

Zachary P Gunther

Computer Systems Engineering & Computer Science Dual Major

CONTACT INFO

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EDUCATION

Rensselaer Polytechnic Institute — Troy, NY

September 2019 - Current

Junior standing & pursuing degrees in both Computer Systems Engineering and Computer Science

GPA - 3.76

Embedded Hardware Club - Lab Officer

WORK EXPERIENCE

SimpliSafe — Boston, Massachusetts

Electrical Engineering Co-op - Fall 2021

- Designed and built hardware setups for camera testing, upgrading, and recovery
- Coded GUI applications to control hardware setups as well as recovery broken devices
- Wrote applications for video and image quality analysis (color accuracy, sharpness, exposure, etc.)
- Designed circuits for current monitoring and device status indicators

Cree — Durham, North Carolina

Automation and Controls Engineering Intern - Summer 2020

- Coded and implemented GUI applications for data analysis and factory automation
- Used SQL Server tables, views, and store procedures for sending and saving data to and from applications
- Worked with technicians and other engineers to finalize applications for widespread use
- Extensively used Visual Studio for coding in VB.Net, C#, C++, and Python

RELEVANT EXPERIENCE

Programming

- C, C++ - Bare metal Raspberry Pi, Atmega328 and STM32 dev, cpu scheduling & threading programs
- Python - PyQt6 GUI and threaded apps, audio manipulation and analysis, misc. coding
- JavaScript, HTML, CSS - Website development, custom circuit and charged particle physics simulators
- Java - OpenGL game development, custom machine learning algorithms for games
- C#, VB.Net - GUI applications for simulators and misc. apps to aid with schoolwork.
- SQL Server - Creating and modifying tables, views, and stored procedures

Electrical Circuitry

- Designed and built FM & AM radios, motor controllers, and communication protocols RC cars
- Analog filtering, equalizing, and modulating of audio for live sound applications
- Audio digital and analog power amplification using discrete components
- High and low side MOSFET driver circuitry for high power full and half H bridge circuits
- Wireless power transmission and induction heating devices

Embedded Control

- Digitally controlled analog circuitry for guitar pedals and amplifiers
- Wireless data transmission using UDP and TCP protocols using ESP8266 microcontrollers
- I2C and SPI communication between microcontrollers and IC's (ADC IC's, IO Expansion IC's, etc.)
- Custom analog to digital converters using successive approximation methods for audio sampling
- PID motor control for precision movement and stabilization of small vehicles and aircraft

Software

- Visual Studio IDE - Used for coding in VB.net, C, C++, HTML, CSS, JS, and Python
- Git, Github, and Jira - Version control and management for workplace and private projects
- Fusion 360 by Autodesk and NX by Siemens - General drafting of 3d parts and assemblies
- LTspice - Simulating circuits such as amplifiers, RLC circuits, etc.

EXTRACURRICULAR - Music

- Led a rock band in high school and learned valuable leadership and communication skills
- Played violin in multiple performing orchestras as well as performed at weddings