

# Eli Foster

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[foster.engineer](https://foster.engineer)

## Education

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**Bucknell University, Lewisburg PA** 2023-2027

- Electrical Engineering, 3.60 GPA/3.77 Engineering GPA
- Concentration in semiconductor technology
- Member and former VP of IEEE, executive board member of Bucknell Baja SAE
- Expected graduation May 2027

**Rowan College of South Jersey** 2022-2023

Dual enrollment: SOC 103, CSC 101, CSC 111, CHM 111, MAT 108

## Projects

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**PortalBox** Summer 2025

- Completed v5.0 of an open-source makerspace project known as the Portalbox.
- Focused on embedded hardware to create an interlock system for both power and data.
- An ESP32-S3 Devkit based system checked in with a locally hosted SQL database to verify user access, using firmware written in MicroPython designed after v4.0 firmware written in Python.
- Utilized Git for version control, Embedded Linux to build and flash firmware, and software validation to ensure integrity of modules and libraries.
- Thoroughly tested and debugged PCB once populated using oscilloscopes, multimeters, and microscopes. Ensured full functionality before continuing the project.

**Bucknell Baja** Academic Year 24-25

- Led a team of ~10 ECE engineers in order to create all electrical systems on a racing vehicle
- Implemented a wiring harness, electronic differential controls, and an instrumentation system to monitor vehicle status and statistics.
- Utilized Agile-style development, created technical documentation, and research and development skills

**nand2tetris**

- Followed the popular project known as nand2tetris, creating a simulated CPU and Pong game out of boolean logic gates
- Employed skills in coding, including but not limited to C, HDL, and Assembly
- Advanced personal skills in Boolean logic, coding, and chip architecture
- Wrote a compiler and very simple, single-task OS for a virtual chip
- Utilized Hardware Simulation to test and evaluate logic gates, chips, and software

## Employment

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**Bucknell University – Multiple Roles** May 2024–Present  
**Maker-E Project Developer** (Summer 2024 & Summer 2025)

- Created educational technology kits to introduce students to modern engineering tools, focusing on microcontrollers, PCB design, computer architecture, and manufacturing equipment.
- Expanded and optimized the PortalBox embedded hardware platform for improved makerspace equipment access.

- Conducted firmware testing, bug identification, and feature enhancements in collaboration with faculty and technical IT staff.

### ***Makerspace Manager***

(Academic Years 2024–2026)

- Maintained and repaired 3D printers, laser cutters, PCB assembly machines, and lab computing equipment.
- Assisted students in embedded system prototyping, PCB assembly, and troubleshooting hardware/software integration issues.
- Certified users on manufacturing equipment and provided training on best practices for electronics fabrication and testing.
- Trained makerspace technicians on equipment use and instruction, how to train students.

### ***Grader & Tutor***

(Academic Year 2024–2025)

- TA for ECE class teaching Mechanical engineers the use of Arduino circuits to make basic robots.
- Tutored students in Python and core ECE concepts such as Kirchoff's laws, circuit theory, and Ohm's Law.
- Provided feedback on code quality, logic errors, and hardware/software integration approaches.

## **Skills**

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### **Embedded Systems & Software**

- Embedded Linux development, firmware design, implementation, and verification
- Python, C, Assembly, Java
- Git / Source Control Management (SCM)
- Agile methodologies
- Bug identification, debugging, and feature enhancement implementation

### **Hardware & Electronics**

- PCB design (KiCAD), Arduino circuits
- Instrumentation system development and testing
- Iterative prototyping and hardware-software integration
- CAD tools: SOLIDWORKS, Fusion360
- Measurement and test tools: WaveForms, multimeters, oscilloscopes