%-50%
- Managed daily timecards detailing students' progress for feedback regarding student performance

Active Technology Engineer – Powertrain NVH Development

July 2015 – July 2016

Ford Motor Company – *Dearborn MI*

- Built and integrated hardware solutions with Ford software DSP algorithms for active noise/vibration control systems (ANC/AVC)
- Conducted track, impact testing, and transfer function measurement for production vehicles
- Established and maintained new supplier relationships for an improved workflow in system development

Summer Scholars Teaching/Resident Assistant – ECE Department

June – July 2013, 2015

University of Miami – *Coral Gables, FL*

- Directed group projects dealing with C++/MATLAB programming, and circuit design/implementation
- Provided students with one-on-one counseling for education and professional advice for college and beyond

Electrical Engineering Intern – Software Diagnostics

May 2014 – August 2014

General Motors – *Warren, MI*

- Created a vehicle information system to document and log vehicle response to software update procedures across test fleet of 50+ vehicles to create 50% reduction in information retrieval time
- Provided training and supervision for new hire employees in CAD software and database management

EDUCATION

Graduate Studies in Electrical Engineering – University of Miami

Fall 2018 – 2019

Machine Learning, Data Mining, VLSI

Bachelor of Science in Electrical Engineering – University of Miami

May 2015

Digital Signal Processing Concentration

PROJECT EXPERIENCE

Digital Audio Plugins (C++/MATLAB)

- Created a custom Theremin-like synthesizer plugin that uses human motion data to generate MIDI data in real-time
- Developed real-time plugins for simulating effects such as reverberation, compression, delay, and distortion
- Interfaced GUI controls with plugin algorithms between RackAFX and C++ algorithms for use in DAW environments

Audio and Digital Image Processing (MATLAB)

- Conducted MATLAB simulations for research on topics such as the Doppler Effect, directionality patterns for speaker arrays and determining RT60 values based on real data collected from campus locations at the University of Miami
- Performed studies on topics such as acoustic features of vocal sounds, audio reconstruction, and speech recognition systems
- Implemented filtering techniques, interpolation methods, other DSP concepts to develop tools for facial recognition, and image reconstruction in digital image processing of various landscape and portrait images

SKILLS

Hardware: Schematic Drafting and PCB Design (KiCAD, Express PCB, DipTrace, PSPICE, CircuitMaker), Circuit Debugging and Repair

Software: Altium (3.5/5.0), PSoC Creator (4.0/5.0), Modus Toolbox (3.5/4.0), WICED Studio/Eclipse (3.5/4.0), Arduino (4.0/5.0), MATLAB (4.0/5.0), Linux [OS] (3.5/5.0), Visual Studio (4.0/5.0), Simulink (2.5/5.0), VisualDSP++ (2.5/5.0)

Languages: English, Spanish, Portuguese, French, C++, Bash, Python, MATLAB scripting

Certification: Innovative & Imaging Research (I2R) Drone Piloting, FAA-Certified Part 107 UAV Operator

CONFERENCES

Audio Engineering Society 138th Conference – Warsaw, Poland

May 2015

Faron, Alex; McCullough, Connor; Ugaz, Diego. Automated (Microcontroller-Based) Impedance Tube. Audio Engineering Conference 138, Warsaw, Poland, May 9th, 2015. Unpublished conference paper. AES E-Library, 2015. Print.