Zachary P Gunther

Electrical Engineering & Computer Science Dual Major

Contact Info

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Education

Rensselaer Polytechnic Institute – Troy, New York

September 2019 - Current (Expected graduation: May, 2023)
Electrical Engineering & Computer Science Dual Major
GPA - 3.76

Work Experience

Electrical Engineering Co-op - *SimpliSafe*

August 2021 - January 2022 - Boston, Massachusetts
Designed equipment and setups for camera testing and automation
Wrote web applications using JavaScript, HTML, and CSS for video image quality analysis
Wrote GUI Python applications for flashing camera firmware and hardware automation
Designed circuits and, prototyped custom PCBs for hardware automation projects

Automation and Control Engineering Internship - *Cree*

May 2020 - August 2020 - Durham, North Carolina
Coded GUI applications for data collection, analysis, and storage
Learned SQL and implemented data collection and management applications
Extensively used Visual Studio for coding VB.Net, C#, C++, and Python applications
Implemented algorithms and made .dll's for high speed data analysis

Relevant Experience

Programming

Languages - Python, Java, JavaScript, HTML, CSS, SQL, C, C#, C++, VB.Net
Software - Visual Studio IDE, Sublime Text, Git, Github, Jira,
Simulators including analog circuitry, digital, and physics simulators (see zgunther.com)
WebGL-based 3d graphics engines for custom CAD programs and rendering 3d objects
Multithreaded python GUI applications (PyQt6) for data analysis and graph analysis
2d & 3d Game development using OpenGL (Java), Unity (C#), and more

Electrical Circuitry

Custom FM & AM receivers & transmitters for audio transmission and RC car controllers
Analog audio filtering and modulating for guitar amps, guitar pedals, and effect boxes
MOSFET & IGBT gate driver circuitry for amplifiers, induction heaters, tesla coils, etc.
High power class D (digital) power amplifier design for PA speakers

Embedded Control

Microprocessor audio manipulation using custom ADC & DAC circuits
Custom sound activated RGB strip controllers for speakers & drum sets
Electric drum set controllers with digital sound synthesizing & analog filtering
High power DC to DC converters using microprocessors to sample & regulate power
I2C & SPI communication between microprocessors, ADC's, IO expanders & motor drivers
PID control for precision movement of small vehicles and aircraft