

Rishil Patel

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Education

Northeastern University, Boston, MA

May 2027

Bachelor of Science in Computer Engineering and Computer Science, GPA 3.98

- **Coursework:** Object-Oriented Design, Computer Systems, Linear Systems, Circuits & Signals, Embedded Design, Intro to Artificial Intelligence, Fundamentals of Computer Science II
- **Activities:** Capture the Flag NU, Aerospace NU, Trivia Club, Service Learning Program

Experience

United Electronic Industries, an AMETEK Company, Norwood, MA

January – June 2026

Software Engineering Co-op

- Designed a Python PyTest regression framework for UEI data acquisition and I/O boards. Wrote regression tests for 20 different boards.
 - Wrote tests for analog and digital I/O, and the CAN and MIL-STD-1553 communication protocols.
 - Replaced static device configuration with network-based hardware discovery, reducing setup time to under a minute and eliminating manual configuration errors.
- Fixed 30+ customer and internally-reported issues across UEI's C, C++, and Python APIs.
- Refactored the SWIG rules responsible for wrapping UEI's C++ API to generate its Python API.

E Ink Corporation, Billerica, MA

January – August 2025

Hardware Interface Development Co-op

- Designed and implemented an automated quality control system to enable high-volume inspection of E Ink panels
 - Developed Python-based software to capture and analyze optical data
 - Incorporated calibration procedures (flat-field correction, color reference adjustment) to ensure measurement accuracy and consistency
 - Enabled 100% panel inspection and scalability to over 4 million units annually
- Developed Python interfaces to integrate spectrometers and other devices into an E Ink panel measurement framework
- Per manager's evaluation: "Overall, Rishil's contributions have been quite remarkable compared to a range of different employees. His maturity and skill are a unique combination that is highly effective in the workplace."

Engineering Projects

Adaptive Home Safety Monitoring System

September 2025 – December 2025

- Collaborated in a 4-person team to develop an assistive door monitoring system for children with special needs, guided by family input
- Designed a multi-sensor approach combining reed switches, accelerometers, and ultrasonic sensors to enhance reliability
- Developed an ESP32-based system to provide real-time door status updates through SMS and email notifications
- Implemented fail-safe features including tamper-resistant mounting and a dual-power system with primary and redundant backup batteries

Custom-built ECG with Signal Processing and Heart Rate Measurement

November – December 2024

- Built a custom electrocardiogram using operational amplifiers to filter and amplify signals through high-pass and low-pass filters
- Digitized the ECG signal via NI DAQ and analyzed it in MATLAB to remove 60 Hz noise using Parks-McClellan and notch filters
- Calculated heart rate through Fourier Transform, integrating analog circuits and digital signal processing

Technical Skills

Languages: Python (PyTest, NumPy, pandas, matplotlib), C, C++, Java, MATLAB

Developer Tools: Git/GitHub, SVN, Linux, LTspice, Cursor

Hardware & Lab: Digital multimeter, oscilloscope, waveform generator, logic analyzer, soldering, Raspberry Pi