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, Dean's List All Semesters
Minor in Computational Social Sciences

Coursework: Circuits and Signals: Biomedical Applications, Fundamentals of Networks, Embedded Design, Fundamentals of Computer Science II, Differential Equations, Discrete Structures, Physics II

Activities: Capture the Flag NU, Aerospace NU, Trivia Club, Lead Mentor of Service Learning Program

Ashland High School, Ashland, MA, GPA 4.75 / Weighted 4.0 Scale — June 2023

Activities: Chess Club Vice President, National Honor Society Treasurer, Model UN Officer

Awards: Saint Michael's College Book Scholarship, National Merit Scholarship Letter of Commendation

Skills

Programming: Python, Java , C++, JavaScript, MATLAB, DrRacket, Git

Electronics: DE1SoC Board with FPGA, Circuit Design, Digital Multimeter, Oscilloscope and Waveform Generator, Analog-Digital Converters, Soldering, Arduino, Raspberry Pi

Software: Quartus Schematic, LTSpice, WireShark, Eclipse, PyCharm, CLion, IntelliJ IDEA, AutoCAD, SOLIDWORKS, Microsoft 365, Google Workspace

Languages: Full Professional Proficiency in Gujarati, Limited Working Hindi

Engineering Projects

Custom-built ECG with Signal Processing and Heart Rate Measurement

- Built a custom electrocardiogram using AD627 and LT1490 op-amps 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.

Real-time Accelerometer-Based Tilt Angle Measurement System — April 2024

- Implemented a C++ program to collect and process data from an accelerometer sensor on the DE1SoC
- Designed an FPGA circuit to convert sensor data into the tilt angle of the board, displayed on a 7-segment display
- Demonstrated real-time data processing through the integration of hardware (FPGA) and software (HPS) components

Robotic Arm Control via DE1SoC board inputs — February - March 2024

- Utilized Quartus Prime Schematic to interface with DE1SoC board
- Generated pulse width modulation signals to control five independent servos on the robotic arm

Work Experience

Curry Student Center Operations, Northeastern University, Boston, MA — June 2024 - Present
Game Room Proctor

- Overseeing 12 activity areas and handling 80-100 bookings daily to ensure a seamless experience for patrons
- Managing over 45 pieces of equipment and conducting regular testing and some maintenance

D'Amore-McKim School of Business, Northeastern University, Boston, MA — September 2023 – May 2024
Office Assistant

- Supported professors with various tasks and errands