

# SHAILEE MITRA

Department of Mechanical Engineering, Purdue University, West Lafayette, IN-47907

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## Education:

- **PhD student in Mechanical Engineering** [23 August, 2021- ]  
Purdue University Graduate School, West Lafayette, IN-47907
  - **Bachelor of Science (B.Sc.) in Mechanical Engineering** [27 February, 2016 – 27 February, 2021]  
Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.  
**CGPA: 3.75** (4.00 scale)  
**Rank: 25<sup>th</sup>** among 192 students
  - **Higher Secondary Certificate (H.S.C)** [2013-2015]  
Viqarunnisa Noon School and College, Dhaka, Bangladesh.  
**GPA: 5.00** (5.00 scale)
  - **Secondary School Certificate (S.S.C)** [2011-2013]  
Viqarunnisa Noon School, Dhaka, Bangladesh.  
**GPA: 5.00** (5.00 scale)
  - **Junior School Certificate (J.S.C)** [2010]  
Viqarunnisa Noon School, Dhaka, Bangladesh.  
**GPA: 5.00** (5.00 scale)
- Scholarship:**
- **Dean's list Scholarship:** Academic honor from BUET.
  - **Govt. Merit Scholarship:** Award by Ministry of Education, Bangladesh.  
In J.S.C. examination 2010 and H.S.C examination 2015.

## Research Experience:

- **B.Sc. Thesis:** Investigation on the Mechanical Properties of Functionally Graded Nickel and Aluminium Alloy by Molecular Dynamics Study (Supervisor: Associate Prof. Dr. Mohammad Abdul Motalab)
  - ♦ Applied **Molecular Dynamic (MD)** approach to investigate the mechanical properties of functionally graded Ni-Al alloy with Ni coating by applying uniaxial tension.
  - ♦ Studied the effect of profiles, temperature, crystal orientations on the mechanical behavior of functionally graded Ni-Al alloy with Ni-coating.
  - ♦ Observed distinct types of failure mechanism for different grading function at different temperature.

## Research Interests:

Neuroscience, Breast Cancer Research, Tissue Engineering, Surgery simulation and optimization, Heat and Mass Transfer, Molecular Dynamics.

## Publications:

- Md. Habibur Rahman, **Shailee Mitra**, Mohammad Motalab and Pritom Bose. "Investigation on the mechanical properties and fracture phenomenon of silicon doped graphene by molecular dynamics simulation." DOI: 10.1039/D0RA06085B (Paper) *RSC Adv.*, 2020, 10, 31318-31332. ([Link](#))

• **Shailee Mitra**, Md.Habibur Rahman, Hasib Ahmed Prince and Enamul Hasan Rozin. “Numerical Investigation on Dielectrophoresis Blood Cell Separation for Different Applied Voltage and Red Blood Cell Size.” IEEE TENSYPMP 2020 (Accepted)

• Md. Habibur Rahman, **Shailee Mitra**, Mohammad Motalab and Tawfiqur Rakib. “Investigation on the Temperature and Size Dependent Mechanical Properties and Failure Behavior of Zinc Blende (ZB) Gallium Nitride (GaN) Semiconducting Nanowire.” IEEE TENSYPMP 2020 (Accepted)

• Md Habibur Rahman, **Shailee Mitra**, Didarul Ahasan Redwan. “Electronic Band Structure of Group IV 2D Materials: Graphene, Silicene, Germanene, Stanene using Tight Binding Approach.” ICAICT 2020 (Accepted)

• Md. Habibur Rahman, **Shailee Mitra**, Hasib Ahmed Prince and Enamul Hasan Rozin. “Numerical Modelling of Tumor Ablation Process by Localized Heating with Four Armed Electric Probe and a Comparative Study Between Human Liver and Renal Medulla Tissue.” 2019 5th International Conference on Advances in Electrical Engineering (ICAEE), Dhaka, Bangladesh, 2019, pp. 7-11, doi: 10.1109/ICAEE48663.2019.8975546.(Link)

• Hasib Ahmed Prince, Md. Habibur Rahman, Enamul Hasan Rozin and **Shailee Mitra**. “Thermal Performance Analysis of a Silicon Chip (IC) Mounted on Printed Circuit Board for Different Substrate Materials Based on the Convection Heat Transfer by 3D Finite Element Method.” 2019 5th International Conference on Advances in Electrical Engineering (ICAEE), Dhaka, Bangladesh, 2019, (Link)

pp. 712-715, doi: 10.1109/ICAEE48663.2019.8975612.

#### **Internship:**

Completed 3 (three) weeks Internship program at **Renata Limited's Engineering Department**. (January 20,2020 to February 05,2020)

- ♦ Visited Sachet Filling Facility (SFF) area, Solid Dosage Flow area, Water Treatment Plant.
- ♦ Became familiar with Tablet Compression Machine, Blister Packing Machine, Capsule Filling Machine, Dry Syrup Machine.
- ♦ Visited Power Plant, HVAC system of **Renata Limited**.
- ♦ Came to know about Automation devices.

#### **Synergic Activity:**

- ♦ Association Representative (AR), Mechanical Engineering Association, Department of Mechanical Engineering, BUET.
- ♦ Worked in a group project along with three other members on “ Surveillance and Rescue Robot with Face Recognition and Motion Detection System.”
- ♦ Constructed a Double Pipe Heat Exchanger (DPHX) with two others to gain practical knowledge about heat exchangers.

#### **Technical Skills:**

- Numerical Analysis and Simulation Tools: MATLAB, LAMMPS, COMSOL, Multiphysics.
- Programming Language: C, C++.
- Graphics Software: AUTOCAD, SOLIDWORKS.
- Typesetting Language: MS Word.