Md Mehrab Hossen Siam

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Education

- **Bangladesh University of Engineering and Technology (BUET)** Dhaka, Bangladesh
  *B.Sc. in Mechanical Engineering ; CGPA:3.78/4.00(**3.96/4.00 in final two years**)* *Feb 2017 - May 2022*
  Relevant Courses: *Heat Transfer, Fluid Mechanics, Refrigeration and HVAC System, Renewable Energy, Control Engineering, Mechatronics, Automobile Engineering, Production Process, Machine Design, Electro-mechanical System Design*

Research Interests

• Heat Transfer • Fluid Mechanics • Thermal Management • Heat Transfer Enhancement • CFD • Aerodynamics
• Refrigeration & HVAC • Renewable Energy • Robotics • Automobile • Additive Manufacturing

Research Experience

- Working on MHD double-diffusive convection in enclosure filled with different nanofluids in order to obtain superior thermal efficiency and prediction of the output parameters by Machine Learning under the supervision of Dr. Mamun
- Working on the development of large 6 DOF Remotely Operated Vehicle (ROV) and its thermal management system
- Worked on thermal performance analysis of the insulation wall of reefer vehicle under the supervision of Dr. Rahman
- Worked on the controller selection approach for efficient retrieval of data from HDD under the supervision of Dr. Saha

Publications

- **M.M.H. Siam**, M. Hossain, and M.A. Rahman, "Analysis of Thermal Performance of Different Materials and Configurations for Insulation Walls of Transport Refrigeration Vehicles", 2022, 7th World Congress on Momentum, Heat and Mass Transfer, 2022, Lisbon, Portugal. doi: 10.11159/enfht22.224
- H.A. Prince, **M.M.H. Siam**, A. Ghosh, M.A.H. Mamun, "Application of Artificial Intelligence on Predicting the Effects of Buoyancy Ratio on MHD Double-Diffusive Mixed Convection and Entropy Generation in Different Nanofluids and Hybrid-Nanofluids", 2023, Journal of Thermal Science and Engineering Applications, ASME. doi: 10.1115/1.4062613
- M.A.H. Mamun, H.A. Prince, **M.M.H. Siam**, A. Ghosh, "Influence of Magnetic Field Inclination Angles on Hybrid Nanofluids: Enhanced MHD Double-Diffusive Mixed Convection and Entropy Generation in a Trapezoidal Enclosure", 2023, Numerical Heat Transfer, Part A: Applications, Taylor & Francis. doi: 10.1080/10407782.2023.2236785
- M.A.H. Mamun, H.A. Prince, **M.M.H. Siam**, "Variations of MHD Double-Diffusive Mixed Convection and Entropy Generation in various Nanofluids and Hybrid Nanofluids due to the Deviation of the Spinning of Double Rotating Cylinders", 2023, International Journal of Thermofluids, Elsevier. doi: 10.1016/j.ijft.2023.100421
- H.A. Prince, A. Ghosh, **M.M.H. Siam**, M.A.H. Mamun, "AI Predicts MHD Double-Diffusive Mixed Convection and Entropy Generation in Hybrid-Nanofluids for Different Magnetic Field Inclination Angles by ANN", 2023, International Journal of Thermofluids, Elsevier. doi: 10.1016/j.ijft.2023.100383
- M.A.H. Mamun, H.A. Prince, **M.M.H. Siam**, "Effects of Buoyancy Ratio on MHD Double-Diffusive Mixed Convection and Entropy Generation in Different Nanofluids and Hybrid-Nanofluids in Trapezoidal Enclosure", International Journal of Numerical Methods for Heat and Fluid Flow. under review.

Professional Experience

- **Research and Development Unit, Spectrum Engineering Consortium Ltd.** Dhaka, Bangladesh
  R&D Engineer*(June 2022 - present), R&D Intern(Feb 2022 - May 2022)*
  - Designed and structurally analyzed Remotely Operated Vehicle (ROV) by using CAD and simulation Softwares
  - Fabricated prototype of several components of ROV by Creality CR6-SE 3D printer
  - Supervised manufacturing and assembling processes of three ROV with 6 Degree of Freedom
  - Worked on a project of 0.1 million USD and working on a project of 0.5 million USD as Mechanical Lead Engineer on developing large-sized industrial grade ROV and electro-mechanical systems
- **Elite Hitech Industries Ltd.** Cumilla, Bangladesh
  Industrial Trainee(Apr 2022)
  - Got hands-on experience on manufacturing processes in the production facilities of Bangladesh's only Air Conditioner brand. Explored the working principles, operation procedure of production facilities in details
  - Inspected the assembly line of indoor and outdoor unit of Air Conditioner
- **Vikrampur Steel Ltd.** Narayangonj, Bangladesh
  Industrial Trainee(Nov 2019)
  - Got hands-on experience on the manufacturing process of different types of products made of steel
  - Investigated the operation and working principle of electric furnace

