

# Md. Shahed Hossain Sohan

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## EDUCATION

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### **Bachelor of Science in Mechanical Engineering**

Bangladesh University of Engineering and Technology

Dhaka-1000, Bangladesh

March 2018 - May 2023

**CGPA: 3.81/4.00**

**Thesis:** Analysis of Mechanical Performance of Crumpled Graphene: A Molecular Dynamics Approach. ([Details](#))

**Relevant Courses:** Heat Transfer, Fluid Mechanics, Refrigeration and HVAC System, IC engine, Control Engineering, Applied Engineering Mathematics, Nuclear Engineering, Automobile Engineering, Production Process, Machine Design, Electro-mechanical System Design.

## RESEARCH INTERESTS

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- Molecular Dynamics • Heat Transfer • Control System • Renewable Energy • Energy Storage
- Aerodynamics • Fluid Mechanics • CFD • Refrigeration & HVAC • Manufacturing

## RESEARCH EXPERIENCES

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- Working on investigation of mechanical performance of Crumpled Graphene with varying grades of porosity and crumpleness using molecular dynamics under the guidance of Dr. Rahman. A graphene sheet has been crumpled and then adding porosity, characteristics under tensile and compressive stress has been observed. Porosity lowers the stress bearing capabilities of crumpled graphene structure. However, with greater crumpleness the trend shifts oppositely.
- Working on CFD study of MHD mixed convection in a quadrantal enclosure with heat conducting rotating cylinder under the supervision of Dr. Saha.
- Worked on assessment of electronic cooling system in a C-shaped channel using temperature dependant P, PI, PID controller under the supervision of Dr. Saha.

## PUBLICATIONS

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## PROFESSIONAL EXPERIENCE

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### **North-West Power Grid Company Limited**

Industrial trainee

Oct 2022 - Nov 2022

Khulna 225 MW Combined Cycle Powerplant.

- Got overall idea of functioning of a combined cycle powerplant. Inspected major systems of the powerplant i.e., gas turbine, steam turbine, lube oil system, fuel system, water treatment plant, control system, safety system.

## TEST SCORE

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- TOEFL
- GRE

## PROJECTS

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### **Accident Reduction System Design**

A gyroscope based drowsiness system was designed and modeled to alert and reduce vehicle speed to reduce collision.

Role: Design and Analysis

DOI: [10.5281/zenodo.8265893](https://doi.org/10.5281/zenodo.8265893)

- **Thermo-Fluid Equipment Design (Shell and Tube HX with Helical Baffles)**  
Using HTRI, the design parameters were optimized for the best configuration. 3EPlus, an energy management software, was utilized for calculating optimal insulation requirements to enhance energy efficiency. A three-dimensional numerical simulation was conducted by FEM using ANSYS to analyze for a shell and tube HX.  
*Role: Design and Simulation* DOI: [10.5281/zenodo.826593](https://doi.org/10.5281/zenodo.826593)
- **Electric Temperature Control System**  
A temperature control system was analyzed for a C-shaped channel using P, PI, and PID controller. To find the best combination of controllers, finite element analysis was performed in COMSOL Multiphysics.

## SKILLS

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|---------------------------------|--|
| • <b>CAD Software:</b>          | SolidWorks, AutoCAD  |
| • <b>Simulation Software:</b>   | LAMMPS, COMSOL Multiphysics, ANSYS Workbench, MATLAB       |
| • <b>Programming Languages:</b> | Python, C, Arduino   |
| • <b>Microsoft Office:</b>      | Microsoft Office Suite, LaTeX                              |
| • <b>Other Software:</b>        | Tecplot 360, HTRI, 3EPlus, Avogadro, OVITO                 |
| • <b>Soft Skills:</b>           | Project and Time Management, Teaching, Leadership, Writing |

## HONORS AND AWARDS

- University Merit Scholarship, BUET (**three times** - January 2019, January 2020, January 2022)  
- *Awarded to the students with academic excellence (GPA:-3.90+) in a semester*
- Dean's List Award, BUET (**three times** - First, Second and Fourth year)  
- *Offered to the students obtaining an average GPA of 3.75+ in two consecutive semester of an academic year*
- University Stipend (**three times** – 2018, 2019, 2021)
- Board Scholarships: HSC (2017), SSC (2015), JSC (2012)
- Perfect Attendance Certificate, Notre Dame College, 2017.  
- *Students with 100% attendance receive this certification as a reward for their consistent commitment*

## EXTRA-CURRICULAR ACTIVITIES

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|--|---------------------|
| • Affiliate member of the IMechE ( <i>Membership ID: 80702539</i> )                        |                     |
| • Affiliate Member of BUET Robotics Club.  | May 2018 – May 2023 |
| • Affiliate Member of BUET Automobile Club.  | May 2018 – May 2023 |
| • Member of BADHON - BUET (A Blood Donation Group).<br>- <i>Donated blood for 6 times.</i> | May 2018 – May 2023 |

## SELECTIVE CERTIFICATIONS

- Introduction to MATLAB, Coursera (*Cr. ID: 6CQJHLXPAH44*)
- Excel for Beginners, Coursera (*Cr. ID: E3ASUG9VNET8*)
- Getting started with Python, Coursera (*Cr. ID: 3CYULTWLKJ6U*)

## LINGUISTIC PROFICIENCY

- Bengali (Native)
- English (Full Working Proficiency)

## References

### Dr. Md. Ashiqur Rahman, Professor

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Bangladesh University of Engineering and Technology  
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