Daniel Francis

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Education

Northwestern University, Evanston, IL
Bachelor of Science in Electrical Engineering   June 2023(anticipated)
Minor: Computer Science
GPA: 3.45/4
Relevant Coursework
Microprocessor System Design, Introduction to Feedback Systems, Communications Systems, Fundamentals of Computer System Software, Introduction to Communications Networks, Introduction to Artificial Intelligence

Skills

Programming Languages: C, Python, Javascript, HTML/CSS, ARM 32 assembly, MATLAB
Tools/Platforms: Git, Cmake, Bash, Simulink, Cadence, LTspice, GNU Radio
Lab Gear Proficiency: Oscilloscope, Function Generator, Soldering Iron
Spoken Languages: Spanish(fluent)

Engineering Projects

Micro:Hero
- Designed, constructed, and wrote drivers for ARM Cortex M4F -based embedded Guitar Hero console that utilizes the SAADC, I2C, Timer, and Pulse Width Modulation microcontroller peripherals on the BBC Micro:bit V2 development board.

UDP Pinger Server/Client
- Implemented a Ping client to quantify the packet loss and round-trip time of an existing Ping server

Aeropendulum Control System
- Designed PID and Lead/Lag compensators in MATLAB/Simulink to optimize transient and steady state response of an aeropendulum feedback system

ARM Computer Game
- Designed and developed a computer game in ARM 32 assembly with complex features such as push-button acceleration and a massive number of sprites

Software Radio
- Constructed an AM transmitter and receiver using the GNU software radio to transmit low frequency audio tones
- Programmed the GNU software Radio Companion to transmit and receive single and dual tones through Universal Software Radio Peripherals using Single Side Band Modulation

Leadership/Activities

Team Captain of Intramural Soccer Team
- Led practices, effectively communicated strategies in and out of games