MD JONAYET HOSSAIN
603-241-0658 | Durham, New Hampshire
mdjonayet.hossain@unh.edu | https://www.linkedin.com/in/md-jonayet-hossain

EDUCATION

University of New Hampshire - Durham, NH **Expected: May 2026**
Bachelor of Science: Electrical Engineering (Junior).

TECHNICAL SKILLS

Instruments: Oscilloscope, Vector Network Analyzer (VNA), Arbitrary Waveform Generator, Logic Board, Spirent SmartBits, Power Spectrum Analyzer, and Digital Multimeter.
Programming Languages: MATLAB, Verilog, C, C++, Python, Google Script and Instrumental Programming (SCPI).
Tools: Atlassian Suite (Jira, Confluence, Bitbucket), Agile (Scrum) methodologies, Git, VMware, BOMIST, Linux, Google Workspace and Microsoft 365.
Simulation Software: Altium, Keysight ADS, LTspice, Multisim, Fusion360, Arduino IDE, Lattice Diamond (FPGA), QT Designer, and Diamond Programmer.
Specialized Knowledge: Analog/Digital Circuit Design, PCB Design, Signal & Power Integrity, Soldering, Amplifier Design, 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 and Hardware Developer | Test Technician (IOL 1 → IOL 2 → IOL 3) | Mentor
Awards: Two-time UNH-IOL Student Leadership Scholarship winner

- **Designed and developed** a microcontroller-controlled **6-layer high-speed PCB** automation board using **Altium**, incorporating circuit design, component selection, and layout optimization to ensure **signal and power integrity.**
- **Automated industrial testing processes** (e.g., droop jitter, return loss, PSD, and other clause-specific measurements) using MATLAB, integrating testing software with Microsoft Word and Excel for report generation, reducing workload by **70%** and improving accuracy.
- **Innovated pulse measurement** algorithms for PAM 5 signaling using histogram bins from scope, and reworked jitter measurement by fixing scrambler slicing script, adding two new testing capabilities for Ethernet compliance for 1G-BASE-T (EEE).
- **Conducted diagnostic testing** over 30 devices of different vendors for compliance with IEEE 802.3 specifications across various network speeds, using oscilloscopes, power spectrum, and vector network analyzers to measure signal integrity, power, and noise levels.
- **Proficient** in working with **high-speed cables and connectors**, including SMA, SMB, SMC, and RJ-45, as well as performing calibration of oscilloscopes and probes for accurate measurements.
- **Diagnosed and resolved** two critical **PCB hardware** design flaws, leveraging Altium schematics and circuit simulations to verify the expected signal requirements performance.
- **Mentored over 5 new hires** and led a diverse team **of 10 technicians**, enhancing team efficiency and communication, which resulted in recognition for 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.
- **Executed precision soldering** on SMA circuit boards, supporting the development of market-ready technical products.

PROJECTS

Circuit Lab: A Lab in a Book for Fundamentals Electronics and Signal Integrity

Independent Project **December 2024 – Present (In Progress)**

- **Authoring user-friendly book** documenting learnings on core electronic components and their impact on signal behavior in PCBs and other scenarios, focusing on practical, simulation-based insights.
- Using **LTspice, Keysight ADS, Altium, Multisim, and ANSYS** to simulate and demonstrate concepts, with plans to integrate additional tools; designed to help Gen Z electrical students understand fundamentals through visual, interactive, and relatable learning.

Amplifier Design (FET, BJT) **August 2024**

Coursework: Electronic Design I & II

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

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 challenge and public speaking for better engagements.