Tahmin Mahmud

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Seeking internship positions within Power Electronics & Inverter Drive as I near my May 2024 graduation

Experience

Power Electronics & Motor Drive Group, *Graduate Research Assistant* (Prof. Hang Gao) | WSU Lab *Aug 2022 - Present*

- Develop and analyze models of advanced high-frequency **AC-AC, DC-AC, AC-DC power converter** electronic circuits and motor drives **V2G-G2V** using MATLAB/Simulink to assess the performance of different systems.
- **Design and build prototypes** of power electronic converters, motor control systems, or related hardware. **Bench test, debug and validate** the prototypes in compliance with lab safety guidelines.
- Assist in the **planning, execution, and documentation of research projects** related to power electronics and motor drives encompassing independent tasks like **literature reviews, data collection, and experimentation**.

Washington State University – Vancouver, *Graduate Teaching Assistant* | WA, USA *Aug 2022 - Present*

- Leading lab sections for Advanced Electrical Engineering courses **ECE325* and ECE327*** with up to 30 students.
- Facilitating study and review sessions to reinforce course deliverable and encourage student success.
  ECE325* - Electronic Devices and Applications | ECE327* - Introduction to Power Electronics

Control and Applications Research Centre, *UG Research Volunteer* (Prof. AKM Azad) | BracU Lab *Apr 2021 - Jun 2022*

- Critiqued and refined **thesis, conference, and journal manuscripts** while providing valuable feedback.
- Created **project proposals, pitch-decks, presentations, and reports** that showcased innovation and creativity.

DhakaTribune (Popular English Daily in Bangladesh), *Contributing Writer* | Remote *Jun 2020 - Nov 2020*

- Crafted compelling **viral feature articles** through diligent research.
- Provided **event recaps and summaries** to augment publication coverage.

Education

4.0/4.0 **MS in Electrical Engineering (Expected)**, *Washington State University - Vancouver* | WA, USA *Aug 2022 - May 2024*

3.6/4.0 **BSc in Electrical and Electronic Engineering**, *Brac University* | Dhaka, Bangladesh *Jan 2018 - Jan 2022*

Achievements: UG: VC's List (3 times) | Dean's List (2 times)

MSEE Relevant Courses: Advanced Power Electronics | Renewable Energy Conversion Systems (WECS) | Emerging Device Technologies | Fundamentals of Lab-on-Chip | Silicon Integrated Circuit Design Technology | Advanced Antenna Design

BSEEE Relevant Courses: Analog Integrated Circuit Design | Semiconductor Devices and Materials | VLSI Design | Energy Conversion | Digital Electronics | Control Systems | Power System | Microprocessors | Digital System Design

Skills

Programming	MATLAB, LaTeX, Java (basic), Python (basic), Git
Hardware	dSPACE Control Platform, Tektronix 370A Programmable Curve Tracer, Tektronix P5200A 50MHz High-Voltage Differential Probe, Tektronix DMM 4020 5-1/2 Digital Multimeter, Tektronix PWS2323 DC Power Supply 0-32V & 3A, Tektronix DPO 2024 Digital Phosphor Oscilloscope, Tektronix AFG 3011 Single Channel Arbitrary/Function Generator, DPO RSA3408B Real-Time Spectrum Analyzer, MSO3054 Mixed Signal Oscilloscope, Keithley 4200-SCS Semiconductor Parameter Analyzer, Fluke 87V True-RMS Multimeter, ArduinoUNO
Software	MATLAB/Simulink R2023b, Cadence OrCAD Capture CIS, PLECS, SPICE, ANSYS HFSS, Fusion360 (basic), Altium (basic)
Certifications	Power Electronics Simulation Onramp, Mathworks – (2023) | MATLAB Onramp, Mathworks – (2023)

Projects

Real-time Operation of HF Power Converters and Inverters using Finite Control Set (FCS) Model Predictive Control Algorithm *Aug 2022 - Present*

MATLAB/Simulink software Modeling and Hardware prototyping using dSPACE control platform

Self-paced research initiatives for Master's Thesis:

- Project I: FCS-MPC-based **2 Level 3-Leg Voltage Source Inverter (VSI)** with **Dead-time** Compensation Control Technique
- Project II: FCS-MPC-based **Current Source Inverter (CSI)** with **Overlap-time** Compensation Control Technique
- Project III: FCS-MPC-based High Frequency Bidirectional Isolated **Matrix Converter (MC)** with **Virtual Space Vector**-based **THD Suppression** and **Duty Cycle Control** Techniques for AC-Motor Drive/V2G-G2V
- Project IV: FCS-MPC-based High Frequency Bidirectional Isolated Matrix Converter (MC) for AC-Motor Drive/V2G-G2V with an improved **Prediction Model** & **Peak HFT Current Measurement** Analysis
- Project V: FCS-MPC-based HFIMC with **Orthogonal Reference Coordinate** α-β Control for Vehicle-to-Grid (V2G) Applications

Publications

All conference proceedings, published journals and preprints can be found in my scholar profile (click here)