Joshua Suber
Computer Systems/Electrical Engineer

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Career Objective

As a senior at Rensselaer Polytechnic Institute pursuing dual degrees in Computer Systems Engineering and Electrical Engineering, along with a minor in Graphic Design, I am eager to apply my interdisciplinary knowledge and skills in the fields of computer hardware design, computer architecture, and software engineering. I am seeking an internship or entry-level position where I can contribute to innovative projects, leverage my technical expertise, and continue to develop my proficiency in creating cutting-edge technology solutions.

Education

Aug 2022 - May 2026

Rensselaer Polytechnic Institute, BS in Computer Systems Engineering and Electrical Engineering
GPA: 3.15
Completed Course work in: Electrical Computer Systems Engineering, Control Systems, Hardware Design, Data Structures, Circuits, Machine Learning, Physics, Differential Equations, Logic, Computer Architecture, Signals, CAD, Graphic Design, and Animation

Experience

Jan 2025 - Present

R.A. Woods Associates- Frankfort, NY
RF Engineer/Software Engineer Intern - Led technical characterization for the EW Configurable Filter Module (EWCFM), analyzing S-parameters across the 2–18 GHz range using Vector Network Analyzers (VNA). Developed Python automation scripts to parse test data and generate BOMs from DipTrace, significantly reducing manual tasks. Performed hands-on tuning and troubleshooting of RF subsystems for defense clients including Lockheed Martin, General Dynamics, and Black River.

Aug 2023 - April 2025

LiftRyte - Troy, NY
Co-Founder - Co-founded Lyftrite, a start-up app company focused on helping weightlifters correct form in real-time. Utilized React Native to program the app for both IOS and Android. Responsible for programming parts of the app, creation of all graphics, as well as marketing material.

Nov 2021- May 2023

PAR Government Systems Corporation - Rome, NY
Software Engineer Internship - Learned various programming languages, and went through software engineers' code, problem shooting them.

Projects

MinSeg Self-Balancing Robot (MATLAB, Simulink, LQR Control, Arduino)
Designed and implemented a **Full State Feedback** control system to stabilize an inverted pendulum robot. Derivied **State-Space** equations of motion and utilized **Linear Quadratic Regulator (LQR)** theory to calculate optimal gain matrices. Developed a **Simulink** model to process **real-time Gyroscope** and **Encoder** data, tuning **Q and R weighting matrices** to minimize state error and optimize control effort for stable balancing. Successfully deployed the controller to **embedded hardware**, demonstrating **robust stability** where the system rejected external physical disturbances and maintained equilibrium.

Smart Fire Alarm System (React Native, AWS IoT, JavaScript, MQTT, Raspberry Pi, Arduino)
Developed a **cross-platform** mobile app with real-time air quality monitoring and hazard alerts using **React Native** and **AWS IoT**. Integrated dynamic safety notifications, **multilingual support**, and user-friendly customization features. Enabled seamless communication between fire sensors and mobile devices, ensuring prompt alerts for smoke, gas, and carbon monoxide detection.

Renewable Energy Power System (AC to DC Conversion, Circuit Design, LTSpice, MATLAB)
Designed and implemented a system that converts AC power from wind turbines and DC power from solar panels into a unified DC output. Integrated a step-up **transformer**, **rectifier**, and **filter circuits** to stabilize voltage for renewable energy applications. Simulated, built, and tested key components like **RC/RLC** circuits and **555 timers** to manage power flow based on time of day.

Autonomous Line-Following Robot (Arduino, PID Control, H-Bridge, IR Sensors, Circuit Design, PWM)
Developed a low-cost, educational line-following robot using an **Arduino Uno, IR sensors, and H-Bridge drivers** for motor control. Implemented a **PID control** algorithm to enhance the robot's ability to follow lines smoothly with minimal oscillation. Designed the system to be a hands-on teaching tool for demonstrating robotics and control systems in educational settings.

Languages/Software/Hardware/Skills

• Python	• VHDL	• Illustrator	• Power Supply	• DipTrace	• Adaptability
• C++	• LTspice	• Photoshop	• Oscilloscope	• Logical Thinking	• Perseverance
• C	• Simulink	• InDesign	• Spectrum Analyzer	• Circuits	• Quick Learner
• R	• MatLab	• After Effects	• Multimeter	• Programming	• Time Management
• JavaScript	• Vivado	• Excel	• Signal Generator	• Problem-Solving	• Design
• React Native	• LogicWorks	• NX	• Solder Iron	• Collaboration	• Leadership
• MIPS					

Leadership Positions

LiftRyte Co-founder	RPI Club Baseball (President/Treasurer)	Elementary School Mentor
Residential Assistant	Varsity Basketball (Captain)	National Honors Society
Highschool Tutor	Varsity Baseball (Captain)	