Yash Patel

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EDUCATION

- **University of New Hampshire** Durham, New Hampshire
  Bachelor of Science in Computer Engineering *May 2026*

  Courses: Computer Architecture, Embedded Systems, Digital Systems Design, Microcontroller Systems, Operating Systems, Data Structures and Algorithms, Object-Oriented Programming, Probability and Statistics

EXPERIENCE

- **University of New Hampshire - Interoperability Labs** In Person - Part Time/Internship
  Senior Test Engineer *Apr. 2025 - Present*

  - **Influenced future ISO 21111-6 test plan revisions**: Provided technical feedback, testing expertise, and critical fixes to a Technical Committee part of the OPEN Alliance Standards Group, changes then are processed towards a ISO Standard.
  - **Automotive Ethernet Processing and Reconstruction Tool**: Leveraged Rust to help build a 100BASE-T1 signal processing tool, able to decode concurrent threads of analog and digital PAM-3 signaling, achieving a 30x speedup than the previously used tool.
  - **Single Pair Ethernet automation testing**: Applied Rust, MATLAB, and Web deployment to aid in a 100BASE-T1 automation testing tool, able to receive captures and programmatically determine results without intervention from a user, leading to an improvement on reservation times.

  Junior Test Engineer *Jan. 2024 – Apr. 2025*

  - **Development for custom FPGA test automation** : Architected in Verilog a IEEE 802.3 Clause 22/45 MDIO transmitter for a custom FPGA test automation framework, integrated into commercial-grade hardware validation suites.
  - **Reservation Manager and Tester for 20+ bookings**: Managed end-to-end testing lifecycle for concurrent bookings, including vendor coordination, delivering detailed testing reports, and the processing and analysis of Single-Pair Ethernet (SPE) transmissions
  - **Created test scripts**: For an FPGA that acts as a test station for 100BASE-T1 transmissions. These test scripts ensure that the timing are accurately set so that the Device Under Test is able to properly perform the tests labeled in the suite.

PUBLICATIONS

- **OPEN Alliance IEEE 100BASE-T1 PHY-Control Test Suite**: Work in Progress - Aided in development of a technical test specification for 100BASE-T1 devices undergoing testing, defining functional requirements and resource methodologies for IEEE 802.3bw conformance testing.

KEY PROFICIENCIES

- **Languages - Programming**: Rust, C, (System)Verilog, Python, Web (HTML, CSS, JS), sh/bash
- **Languages - Fluency**: English (main), Gujarati
- **Protocols**: I2C, SPI, UART, CAN-BUS, 100BASE-T1 (PHY-C, PCS), TCP/IP, Ethernet, SSH
- **Tools**: Wireshark, Oscilloscopes, Logic Analyzers/Packet Generators, Vivado, git
- **Platforms**: GNU/Linux, Windows, STM32, FPGA (Xilinx and Altera), Office Suite, Google App/Office Scripts

PROJECTS

Smart Adaptive Audio Equalizer Headset
Senior Design Project

- **Collaborated with a team of 3**: to design an adaptive headset featuring active external (ambient) and internal (biological) noise cancellation.
- **Developed a Digital Signal Processing (DSP) calibration routine**: using a 60-second automated hearing test to create personalized audio profiles. Then mapping that over an audio source.
- **Engineered a dual-microphone feedback/feedforward system**: to eliminate city noise and internal interference (e.g., blood flow)

MSP430 Morse Code Decoder: Programmed an MSP430FR6989 to perform real-time text-to-Morse decoding, utilizing UART for input and GPIO-controlled LEDs and buzzers for signal output.

Hyprhelp: Engineered a Python based utility for the Hyprland tiling window manager that parses system configuration files to generate dynamic, searchable keybinding menus.

LEADERSHIP

- **Student Senate of the University of New Hampshire - MUBOG Outreach Coordinator**: Directed recruitment and membership for the Memorial Union Board of Governors. Responsibility's include creating promotional materials and social media, and being knowledgeable about Programming and Leadership within the Student Union Building.
- **Student Senate of the University of New Hampshire - Haaland Hall Representative**: Liaison between students and residents of Haaland Hall (a student residence building) and the Student Senate of the University of New Hampshire. Engaged with faculty and staff about improvements to the University, including biweekly correspondence with the Director of Hospitality and Campus Services, though Co-Chairing the Dining Commission for the Fiscal Year 2023.