

MD JONAYET HOSSAIN

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EDUCATION

University of New Hampshire - Durham, NH

Expected: May 2026

Bachelor of Science: Electrical Engineering (Junior).

CGPA:3.22

TECHNICAL SKILLS

Instruments: Oscilloscope, Vector Network Analyzer (VNA), Arbitrary Waveform Generator, Function Generator, PB505-A Logic Board, Packet Generator, Spirent SmartBits, Power Spectrum Analyzer, Digital Multimeter, and Soldering.

Programming Languages: MATLAB, Verilog, C, C++, Python (PYQT6), Google Script and Instrumental Programming (SCPI).

Tools: Atlassian Suite (Jira, Confluence, Bitbucket), Agile (Scrum) methodologies, Git, VMware, BOMIST, Google Workspace and Microsoft 365.

Simulation Software: Altium, Fusion360(learning), Multisim, Blender, Arduino IDE, Lattice Diamond (FPGA), GTKWave Viewer, QT Designer (PYQT), and Diamond Programmer

Design Skills: Analog/Digital Circuit Design, Digital Logic Design, PCB Layout, Amplifier Design (BJT/MOSFET), 3D Printing Design, and Graphic User Interface Design.

Ethernet Standards & Testing: Proficient in Ethernet technologies including 100BASE-T (Clause 25), 1GBASE-T (Clause 40), 2.5G, 5G, 10GBASE-T (Clause 55 & Clause 126), Single-Pair Ethernet 100BASE-T1 (Clause 96), and 1GBASE-T1 (Clause 97).

EXPERIENCE

University of New Hampshire Interoperability Laboratory– Durham, NH November 2022 to Present

Test Automation Developer | Test Technician II | Mentor

Awards: Two-time UNH-IOL Student Leadership Scholarship winner

- **Created pulse measurement** algorithms for PAM 5 signaling, and reworked on jitter, adding two new testing capabilities for Ethernet compliance for 1G-BASE-T (EEE).
- **Conducted diagnostic testing on 20+ devices** to ensure compliance with **IEEE 802.3** specifications across multiple network speeds (100 Mbps to 10G), utilizing Oscilloscope, Vector Network Analyzer, function generator, power spectrum, and SmartBits for both single-pair and four-pair Ethernet.
- **Automated industrial testing processes** (e.g., droop jitter, return loss, PSD) using ATE solutions with MATLAB, significantly improving test accuracy and reducing manual testing time by 50%.
- **Resolved relay issues** on an automation board by analyzing Altium board schematics, doing continuity checks using DMM, and integrating serial communication commands to control relays via Arduino.
- **Integrated MATLAB scripts with Microsoft Word and Excel** to automate generating and saving test reports and results, reducing workload by 50%.
- **Mentored 5+ new hires** and led a diverse team of 10 technicians, improving team efficiency and honing my problem-solving and leadership skills.
- **Delivered numerous technical presentations and writing on 10GBASE-T (IEEE 802.3)** to educate peers on the fundamentals and underscore the importance of testing DUTs at this specific speed.

- Collaborated with cross-functional teams and vendors to troubleshoot hardware issues such as **signal integrity and electrical noise**, ensuring consistent test results.
- **Executed precision soldering** on SMA circuit boards, supporting the development of market-ready technical products.
- **Experience working with RF cables** and connectors such as SMA, SMB, SMC, and others, along with knowledge of their characteristics and recommended torquing procedures.

PROJECTS

Amplifier Design (FET, BJT)

August 2024

Coursework: Electronic Design I & II

- **Designed and built dual and single power amplifiers** using FET and BJT transistors, troubleshooting circuits, analyzing signals via oscilloscope, and validating results with Multisim simulations.
- Conducted **small signal analysis**, authored technical reports on design methodology, and compared simulation results with actual measurements to optimize performance.

Ideajam, University of New Hampshire – Team Neck-Sense

November 2023

- **Innovated neck gear design**, incorporating sensors aimed at correcting posture.

Hackathon, University of New Hampshire – Team Cypher-chase

March 2023

- **Engineered a sophisticated matrix algorithm** enabling game users to decipher a password from a given matrix, enhancing user engagement and problem-solving interaction.

ECE Design Group Project (22 & 23)

September 2022 - December 2022

Group Leader

- Organized group meetings to track progress on the development of an AC voltmeter, DC voltmeter, and DC ammeter, while devising strategic plans, documentation, and advanced circuit designs, resulting in an **award-winning project**.

Personal FPGA project

May 2023 to Present

- Debounced switch, 2x1 multiplexer, half-adder, and full adder; verified project using simulation and authored comprehensive testbench scripts to ensure accuracy and functionality.

Finance Tracker and stock analysis with Python QT Designer

June 2024

- Developed a finance tracking tool to assist student employees with managing finances, utilizing QT Designer for a user-friendly interface and implementing stock analysis features.

LEADERSHIP & CAMPUS INVOLVEMENT

BSA-UNH (Bangladesh Student Association)

October 2023 to Present

Vice-president

- **Co-founded the association** alongside 6 other members and **organized 5 cultural and community events** with over 50 attendees each, fostering engagement among students.

Institute of Electrical and Electronics Engineers-UNH (IEEE)

February 2023 to Present

Executive member

- **Introduced new competitions** such as breadboard and public speaking for better engagements.