

# CHINMOY DEB NATH

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Weblinks: [LinkedIn](#) [Portfolio](#)

## Education

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### **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**

**18<sup>th</sup>** out of 180 graduates-Among **Top 10%**

## Professional Experience

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### **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

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### **[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] 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.

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

**Chinmoy Deb Nath**, Md. Mamunur Roshid. (Manuscript ready to submit)

- Investigated the influence of vessel orientation on bubble splitting and reversal dynamics in patient-specific arterial geometries using ANSYS Fluent. Identified critical Capillary and Bond Numbers dictating bubble behavior under varying roll angles.

Link-([Preview](#))

### **[4] A comparative analysis among Balsa, Pine, and Gamari as a potential piezoelectric material.**

2025

Abu Bakar, Sajal Chandra Banik, **Chinmoy Deb Nath** (Accepted in 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

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Multiphase Flow | Bubble Dynamics | Computational Fluid Dynamics | Bubble Acoustics | Heat Transfer |

Aerodynamics | Bio-based Sustainable Energy.

## Technical Skills

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**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

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### [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

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- Board Merit Scholarship with **Rank 9<sup>th</sup>** out of **261,528** students in 12<sup>th</sup> 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

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- 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

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- **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

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### 1. Dr. Md. Mamunur Roshid.

Professor  
Dept. of Mechanical Engineering.  
Chittagong University of Engineering & Technology, Bangladesh.  
Email: [mamuncuet2003@cuet.ac.bd](mailto: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.