**MD JONAYET HOSSAIN**

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**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.
* **Simulation Software:** Altium, Keysight ADS, LTspice, Multisim, Fusion360, Arduino IDE, Lattice Diamond (FPGA), QT Designer, and Diamond Programmer.
* **Programming Languages:** MATLAB, Verilog, C, C++, Python, Google Script, LaTeX, and Instrumental Programming (SCPI).
* **Tools:** Atlassian Suite (Jira, Confluence, Bitbucket), Agile (Scrum) methodologies, Git, VMware, BOMIST, Linux, Google Workspace and Microsoft 365.
* **Specialized Knowledge:** Analog/Digital Circuit Design, PCB Design, Signal & Power Integrity, Filter Design, Soldering, Amplifier Design, 3D Printing Design, and Graphic User Interface Design.
* **Automotive Ethernet/Ethernet Standards & Testing**: Proficient in Ethernet technologies including 100BASE-T (Clause 25), 1GBASE-T (Clause 40), 2.5G, 5G, 10G BASE-T (Clause 55 & Clause 126), Single-Pair Ethernet 100BASE-T1 (Clause 96), and 1GBASE-T1 (Clause 97).

**EXPERIENCE**

**UNH InterOperability Laboratory– Durham, NH**  *November 2022 to Present*

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

*Senior Physical Layer Test Developer & Technician October 2024 – Present*

* **Engineered a** **6-layer automation PCB** integrating **microprocessors**, logic relays, and Butterworth ladder filters using **Altium** and verified designs with **Keysight ADS**, cutting test setup time by **50%**, improving **signal integrity**, and doubling cable lifespan for **IEEE 802.3 compliance testing**.
* **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.
* **Collaborated with Texas Instruments, Marvell, Microchip, Realtek,** and other industry leaders to troubleshoot complex technical challenges by conducting in-depth troubleshooting sessions, while leveraging JIRA in an Agile environment for streamlined project updates and resource reservations.
* **Conducted diagnostic testing** on over 30 devices of different companies for compliance with IEEE 802.3 specifications across various network speeds, using DMM, oscilloscopes, power spectrum, and vector network analyzers to measure signal & power integrity, as well as noise levels.

*Automation Developer and Test Technician II April 2023 – October 2024*

* **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).
* **Diagnosed and resolved** two critical **PCB hardware** design flaws, leveraging Altium schematics and circuit simulation tools such as Keysight ADS 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.

*Junior Test Technician I November 2022 – April 2023*

* **Executed precision soldering** on SMA circuit boards, supporting the development of market-ready technical products.
* **Delivered numerous technical presentations and documentation on 10GBASE-T** (IEEE 802.3) to educate peers on the fundamentals and underscore the importance of testing devices at this specific speed.

**PROJECTS**

**Circuit Lab: A Lab in a Book for Fundamentals Electronics and Signal Integrity***Independent Project* *December 2024 – Present*

* **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 & III*

* **Designed and built dual and single power amplifiers, Butterworth filters, and speakers,** using FET and BJT transistors and op-amps, 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** and **organized over 10 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*

* **Introducing new competitions** such as the breadboard challenge and public speaking for better engagement.