

# 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 <b>Rank 9<sup>th</sup></b> out of <b>261,528</b> 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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| - <u>CNC &amp; 3D Printing for Industrial Automation</u> under EDGE Course, ICT Division, Bangladesh              | 2024 |
| - Mechanical Engineering Design and Manufacturing with Fusion 360 ( <u>Coursera</u> ).                            | 2023 |
| - Modeling and Design for Mechanical Engineers with Autodesk Fusion 360 ( <u>Coursera</u> )                       | 2023 |
| - Machine Design Part I (Georgia Institute of Technology) ( <u>Coursera</u> ).                                    | 2023 |
| - Supply Chain Management Specialization ( <u>Logistics, Operation, Planning, Sourcing, Management Strategy</u> ) | 2023 |

## Extra-Curricular Activities

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| - <b>Association of CUETian Ex-Cadets (Vice President).</b>  | 2023-2024           |
| <i>Participated in various welfare and social activities for financially challenged people.</i>  |                     |
| - <b>Joyoddhoney (Dance Secretary).</b>  | 2023-2024           |
| <i>Organized and coordinated dance events, choreographies &amp; promoted cultural appreciation through dance.</i>                      |                     |
| - <b>Rangpur Old Cadets' Association (Lifetime Member).</b>  | May 2019-Present    |
| <i>Conveyed relief initiatives for disaster-impacted communities and career guidance programs for high school graduates.</i>           |                     |
| - <b>CUET Sports Club (Event Management Secretary)</b>   | 2023-2024           |
| <i>Assisted executive committee in organizing various indoor and outdoor sports competitions.</i>                                      |                     |
| - <b>House Cultural Prefect (Rangpur Cadet College).</b>   | June 2018- May 2019 |
| <i>Fostered cultural activities, acted as a liaison between cadets and the authority, and maintained discipline in communal areas.</i> |                     |

## References

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| <b>1. Dr. Md. Mamunur Roshid.</b><br>Professor<br>Dept. of Mechanical Engineering.<br>Chittagong University of Engineering & Technology, Bangladesh.<br>Email: <a href="mailto:mamuncuet2003@cuet.ac.bd">mamuncuet2003@cuet.ac.bd</a><br>Relation: BSc. Thesis Supervisor and Course Teacher. | <b>2. Dr. Md. Mizanur Rahman.</b><br>Professor<br>Dept. of Mechanical Engineering.<br>Chittagong University of Engineering & Technology, Bangladesh<br>Email: <a href="mailto:mmrahman_me@cuet.ac.bd">mmrahman_me@cuet.ac.bd</a><br>Relation: Advisor and Course Teacher. | <b>3. Dr. Prasanjit Das</b><br>Professor<br>Dept. of Mechanical Engineering.<br>Chittagong University of Engineering & Technology, Bangladesh<br>Email: <a href="mailto:prasanjit@cuet.ac.bd">prasanjit@cuet.ac.bd</a><br>Relation: Course Teacher. |
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