#### **MD JONAYET HOSSAIN**

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### **EDUCATION**

### University of New Hampshire - Durham, NH

Bachelor of Science: Electrical Engineering (Junior).

#### TECHNICAL SKILLS

- Instruments: Oscilloscope (including high-bandwidth applications), Vector Network Analyzer (VNA), Spectrum Analyzer, Arbitrary Waveform Generator, Logic Analyzer, Spirent SmartBits, and Digital Multimeter.
- **Simulation Software:** Altium Designer, Ansys HFSS, Keysight ADS, LTspice, PSpice, Multisim, Fusion360, Arduino IDE, Lattice Diamond (FPGA), and Diamond Programmer.
- **Programming Languages:** MATLAB & Simulink, Verilog, C, C++, Python, Instrumental Programming (SCPI), and Google Script.
- **Tools:** Atlassian Suite (Jira, Confluence, Bitbucket), Agile (Scrum) methodologies, Git, VMware, BOMIST, Linux, Google Workspace, and Microsoft 365.
- **Specialized Knowledge:** Analog/Digital Circuit Design, High Speed PCB Design, Simulation set-up for PCB & Circuits, 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

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

Senior Physical Layer Test Developer & Technician

- **Designed and developed a 6-layer PCB automation board** using Altium to streamline IEEE 802.3 C96/C97 compliance testing, reducing setup time by **80%** and doubling cable lifespan. Utilized Keysight ADS, Ansys HFSS, PSpice, Altium, and LTspice to validate circuitry and optimize signal integrity.
- Automated industrial testing processes (e.g., droop, jitter, return loss, PSD, and other clause-specific measurements) using MATLAB scripting, integrating 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 while leveraging JIRA in an Agile environment for streamlined updates on testing reservations.
- **Conducted compliance testing** on over 30 devices of several companies with IEEE 802.3 specifications across various network speeds, utilizing DMM, oscilloscopes, power spectrum, and vector network analyzers.

Automation Developer and Test Technician II

- Innovated pulse measurement algorithms for PAM 5 signaling using histogram bins from the scope, and reworked jitter measurement by fixing the scrambler slicing script, adding two new testing capabilities for Ethernet compliance for 1000 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

April 2023 – October 2024

Expected: May 2026

October 2024 – Present

November 2022 to Present

- **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**

# Amplifier Design (FET, BJT)

Coursework: Electronic Design I, II & III

- Designed and built dual and single power amplifiers, high-speed amplifiers, filters, PLL, current mirror, and speakers, using FET and BJT transistors and op-amps, troubleshooting circuits, analyzing signals via oscilloscope, and validating results with Multisim, Simulink, 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

February 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) Executive member

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

August 2024