

MD. ABRAR RAHMAN RAFAT

Dhaka, Bangladesh

+8801708782430 | [Website](#) | abrarahmanrafat37@gmail.com | [LinkedIn](#)

ACADEMIC CREDENTIALS

Bachelor of Science(B.Sc.) in Mechanical Engineering [Mar 2018-May 2023]
Bangladesh University of Engineering and Technology
Cumulative GPA: **3.69/4.00**(3.78 in final term), among the top 24%

STANDARDIZED TEST SCORES

GRE general test: 330/340 [Aug 13, 2024]
Quantitative Reasoning: 167 Verbal Reasoning: 163 Analytical Writing: 3.5
TOEFL iBT: 107/120 [Sep 01, 2024]
Reading: 30/30 Listening: 26/30 Speaking: 26/30 Writing: 25/30

RESEARCH INTERESTS

Heat and Mass Transfer Thermal Analysis Energy Storage Fluid Mechanics Nano Materials Machine Learning

RESEARCH EXPERIENCE

Undergraduate Thesis:

Topic: Thermal analysis of a CSP (Concentrated Solar Power) plant co-generation cycle for the simultaneous production of electric power by using Supercritical CO₂ as working fluid and low-temperature refrigeration by Ejector-Absorption refrigeration cycle.

DOI: [10.13140/RG.2.2.29986.24006](https://doi.org/10.13140/RG.2.2.29986.24006)

Supervisor: Dr. Md. Zahurul Haq, Professor, Department of Mechanical Engineering, BUET

Summary: Performed Pinch Point Optimization and Thermodynamic Analysis on:

- sCO₂ Brayton cycle utilizing solar power for electric output.
- Ejector absorption refrigeration system utilizing low-grade waste heat.

Control Engineering Research:

Topic: Development of a P, PI, and PID-controlled device for regulating velocity relative to concentration in a T-shaped cavity with cylindrical obstruction.

DOI: [10.13140/RG.2.2.32620.78729](https://doi.org/10.13140/RG.2.2.32620.78729)

PROFESSIONAL EXPERIENCE

Industrial Trainee, IBN SINA Pharmaceutical Industry Ltd. [Oct 2022-Nov 2022]

- Gained expertise in processes such as Central HVAC system, Boiler and Compressor Operation, Water Softening, Water Filtration, Effluent Treatment Process, Quality Control, etc.
- Thoroughly observed and analyzed the production process of Tablets, Capsules, and Injectable Medicine in the Cephalosporin Department, General OSD and Pharma Department, and Herbal Department.

PROJECTS

1. Electromechanical System Design for Temperature Controlled Fan

Used **Proteus Design Suite** to simulate the circuit. The final model was built using **Arduino UNO**.

Project Members: **MAR Rafat**, MI Bulbul, Eshan Dey

DOI: [10.13140/RG.2.2.24146.98246](https://doi.org/10.13140/RG.2.2.24146.98246)

2. Design and Fabrication of Shell and Tube Heat Exchanger

Used **SolidWorks** to design a prototype; the final model was fabricated using low-cost materials and thermal performance was evaluated.

Project Members: **MAR Rafat**, NA Mini, MSH Pulok, Anusree Sen

DOI: [10.13140/RG.2.2.12556.69769](https://doi.org/10.13140/RG.2.2.12556.69769)

TECHNICAL SKILLS

Programming Language: Python, MATLAB, HTML, C

Post Processing: Tecplot 360

Design: AutoCAD, SolidWorks

Documentation: MS Office

HONORS & AWARDS

Dean's List Scholarship (For obtaining GPA 3.75+) [Jan & Jul 2018]

Recipient of **University Stipend Based on Merit** [Jan & Jul 2018]

Dhaka Education Board Merit Scholarship based on Secondary School Certificate exam [2015]

Dhaka Education Board Merit Scholarship based on Junior School Certificate exam [2013]

INTERPERSONAL SKILLS

Presentation

Team Management

Project Planning and Management

Teaching

OTHER NOTABLE ACTIVITIES

- **Private Tutor** [2018-Present]
Instructed 80+ students from Standard 9 (Secondary) to Standard 12 (Higher Secondary) for their School, College, Board and University Admission Exams.
- **AI Image Generation**
Well-versed in operating latent diffusion models such as Stable Diffusion, Flux, etc. locally in Web Interfaces such as A111 WebUI, ComfyUI, ForgeUI, etc.

REFERENCES

Dr. Md. Zahurul Haq

Professor

Department of Mechanical Engineering, BUET

Email: zahurul@me.buet.ac.bd

Phone: +8801552541994

Dr. Md. Afsar Ali

Professor

Department of Mechanical Engineering, BUET

Email: mdafsarali@me.buet.ac.bd

Phone: +8801552415088

Dr. Md. Aman Uddin

Assistant Professor

Department of Mechanical Engineering, BUET

Email: amanuddin@me.buet.ac.bd

Phone: +8801313547070