

Angkon Biswas

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🌐 Angkon Biswas | 🌐 <https://sites.google.com/view/angkonbiswas>

Education

Purdue University Aug 2024 - Present
PhD in Biomedical Engineering

Bangladesh University of Engineering & Technology Mar 2018 - Apr 2023
B.S. in Biomedical Engineering CGPA: 3.72/4.0

Research Interest

- Computational Fluid Dynamics
- Biofluid Mechanics
- Biomedical Imaging
- Computational Modeling
- Finite Element Analysis
- Microfluidics
- Deep learning
- Fluid-Structure Interaction
- Biomaterials

Research Experience

Undergrad Thesis: Study of Navier-Stokes Informed Neural Networks (NSINN) to predict Wall Shear Stress on Left Coronary Artery

Supervisor: Dr. Muhammad Tarik Arafat, Professor & Head, Department of Biomedical Engineering, BUET

- Patient-specific left coronary geometry were acquired from CCTA image using Mimics and post-processing in 3-matic software.
- Passive Scalar Transport (iodine tracer) simulation was performed in ANSYS after mesh-independent analysis using idealized boundary condition.
- Built NSINN by adapting physics informed neural network architecture.
- Testing and validation using ground truth data acquired from CFD simulation.

Research Assistant: April 2019 – Ongoing

BioInnovation Research Group, Department of Biomedical Engineering, BUET

- Working on developing a web based tool to predict hemodynamic parameters incorporating Machine Learning to predict FFR, WSS and anatomic features (angle of bifurcation and trifurcation).
- Doing logistics and coordinating the team to start a clinical trial for our risk assessment tool.
- Managing day-to-day activities in the lab and trained new members of the group ANSYS, COMSOL, Mimics & 3-Matic and Machine Learning.
- Established relationship with leading interventional cardiologist with our research group.

Publications

Conference Proceedings:

[1] **Biswas A.**, Azam M.G., Arafat M.T., "Study of Navier-Stokes Informed Neural Networks to predict Wall Shear Stress on Left Coronary Artery". **14th International Conference on Mechanical Engineering 2023. (Accepted)**

Academic Projects

- Fetal Movement Counter** | [Report](#) | [Presentation](#) **2022**
- Programming and construction of the wearable belt with Gyro-accelerometer sensor .
 - Incorporated ML algorithm to detect abnormal fetal movement rate.
- Hand Gesture Recognition Based on Surface Electromyography** | [Report](#) **2021**
- We proposed a common statistical feature extraction based approach on the time domain using variance, combined with a Random Forest Classifier which acquires an average of 74.99% accuracy on open source hand gesture data.
 - Statistical comparison shows our algorithm outperforms PCA and DNN algorithm implied on the same dataset.
- Emergency Evacuation Chair** | [Report](#) **2021**
- Novel SOLIDWORKS model design.

Technical Skills

Programming Languages: Python, MATLAB, C/C++, Arduino, L^AT_EX

Simulation: Ansys, COMSOL, Simulink, Solidworks, Mimics, 3-Matic

Graphing & Reference Softwares: OriginLab, Mendeley, EndNote

Hardware skills: Arduino, Microcontroller

Others: Microsoft Office, Adobe Illustrator, Adobe Photoshop, Adobe Premiere Pro

Training

- Industrial Attachment Program for Biomedical Engineer** **June 2022**
Beximco Health & PPE, Beximco Industrial Park, Dhaka
- Detailed knowledge of manufacturing medical equipment, PPE and masks.
 - Acquaintance with professional work environment.

Awards & Honors

- Dean's List Award for Excellent Scholarly Achievement** **2018-2019**
Bangladesh University of Engineering & Technology, Dhaka Level 1-2
- Higher Secondary School Certificate National Board Scholarship** **2017**
- Secondary School Certificate National Board Scholarship** **2015**

Leadership & Extracurricular

- Coordinator (Logistics), BUET Photographic Society** **April 2022**
Bangladesh University of Engineering and Technology, Dhaka

Reference

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|---|---|
| 1) Dr. Muhammad Tarik Arafat
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Department of Biomedical Engineering, BUET
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Associate Professor
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