Test Score

- **IELTS** Overall-7.5/9 (Listening-7, Reading-8.5, Writing-6.5, Speaking-7)

Projects

- **Go-kart Project of Auto Maestro, BUET Automobile Club**: Got hands-on experience on designing, implementing ideas, analyzing, manufacturing, testing a Go-Kart and participated in an international competition successfully
- **Efficient Retrieval of Data from Hard Disk Drive using Precise Controller**: Performed a detailed analysis on the selection of PID controller to effectively control the servo mechanism of HDD actuator arm by employing Matlab SIMULINK
- **Automatic Watering System**: Used SolidWorks, Ansys, Arduino Uno, moisture Sensor, Sonar Sensor, and water pump in order to develop an electro-mechanical system which can water a garden autonomously by sensing moisture content of soil
- **Thermo-Fluid Equipment Design (Oil Cooler with Bare Inner Tubes)**: Used HTRI for optimizing design parameters according to system demand. Analyzed and calculated the design parameters of a heat exchanger (DPHX) for manufacturing
- **Air-Conditioning System Design for a facility**: Performed comprehensive cooling load calculation and recommended an air-conditioning system for a residential building by utilizing ASHRAE guidelines and databook

Skills Summary

- **CAD Softwares**: SolidWorks, Autocad, Fusion 360, Design Modeler, SpaceClaim
- **Simulation Softwares**: Ansys Workbench, Comsol Multiphysics, SolidWorks Simulation, Matlab
- **Programming Languages**: Python, C, Arduino
- **3D Printing Platforms**: Cura, Creality CR6 SE
- **Office Application**: Microsoft Office Suit, LaTex
- **Other Softwares**: Tecplot 360, Siemens Logo PLC, HTRI, 3E Plus
- **Soft Skills**: Project and Time Management, Teaching, Leadership, Writing, Public Speaking

Honors and Awards

- University Merit Scholarship, BUET (three times - June 2019, June 2021, January 2022)
  -Awarded to the students with outstanding academic record (GPA:-3.90+) in a semester
- Dean's List Award, BUET (two times - Junior and Senior year)
  -Offered to the students obtaining an average GPA of 3.75+ in two consecutive semester of an academic year
- University Stipend (two times - 2019, 2021)
- 9th in International Go-Kart Championship 2020, India
- Regional Runners-up, Physics Olympiad 2013, Barisal region
- Regional second runners-up, Science Olympiad 2012, Barisal region
- HSC(2016), SSC(2014), JSC(2012) Board Scholarship

Extra-curricular Activities

- Joint Secretary, BUET Automobile Club-BAC. (Apr 2021 to Apr 2022)
- Treasurer, IMechE BUET Students Chapter. (Feb 2021 to Apr 2022)
- Association Representative, Mechanical Engineering Association-MEA, BUET. (Jan 2017 to Apr 2022)
- Joint Secretary, BUET Students Association of greater Barisal-DHANSHIRI. (June 2019 to Apr 2022)
- Affiliate Member, Institution of Mechanical Engineers-IMechE. (Feb 2021 to present)
- Student Volunteer, 13th International Conference on Mechanical Engineering, BUET-ICME2019. (Dec 2019)

Selective Certifications

- **Certified SOLIDWORKS Associate (CSWA) - Mechanical Design** — Feb 2022
  Dassault Systems — *Credential ID: C-ELCR4HNWGK*
- **Certified SOLIDWORKS Professional (CSWP) - Sheet Metal** — Feb 2022
  Dassault Systems — *Credential ID: C-M2ZHCG9D78*
- **Python for Everybody Specialization** — May 2020
  University of Michigan / Coursera — *Credential ID: JGEEFFMGH86B*
- **Excel Skills for Business Specialization** — Aug 2020
  Macquarie University / Coursera — *Credential ID: ZCNDHW8R3GBT*
- **Introduction to Programming with MATLAB** — June 2020
  Vanderbilt University / Coursera — *Credential ID: 2ZFLC25GPZV5*
- **Exploratory Data Analysis with MATLAB** — July 2020
  MathWorks / Coursera — *Credential ID: PGDWZ4BHTE9J*
- **Data Processing and Feature Engineering with MATLAB** — July 2020
  MathWorks / Coursera — *Credential ID: K7EE5BXT3KWA*
- **Introduction to Aerospace Engineering** — July 2020
  MIT / edX — *Credential ID: cbee4b247d174d5b8f63fa4833c79961*

Reference

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Dr. Mohammad Arif Hasan Mamun, Professor
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