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Objective

Use first principles thinking to gain and apply interdisciplinary knowledge on projects from racecar wing design to biocompatible polymers.

Academics

University of Florida, May 2020

BSc in Electrical Engineering

GPA: 3.34

Relevant Coursework:

Bioelectrical Systems,
Neural Systems & Tech,
Microprocessors 2,
Electronic Circuits 2,
Fundamentals of Machine Learning,
IoT Security & Privacy

Projects

ASL CNN – Designed and trained custom classifier for sign language with >85% accuracy

RTOS – Built a custom RTOS on a TI ARM chip, including context switching, prioritized tasks, and interrupts

Portable Power Supply – Designed an ATmega324 based device to charge/discharge Li-ion batteries at a variable 4-13V using buck-boost converters with bidirectional current sensing

SSTV Communication – Developed a modified FFT to encode and decode text over audio using TI DSPs

Eagle Scout Project – Led the construction of several wireless robots for an interactive science exhibit

Skills

Software

Altium Designer, SolidWorks
(CSWP certified), LTspice, git,
Eclipse, Linux (RHEL, Ubuntu)

Languages and Frameworks

C, ARM, Python, MATLAB, IoT,
PyTorch, Assembly

Hands-On

soldering, lathe, CNC mill, waterjet,
laser cutting, 3D printing

Experience

Undergrad Researcher at Neuroprostheses Research Lab

May 2019 – Present (8 months)

- Designed and performed longitudinal tests on PEDOT:PSS films in biological aging analogue to discover solutions to impedance degradation
- Characterized and automated an electrochemical sharpening process for gold electrodes to produce sub-50nm tips at 25% better yield
- Performed electrochemical impedance spectroscopy and PEDOT:PSS polymerization on an implantable nerve stimulation microelectrode device (TEENI), reducing electrode impedance by an order of magnitude
- Automated oscilloscope and function generator using Python

Validation Engineering Intern at Texas Instruments

May 2018 – August 2018 (3 months)

- Designed Altium schematic and layout for high-speed PCBs to validate chip performance in crosstalk, power sequencing, simultaneous switching, and signal integrity
- Automated oscilloscopes, SMUs, function generators, and temperature control using LabView and NI TestStand to validate device characteristics
- Prototyped a logic analyzer system for rapid simultaneous testing of multiple high-speed logic devices
- Designed and manufactured a modular 3D printed system to hold PCBs under a temperature control system

Electronics Design at Gator Motorsports Formula SAE

August 2017 – May 2018 (9 months)

- Designed a safety critical analog failsafe system required for the addition of electronic throttle control (ETC)
- PCB designed in Altium, reflowed and debugged by hand
- Monitors the status of the fuel pump and ETC, cutting power when errors are detected in the brakes or ETC system

Design Verification Engineering Intern at Texas Instruments

May 2017 – August 2017 (3 months)

- Worked within a complex environment in Red Hat Enterprise Linux with code in SystemVerilog, Verilog-AMS, and Tcl, verifying a mixed-signal chip produced in the millions
- Solely responsible for verifying the final chip design after finding multiple bugs in the chip family and internal simulation tools
- Introduced a new environment for code development, moving from Vim to the Eclipse IDE
- Implemented wide-ranging improvements, refactoring code for both readability and efficiency

Tires System Lead at Gator Motorsports Formula SAE

October 2015 – May 2017 (19 months)

- Designed and fit a 21 degrees of freedom tire model in MATLAB in order to understand optimal tire conditions
- Worked with suspension team to understand the vehicle dynamics and intelligently design and modify the suspension in order to produce maximum forces as the tires
- Designed and waterjet cut vertical supports for front and rear airfoils