

## Nafisa Mehtaj

PhD Student in Mechanical Engineering  
University of South Carolina

[nmehtaj@email.sc.edu](mailto:nmehtaj@email.sc.edu)

[LinkedIn](#)

[Google Scholar](#)

### Work Experience

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Graduate Research Assistant [Aug,2023-Present]

i-MAPS (Integrated Material Assessment & Predictive Simulation Laboratory)

Department of Mechanical Engineering

University of South Carolina

- Developing artificial neural network model to predict crack propagation of different aluminum specimens based on different features
- Literature review on Nondestructive Evaluation methods (ultrasonics and others) for Hypersonic Composites (C-C composite, Ceramic Matrix Composites (CMC))
- Guiding undergrad students to use the Computer Vision Annotation Tool (CVAT) for developing dataset for peach tree thinning automation model.
- Analyzing data for material memory project using unsupervised machine learning methods (Ongoing)
- Developing Physics Informed Neural Network (PINN) Model using wave propagation data generated by Peridynamic method (Ongoing)

Adjunct Lecturer(Part-Time)

[Jun,2022-Dec,2022]

Department of Naval Architecture and Offshore Eng

Bangabandhu Sheikh Mujibur Rahman Maritime University

- Numerical Methods in Engineering Lab (Designing the course plan and conducting two classes total of 55 students to learn solving various numerical methods using MATLAB)

Research Assistant

[Apr,2021-Jul,2023]

Department of Naval Architecture and Marine Engineering (NAME)

Bangladesh University of Engineering and Technology (BUET)

Project: “[Safety Envelope for Ship Recycling Practices in Bangladesh: Hazard Identification and Risk Evaluation](#)”

- Conducting surveys and gathering evidence-based knowledge of the ship recycling industry.
- Developing mathematical models to quantify risk and map out best decisions from multiple alternatives.
- Necessary Administrative works (Budget, Report, etc.).

### Academic Credentials

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**Doctor of Philosophy (Ph.D.) in Mechanical Engineering**

[Aug,2023-Present]

University of South Carolina

CGPA: 3.833/4.00 (Completed credit hours: 9)

**Bachelor of Science (B.Sc.) in NAME**

[Feb,2016-Feb,2021]

Bangladesh University of Engineering and Technology

CGPA: 3.28/4.00 (Top 28 percentile)

### Tools and Skills

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Python    MATLAB    Machine Learning    Abacus    AutoCAD    Microsoft Office    Adobe Photoshop

## Research Interest

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1.Computational Physics      2. Machine Learning      3.Finite Element Method      4.Additive Manufacturing

## Publications

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- 1) S BANERJEE, N **MEHTAJ**, BL GRISSE. “*Development of an Artificial Intelligence (AI) for the Prediction of Fatigue Failure in Naval Structures: A Digital Twin Application*”. STRUCTURAL HEALTH MONITORING 2023.
- 2) II Monisha, N **Mehtaj**, ZI Awal, “*A Step Towards Imo Greenhouse Gas Reduction Goal: Effectiveness of Machine Learning Based Co2 Emission Prediction Model*”. Proceedings of the 13th International Conference on Marine Technology (MARTEC 2022).
- 3) N **Mehtaj**, , S.S Dipto., N.M.G Zakaria., ZI Awal, M.A Hannan, and A.K Dev, “ *A techno-economic study on ship recycling practices in Bangladesh: from safety perspective*”, published in the 3rd International Conference on the Decommissioning of Offshore & Subsea Structures: 21-22 February 2022, UK.
- 4) SS Dipto, R Hafizur, N **Mehtaj**, MS Mawla, NM Zakaria, AK Dev,A . “*Study on the Financial Feasibility of Compliant Ship Recycling Yards in Bangladesh*”. Proceedings of the 13th International Conference on Marine Technology (MARTEC 2022).
- 5) P Halder, N **Mehtaj**, NM Zakaria. “*SWOT Analysis of Shipbuilding Industry of Bangladesh in the light of IR4.0*”. Proceedings of the 13th International Conference on Marine Technology (MARTEC 2022).
- 6) ZI Awal, N **Mehtaj**, RI Pranto. “*Heave Motion Prediction of Rectangular Floating Barge Using Artificial Neural Network*.” Proceedings of the ASME 2021 International Mechanical Engineering Congress and Exposition. Volume 7A: Dynamics, Vibration, and Control. Virtual, online. November 1–5, 2021. V07AT07A052. ASME.

## Project and Industrial Training

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Design of a 1600 DWT (Tones) Inland Oil Tanker	[Apr, 2018-Apr, 2019]
Industrial Training, Chittagong Dry Dock Limited- Bangladesh Navy	[Nov, 2018]

## Online Certificate Courses

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Neural Networks and Deep Learning (deeplearning.ai)  
Improving Deep Neural Networks: Hyperparameter tuning, Regularization, and Optimization (deeplearning.ai)  
Machine Learning with Python (IBM)  
Excel Skills for Business: Essentials (MACQUARIE University)

## Extra-Curricular Activities and Achievements

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Champion at Mechanical Festival Photographic Competition 2018  
Honorable Mention at EEE DAY 2018 Photography Competition  
Third Prize at NAME Fest Photographic Competition 2018  
Acceptance of several photographs on international and national level photography exhibition  
Joint Secretary at BUET Photographic Society-BUETPS [June 2019-Jan2021]  
Organizing Team Member of Model Ship Propulsion Competition 2019, Model Ship Propulsion Competition 2018, NAME FEST 2018, Voyage of Visuals, BUETPS Presents: 13<sup>th</sup> Annual Exhibition

## Reference

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Dr. Sourav Banerjee  
Professor, Department of Mechanical Engineering  
College of Engineering and Computing  
University of South Carolina  
Email: [banerjes@cec.sc.edu](mailto:banerjes@cec.sc.edu)

Dr. Zobair Ibn Awal  
Professor  
Department of Naval Architecture and Marine Engineering  
Bangladesh University of Engineering and Technology  
Email: [zobair@name.buet.ac.bd](mailto:zobair@name.buet.ac.bd)