Derrick Miller

Embedded Engineering

17 September 1993 (26 yr old)

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About me

Looking for a full-time position building and integrating computer system technologies. I seek to apply my skill set in projects that help further the fields of robotics, embedded computing, digital systems, and multimedia.

B.S. Computer Engineering

University of Illinois, Urbana-Champaign (2012-2019)

Highschool

Illinois Mathematics and Science Academy (IMSA) (2009-2012)

Programming Languages

Python (including Micro and Circuit flavors), (System)Verilog, C, C++, Bash, Scala, Ansible, x86 Assembly, Markdown, LaTeX, Docker

Technologies

Linux, Windows, Microcontrollers, Wi-Fi, Bluetooth Low Energy, I2C, SPI, UART, Field Programmable Gate Arrays, Single Board Computers, Game Development, RESTful Design, Ethernet

Experience

06/19-02/20 **Software Engineer at Astronics CSC** — Lake Zurich, IL
Wrote and supported test software for facilitating regulatory qualification and certification of networked aerospace electronics.

Since 2012 **drox.zone**
Audio-Visual Production, Services, and Consulting

2015-2016 **FIRST Robotics Competition Mentor** — Aurora, IL
Collaborated, educated, and assisted students in exploring the disciplines of Science, Technology, Engineering, Art, and Mathematics in an after school setting. FRC Team 2022 and Brownie Scouts Troop #4803 (FLL)

Projects, Publications, and Awards

2019 **SignalMe** — UIUC Senior Design
Developed an integrated wearable signal vest to allow for motion informed automation of vehicle traffic signals while on personal transportation such as bicycles. Developed C/C++ firmware and performed surface mount circuit board design and assembly.

2019 **OpalKelly-based FPGA Motion Tracker**
Designed and implemented sensor processing systems with Verilog and Python using Xilinx FPGA-based OpalKelly boards. Using SPI, I2C, and USB 3.0 communication, systems involving motor control, imaging, and motion tracking were integrated into a single project.

2018 **gdstats**
An Open-Source Godot scripting library for providing common distributions along with number generators useful for game development.

2018 **Hexmap**
An Open-Source Godot scripting library for working with hex maps including common operations and transformations useful for game development.

2017 **ZapdOS: A Research x86 kernel**
Participated in kernel development in a group setting including initial efforts in providing newlib support.

2012 **FRC Midwest Regional Victory** — Team 2022
FIRST Robotics Competition - 1st Place Alliance

2011 **Fooling the Hacker: A Study of Honeypots** — IMSAloquium
Explored and presented on the benefits and pitfalls of using computer honeypots to safely and ethically extract analytics from attempted hacker attacks. (Abstract in 2011 Edition of IMSAloquium, page 73)

Coursework

Robotics, Sensors, and Hardware Design
ECE 385 Digital System Design, CS 431 Embedded Systems, CS 424 Real-Time and Cyberphysical Systems, ECE 437 Sensors and Instrumentation, ECE 445 Senior Design Lab

Systems Programming and Development
CS 225 Data Structures, CS 473 Algorithms, ECE 385 Digital System Design, ECE 391 Computer Systems Programming, CS 423 OS Design, CS 461 Computer Security

Signals and Multimedia
ECE 210 Analog Signal Processing, ECE 310 Digital Signal Processing, ECE 311 DSP Lab