

# MD SHAHRIAR NAHIAN

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## EDUCATION

### Doctor of Philosophy in Mechanical Engineering

August 2024-Present

*Purdue University, West Lafayette, Indiana, USA*

### Master of Science in Mechanical Engineering

Graduation – August 2023

*Wayne State University (WSU), Detroit, Michigan, USA*

Current CGPA: **3.97** out of 4.00

### Bachelor of Science in Mechanical Engineering

Graduation – 22 October 2018

*Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh*

Overall CGPA: **3.74** out of 4.00      Junior/Senior CGPA (final 80.25 credits): **3.81**

## PUBLICATIONS

### Journal Publication

2018– Present

- **Md S. Nahian**, R. Jayan and M.M. Islam, “Atomic-scale Insights into Comparative Mechanisms and Kinetics of Na-S and Li-S Batteries”, **ACS Catalysis**, 2022
- **Md S. Nahian**, R. Jayan, T. Kaewmaraya, T. Hussain and M.M. Islam, “Elucidating the Synergetic Mechanism of Adsorption and Electrocatalysis of Polysulfides on Double Transition Metal Carbide MXenes for Na-S Batteries”, **ACS Applied Materials & Interfaces**, 2022
- **Md S. Nahian**, R. Pritom, M.M. Islam, “Revealing Mechanistic Insights into Amorphous Graphite Formation from Oxygenated Polar Heavy-End Aromatic Feedstock”, **JPCC**, 2023
- R. Jayan, **Md S. Nahian**, MM Islam, “Homogeneous Organometallic Catalysts for Improved Electrochemical Kinetics of Li-S Batteries”, **ACS Applied Energy Materials**, 2022
- S. M. Nahid, **Md S. Nahian**, M. Motalab, T. Rakib, S. Mojumder, M. M. Islam, “Attuning the Mechanical Properties of Silicene Nanosheet by Auxiliary Cracks: A Molecular Dynamics Study” **RSC Adv.**, 2018

### Conference Publication

2019

- **S. Nahian**, M. Motalab, P. Bose, S. M. Nahid, “Mechanical Anisotropy and Tension-Compression Asymmetry of Au coated Si Nanowafers: an Atomistic Approach” International Conference on Mechanical Engineering 2019 (ICME 2019), 18-20 December, 2019, Dhaka, Bangladesh.

## **RESEARCH EXPERIENCE**

**Wayne State University ([aPriSM LAB](#))**

2021– 2023

*Research Assistant*

*Supervisor: Md Mahub Islam, Assistant Professor, Department of Mechanical Engineering, WSU, Detroit, MI, USA*

- Atomistic insights into reaction mechanism and kinetics of metal chalcogenides batteries
- Elucidating Molecular-level Understanding of Graphitizability of Heavy End Aromatic Feedstocks
- Interfacial Chemistry of Solid-State Lithium Batteries

**Multiscale Mechanical Modelling and Research Network ([MMMMRN](#))**

2017– Present

*Member and mentor*

- Mechanical properties of Transition Metal Dichalcogenide (TMD) heterostructures.
- Effects of defects on the fracture strength of hexagonal Boron Nitride
- Size dependent study of mechanical properties of cobalt thin films under uniaxial and biaxial tension

**Bangladesh University of Engineering and Technology**

2017– 2019

*Research Assistant*

*Supervisor: Dr. Mohammad Abdul Motalab, Associate Professor, Department of Mechanical Engineering, BUET, Bangladesh*

- Atomistic investigation of mechanical properties of gold coated nanowafers
- Tuning the mechanical properties of silicene nanosheet by auxiliary cracks: A molecular dynamics study

## **WORK EXPERIENCES**

**Teaching Experience**

2019–2021

- *Lecturer at Sonargaon University, Dhaka. Bangladesh*

Conducted different courses like numerical analysis, solid mechanics, machine design etc. Also mentored several undergraduate projects.

## **DESIGN & SIMULATION SKILL**

- **Operating system:** Windows, Linux
- **Programming Language:** C, C++, MATLAB
- **Simulation and Modelling:** VASP, NWChem, Gaussian, LAMMPS, Abaqus, AtomsK, Material Studio
- **Design Tools:** SolidWorks, AutoCAD
- **Visualization and Post Processing Tools:** Ovito, Vesta, Inkscape

## **AWARDS, HONORS & SCHOLARSHIPS**

- University Dean's List Award (2016-17) and (2017-18) (For achieving GPA above 3.75 in an academic year)
- Runner's Up in Eco-run Bangladesh-2015 (Arranged by JAICA)
- Runner's up in MSPC (Model Ship Propulsion Competition) 2017
- Final round participant in Shell Eco Marathon-2016, (Manila, Philippines)

## **REFERENCES**

- **Md Mahbub Islam**  
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Wayne State University (WSU), Detroit, MI  
Email: [gy5553@wayne.edu](mailto:gy5553@wayne.edu)
  
- **Md. Abdul Motalab, PhD**  
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