Tahmid Hasan Oni

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Education

Bangladesh University of Engineering and Technology (BUET) Dhaka, Bangladesh
Bachelor of Science(B.Sc.) in Mechanical Engineering *March 2018 - May 2023*

Relevant Courses: Heat Transfer, Fluid Mechanics, Refrigeration and HVAC Systems, Nuclear Engineering, Control Engineering, Advanced Thermodynamics, Internal Combustion Engines, Theory of Structures, Production Process, Machine Design, Electro-mechanical System Design.

Standardized Test Scores

- **GRE** Overall **316** (Quant- 163 , Verbal-153, Analytical Writing- 3.5/6)
- **IELTS** Overall- **7.5** (Listening- 7.5, Reading-8.5, Writing-7, Speaking-7.5)

Research Experience

- **Undergraduate Thesis** *May 2022 -May 2023*
  Supervisor: Prof. Dr. Mohammad Arif Hasan Mamun, Dept. of Mechanical Engineering, BUET
  Topic: Study of the thermal performance of a converging-diverging microchannel heat sink with triangular ribs.
  - Numerical simulations were performed for a proposed physical model of microchannel with the target of heat transfer augmentation in microchannel heat sink (MCHS)
  - Investigated multiple parameters, including convergence-divergence angles, channel and rib aspect ratios, and Reynolds numbers while highlighting the interplay between parameters in optimizing heat transfer, recognizing the trade-off that exists between thermal and hydraulic efficiency.

- **Term Thesis of Control Engineering** *Nov 2022 -May 2023*
  Supervisor: Prof. Dr. Sumon Saha, Dept. of Mechanical Engineering, BUET
  Topic: Designing of the Temperature Control System of a Residential Geyser using P, PI & PID controller. (DOI:10.13140/RG.2.2.21842.53443)
  - This paper investigated and analyzed control systems for residential water geysers, utilizing P, PI, and PID controllers in order to maintain geyser temperature at a particular set point.
  - Evaluated controller performance in terms of temperature control, stability, and response time, with MATLAB/Simulink simulations. Contributed to research in the field of control systems for residential geysers, emphasizing the importance of selecting the appropriate controller for specific applications.

Publications

Conference Proceeding

- **Oni, Tahmid Hasan** and Hasan Mamun, Mohammad Arif,"A Study of the Thermal Performance of a Converging-Diverging Microchannel Heat Sink with Triangular Ribs". (DOI:10.2139/ssrn.4862430)

Conference: 14th International Conference on Mechanical Engineering (ICME 2023).
Published in SSRN | Elsevier (June 12, 2024).

Professional Experience

- **National Polymer Industries Ltd.** Dhaka, Bangladesh
  Industrial Trainee *Oct 2022-Nov 2022*
  - Got hands-on experience on manufacturing processes in the production facilities of Bangladesh's leading plastic industry.
  - Explored the working principles, operation procedure of production facilities in detail.
  - Assisted in conducting routine inspections and monitoring power generation equipment, heat recovery steam generator, etc.

Projects

- **Thermo-Fluid Equipment Design (Marine Engine Oil Cooler)**: Used Solidworks for design and HTRI for optimizing design parameters according to system demand. Analyzed and calculated the design parameters of a heat exchanger (STHX) for manufacturing. (DOI:10.13140/RG.2.2.18487.09126)
- **Air-Conditioning System Design for a Home**: Performed comprehensive cooling load calculation and recommended an air-conditioning system for a residential building by utilizing ASHRAE guidelines and databook.
- **Solar Tracker**: Used SolidWorks, Proteus, Arduino Uno, Photo resistive Sensor, and Solar panel,in order to develop an electro-mechanical system that can track the sun's position in order to face the solar panel directly towards it for maximum solar efficiency. (DOI:10.13140/RG.2.2.21225.10085)
- **Line Following Robot(LFR)**: Used SolidWorks, Arduino Uno, Arduino IDE, Sonar sensor, Motor driver, IR Sensors in order to develop a robot which can navigate in a predefined path autonomously while avoiding obstacles.
- **Remotely Controlled Fury Car**: Used SolidWorks, Arduino Uno, Arduino IDE, Sonar sensor, and Motor driver, in order to develop a car which can race through challenging terrains and adverse environmental conditions, including rugged road surfaces.

Skills Summary

- **CAD Softwares**: SolidWorks, Autocad
- **Simulation Softwares**: ANSYS Workbench, COMSOL Multiphysics, SolidWorks Simulation
- **Programming Languages**: Python, MATLAB, C, Arduino
- **Office Application**: Microsoft Office Suit, LaTex
- **Other Softwares**: Tecplot 360, Proteus, HTRI
- **Soft Skills**: Project and Time Management, Teaching, Leadership, Writing, Public Speaking

Selective Certifications

- **Supervised Machine Learning: Regression and Classification** *June 2024*
  Stanford University / Coursera
  - Building and training supervised machine learning models in Python for prediction and binary classification tasks, including linear and logistic regression and optimizing regression models.
- **Python for Everybody Specialization** *May 2020*
  University of Michigan / Coursera
  - Utilizing core Python programming tools and data structures.
- **Introduction to Programming with MATLAB** *June 2020*
  Vanderbilt University / Coursera
  - Covers fundamental programming concepts, control structures, functions, various data types, and their handling in MATLAB, as well as MATLAB's robust matrix operations and file input/output capabilities.
- **Image Processing Onramp** *Aug 2020*
  MathWorks
  - Using MATLAB for image manipulation, segmentation, preprocessing, and postprocessing to enhance image analysis. Also developing classifi- cation metrics and batch processing for automated image handling.

Reference

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