

Md. Shah Nawaz Arafin

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RESEARCH EXPERIENCE

1. Control Engineering research work

December 2022- Present

“Development of a P, PI, and PID controlled device for regulating velocity relative to concentration in a T-shaped cavity with cylindrical obstruction.” Authors: **M.S.N. Arafin**, N.A. Mini, A. Ali, A. Sen

Computational Fluid Dynamics & Heat Transfer Lab (CFDHT); Supervisor: Dr. Suman Saha, Professor (ME, BUET)

- Create a computational model of the T-shaped cavity with a cylindrical obstruction using the COMSOL Multiphysics software.
- Assessing the performance of the developed P, PI, and PID-controlled device by analyzing key metrics, such as the response time, steady-state error, and control stability.
- Using MATLAB SIMULINK for further tuning of the graph.

2. Undergrad Thesis and Project:

June 2022- May 2023

“Design and Fabrication of a Horizontal Tensile Testing Machine for Flexible Materials with Large Elongation.” Authors: **M.S.N. Arafin**; M.A. Sharkar

Applied Mechanics Lab (AM Lab); Supervisor: Dr. Muhammad Ashiqur Rahman, Dept. Head (ME, BUET)

- SOLIDWORKS used for designing and creating 3D representations of machine components. This included the frame, gripping system, load cell mounting, and the testing machine itself.
- lead screw's load capacity was based on the Power Screw chapter in “Shigley's Machine Design”
- ANSYS Workbench implementation ensured structural integrity and optimized performance by assessing stress, strain, and deformation in the lead screw.
- Utilized welding, drilling, boring, and slotting techniques to effectively join structural components, generate essential holes, and create grooves for seamless integration of components.

PROJECTS

Thermo fluid system design:

October 2021-February 2022

Design of a U-Tube (Shell and Tube) Heat Exchanger. Team members: **M.S.N. Arafin**, K. Dey, R. Mahmud & T. Islam

Electro-Mechanical System Design:

March 2021-July 2022

Water Quality Monitoring RC Boat. Team members **M.S.N. Arafin**, T.M. Khan & T. Islam

Freelance Pprojects

January 2021- February 2022

Rendered and animated a high-rise residential building for an Architect.

Youtube link: <https://youtu.be/bhjEBx4rwjQ>

EDUCATION

Bangladesh University of Engineering and Technology (BUET)

Graduated May 2023

Bachelor of Science

Major: Mechanical Engineering

Current Cumulative GPA: 3.44/4.00

In my four undergrad math courses, I received an average GPA of 3.94/4.00.

PROFESSIONAL EXPERIENCE

Industrial Trainee, National Polymer Institute (NPOLY)

- Acquired invaluable practical knowledge in plastic manufacturing operations such as injection moulding, blow moulding, pipe production, and actively participated in enhancing the company's production efficiency through my unwavering dedication and hard work.

FREELANCING EXPERIENCE

3D renderer and animator

- I assisted students, particularly architectural students, in rendering their designs and making 3D animations of their projects. It also helped them learn the interfaces of other software programs such as Lumion, Autocad, and others.

RELEVANT SKILLS

Office	i. Word
	ii. PowerPoint
2D Drawing	iii. Autodesk AutoCAD
3D Modeling	iv. SOLIDWORKS
Programming Language	v. C
	vi. Matlab
Simulation	vii. Ansys Workbench
	viii. COMSOL Multiphysics
Image and Video Editing	ix. Adobe Photoshop
	x. Adobe Premiere Pro
Rendering	xi. Lumion

STANDARDIZED TEST SCORES

TOEFL iBT Test: 92/120

Reading	Listening	Speaking	Writing
24/30	23/30	24/30	21/30

TEACHING EXPERIENCE

Co-founder of Dreamers

December 2019-Present

- Co-founded the academic center to mentor students of higher secondary level.
- Teach higher-secondary level physics, chemistry, mathematics, and information and communication technology (ICT)
- Develop and implement weekly lesson plans focusing on students' syllabus

Math Instructor at HAI Education

May 2022-Present

- HAI Education is an educational consulting firm that assists students in pursuing higher education and employment in Finland, South Korea, Denmark, Sweden, Canada, and Belgium.
- Develop and implement weekly lesson plans focusing on students' syllabus and question pattern.

Freelance Tutoring

October 2017-Present

- Tutored over 700 higher-secondary level students
- Assisted students with homework, projects, classroom topics, and preparation for the university entrance exams

CAMPUS INVOLVEMENT

BUET Automobile Club, Member

October 2018-May 2023

An engineering club for automobile lovers who wish to learn more about automobiles.

- The primary objective of an automobile club is to foster a sense of community among car enthusiasts, facilitating connections through regular meetings, events, and online forums.
- This club advocates for its members, addressing automotive industry concerns, influencing regulations, and providing support on various automotive matters.

Notre Dame Nature Study Club, Member

July 2015-August 2017

Notre Dame College (NDC)

- Organized regular field trips and outdoor activities, such as nature hikes, wildlife observation, and botanical excursions, to foster a greater appreciation for the natural world.
- Engaged in various conservation projects, such as tree planting, habitat restoration, and community cleanups, to contribute to the preservation of local ecosystems and wildlife.

Sports Activity: Hall Cricket

March 2018-May 2023

Sher-e-Bangla Hall, Bangladesh University of Engineering and Technology

- Participated in Sher-e-Bangla Hall Premier League (SBPL) tournament.

HONORS AND AWARDS

University Scholarship

Bangladesh University of Engineering and Technology (BUET)

National Board Scholarship

Higher Secondary Certificate Exam, Secondary Certificate Exam.

PROFESSIONAL MEMBERSHIPS

Institution of Mechanical Engineers (IMechE).

July 2022

Student affiliate member; Membership number is 80698193

Canadian Society for Mechanical Engineering (CSME)

January 2023

Member; Membership number is 220230334

HOBBIES

During my leisure time, I enjoy delving into various software applications, regardless of whether they are connected to my academic pursuits or not. I take pleasure in exploring programs like SketchUp and Lumion, among others. I am also keenly interested in video editing and producing tech reviews.

REFERENCES

1. Dr. Muhammad Ashiqur Rahman
Professor, Departmental Head, Department of Mechanical Engineering,
Bangladesh University of Engineering and Technology (BUET)
Email:ashiq@me.buet.ac.bd
(*My thesis supervisor*)
2. Dr. Muhammed Mahbubur Razzaque
Professor, Department of Mechanical Engineering,
Bangladesh University of Engineering and Technology (BUET)
Email:mmrazzaque@me.buet.ac.bd
(*My undergraduate advisor*)
3. Dr. Sumon Saha
Professor, Department of Mechanical Engineering,
Bangladesh University of Engineering and Technology (BUET)
Email:sumonsaha@me.buet.ac.bd
(*I am currently working on my paper under his supervision*)