CHINMOY DEB NATH

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Weblinks: LinkedIn Portfolio

Education

Chittagong University of Engineering and Technology (CUET) July 2025

B.Sc. in Mechanical Engineering.

- CGPA: **3.73/4.00**, Last four semesters' GPA: **3.87/4.00,** Ranked **18th /180** Graduates (**Top 10%).**

Professional Experience

Adjunct Lecturer, Dept. of ME, Anwer Khan Modern University. Oct 2025-Present

- Courses: Engineering Mechanics-II (MEC 2203), Design of Machine Elements-I (MEC 3107), Design of Machine Elements-II (MEC 3207)

Graduate Research Assistant, Chittagong University of Engineering and Technology. Jul 2025-Present

- Working in Computational Fluid Dynamics Lab.

Research Experience

[1] BANBEIS Project by Ministry of Education, Bangladesh. (GRA Project). Jul 2025-Present

- Investigating gas bubble splitting and lodging dynamics in patient-specific bifurcating micro vessels using Volume of Fluid Model for advanced understanding and design of embolotherapy strategies.

Link- (Preview)

[2] Numerical Analysis of Bubble Transit and Splitting Dynamics in Three-Dimensional Arterial Bifurcations (ICMMPE 2025). 2025

Chinmoy Deb Nath, MM Roshid, Md. Shamim Ali, Nusrat Jahan Imu (ICMERE 2025).

- Explored the impact of Capillary number, Reynolds number, bifurcation geometry and non-Newtonian blood rheology on splitting and lodging behavior relevant to gas embolotherapy.

[3] Computational Investigation of Perfluorocarbon Gas Bubble Dynamics in Three-Dimensional Bifurcating Arteries. (Undergraduate Thesis) 2025

- Explored the impact of bifurcation geometry and non-Newtonian blood rheology on splitting behavior relevant to gas embolotherapy.

[4] Roll-Induced Variations in Bubble Splitting Dynamics within Patient-Specific Arterial Networks.

Chinmoy Deb Nath, Md. Mamunur Roshid. (Manuscript under preparation)

Identified critical Capillary and Bond Numbers dictating bubble behavior under varying roll angles. (Preview)

[5]A comparative analysis among Balsa, Pine, and Gamari as a potential piezoelectric material. 2025

Abu Bakar, Sajal Chandra Banik, **Chinmoy Deb Nath** (ICMERE 2025).

- Found Balsa to produce the highest voltage output (300.52 mV at 1 kg load), with enhanced performance linked to its low density, high compressibility, and porous structure.

Research Interests

Multiphase Flow | Bubble Dynamics | Biomechanics | CFD | Heat Transfer | Bio-based Sustainable Energy.

Technical Skills

Programming Languages: MATLAB, Python, C, PLC Programming, CNC Programming.

Simulation Software: Ansys Fluent, OpenFOAM.

CAD Software: SolidWorks, Fusion 360.

Image Processing and Analysis Software: ImageJ, 3D Slicer.

Scientific Visualization Software: ParaView.

Basic Software: Microsoft Word, PowerPoint, Excel, Latex.

Projects

[1] Computational Analysis and Aerodynamic Optimization of a Savonius Wind Turbine.

- Designed and optimized a Savonius wind turbine using CFD simulations, identifying 130° blade angle as optimal for peak power and aerodynamic efficiency in low-wind conditions.

[2] Biosorption of Copper (II) using coconut husk in aqueous solution.

- Investigated Cu (II) biosorption using coconut husk, identifying optimal pH and kinetics for efficient, eco-friendly heavy metal removal in aqueous systems.

[3] Bubble Oscillation Analysis in Tri-Bubble Interaction System

- Analyzed oscillation behavior of three acoustically interacting bubbles using time and frequency domain in MATLAB to reveal dynamic coupling effects.

[4] Finite Element Analysis Convergence and Mesh Independence *Coursera*

Awards

- Board Merit Scholarship with **Rank 9th** out of **261,528** students in 12th grade (Dinajpur Board). 2019
- Best player in Inter House Basketball Competition - Junior Group 2015
- Champion in Inter Cadet College Dance Competition. 2020
- Champion in Inter Hall Table Tennis Competition 2024
- Man of the Match in Inter House Cricket Competition 2018

Certifications

- CNC & 3D Printing for Industrial Automation under EDGE Course, ICT Division, Bangladesh 2024
- Mechanical Engineering Design and Manufacturing with Fusion 360 (Coursera). 2023
- Modeling and Design for Mechanical Engineers with Autodesk Fusion 360 (Coursera) 2023
- Machine Design Part I (Georgia Institute of Technology) (Coursera). 2023
- Supply Chain Management Specialization (Logistics, Operation, Planning, Sourcing, Management Strategy) 2023

Extra-Curricular Activities

- **Association of CUETian Ex-Cadets (Vice President).** 2023-2024

Participated in various welfare and social activities for financially challenged people.

- **Joyoddhoney (Dance Secretary).** 2023-2024

Organized and coordinated dance events, choreographies & promoted cultural appreciation through dance.

- **Rangpur Old Cadets' Association (Lifetime Member).** May 2019-Present

Conveyed relief initiatives for disaster-impacted communities and career guidance programs for high school graduates.

- **CUET Sports Club (Event Management Secretary)** 2023-2024

Assisted executive committee in organizing various indoor and outdoor sports competitions.

- **House Cultural Prefect (Rangpur Cadet College).** June 2018- May 2019

Fostered cultural activities, acted as a liaison between cadets and the authority, and maintained discipline in communal areas.

References

1. Dr. Md. Mamunur Roshid.
Professor
Dept. of Mechanical Engineering.
Chittagong University of Engineering & Technology, Bangladesh.
Email: mamuncuet2003@cuet.ac.bd
Relation: BSc. Thesis Supervisor and Course Teacher.

2. Dr. Md. Mizanur Rahman.
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Relation: Advisor and Course Teacher.

3. Dr. Prasanjit Das
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Relation: Course Teacher.