Anika Tahsin Meem

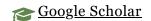
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Bashundhara R/A - Dhaka, Bangladesh

Curriculum Vitae

in <u>Linkedin</u>



WORK EXPERIENCE

Research Assistant

North South University, Dhaka, Bangladesh

Advisor: Md. Mamun Molla | Research Group: Center of Applied and Computational Science at NSU

Aug 2023 - Present

Forced Convection of Non-Newtonian Fluid Flow over Two Heated Elliptic Cylinders in a Channel

- Co-authored the research proposal for fund management, collaborating with corresponding professor to secure funding for this project
- Optimized engineering systems like heat exchangers and reactors, improving heat transfer, mass transport, and flow stability in non-Newtonian fluids.

Nov 2023 - July 2024

Numerical Simulation of Pulsatile Non-Newtonian Blood Flow with Gold Nanoparticles in a Bifurcated Artery with an Aneurysm under a **Bio-Magnetic Field** (Submitted to Physics Scripta)

- Developed mathematical models of human blood flow incorporating nanofluids.
- Utilized the finite element method (FEM) to analyze bio-convection and heat transfer in aneurysmal arteries with gold nanoparticles under a magnetic
- · Contributed to research optimizing therapeutic strategies in cardiovascular medicine.

IT Coordinator

International Study Destination (ISD), Dhaka, Bangladesh

Jan 2023 - Oct 2023

- Front-end Development Illustration Poster Design SOP review
- Operations & Marketing Meeting Conduct Video Editing

Software **Development Intern**

(Remote)

Oct 2021 - Feb 2023

GaoTek Inc., New York

• Team Leader • Website Maintaining • Digital Marketing

EDUCATION

2022

Bachelor of Science in Computer Science and Engineering North South University, Dhaka, BangladeSh

CGPA: **3.43/4.0**

RESEARCH INTERESTS

- Data Science,
- Medical Image Processing,
- Computer Vision,
- Computational Psychology,
- · Time-Series.
- CFD

BACHELOR THESIS

Developed an AIpowered healthcare platform The main goal of this project is to develop a multi-disease detection system using deep learning image processing and AI techniques to support a fast, accurate healthcare system. The platform enables diagnosis of six diseases—pneumonia, malaria, melanoma, brain tumor, breast cancer, and lung cancer—with 88%-99% accuracy through deep learning and CNNs. Integrated a Django-based web system with telemedicine features, including video consultations and online prescriptions, to provide accessible, cost-effective healthcare solutions.

DIRECTED THESIS

Predicting Cryptocurrency Price Drops Using Time-Series Analysis and Deep Learning Developed a Deep Learning Stacking Ensemble Model to predict cryptocurrency price drops well in advance, focusing on assets like Bitcoin, Ethereum, and Dogecoin. Leveraged CNN, LSTM, BiLSTM, and GRU algorithms to analyze twenty key market parameters, achieving high prediction accuracy with RMSE values between 0.0089 and 1.3229—significantly outperforming existing models. This approach empowers investors to make proactive, informed decisions in a volatile market.

RESEARCH WORK

Gastrointestinal Cancer Image Semantic Segmentation Implemented an advanced Binary and Multi-Class image semantic segmentation model for gastrointestinal cancer using an improved Vision Transformer architecture, integrating Swin Transformer blocks, EfficientNetB7, and CBAM with ASPP. Achieved superior performance metrics with a training BCE loss of 0.0716, DICE score of 0.9350, and IoU of 0.9218, while validating with scores of 0.9109 and 0.9022, respectively. Implemented Grad-CAM and Grad-CAM++ techniques for transparent visual explanations, enhancing model reliability. Integrated the model into a Django-based web platform, enabling users to upload medical images and receive real-time segmentation results, effectively highlighting cancerous regions in the GI tract for timely detection and improved patient care.

A Cost-Effective ML and DL Solutions for Predicting Arsenic Contamination in Groundwater Presented a cost-effective predictive solution for arsenic contamination using 14 machine learning and deep learning models (ANN, MLP, Stacking Ensemble, GAN). Leveraged readily available geological and environmental data—including latitude, longitude, well depth, and lithology—to create models that reduce reliance on costly post-digging water testing. The research focused on assessing current arsenic levels in groundwater and enhancing detection accuracy through a phased approach, utilizing six parameters in Phase 1 and 13 parameters in Phase 2. Developed a Django web application enabling users to input parameters and receive instant feedback on arsenic contamination risk.

JUNIOR DESIGN PROJECT

Covid-19 Detection

Proposed a deep learning-based image processing system utilizing custom CNN to predict COVID-19 from chest X-ray images, achieving remarkable results with 96.43% classification accuracy and 98.33% validation accuracy. Created an intuitive web application that enables both medical professionals and the public to effortlessly detect COVID-19 from chest X-rays, significantly improving timely and cost-effective patient screening during the pandemic.

PROJECT EPERIENCE

Deep-Learning

Based on MRI Brain Tumor Classification Using CNN and Autoencoder.

Machine Learning

AI Fake News Detection Using Naive Bayes.

Machine Learning

Identifying Socially Isolated People Using LSNS6.

Software Engineering

Web-Based Lost and Found System.

Database

Direct From My Kitchen (Food App).

JOURNAL PAPER

Published

Meem, Anika Tahsin, Mohammad Monirujjaman Khan, Mehedi Masud, and Sultan Aljahdali. "Prediction of Covid-19 Based on Chest X-Ray Images Using Deep Learning with CNN." Computer Systems Science & Engineering 41, no. 3 (2022).

Under Review

Numerical Simulation of Pulsatile Non-Newtonian Blood Flow with Gold Nanoparticles in a Bifurcated Artery with an Aneurysm under a Bio-Magnetic Field.

CERTIFIED COURSE

Pantech Solutions

Master Class of Machine Learning and Artificial Intelligence.

Open Weaver

Build an AI Fake News Detection.

Udemy

Google Data Studio A-Z for Data Visualization and Dashboards.

Udemy

Professional Adobe Photoshop CC Course with Advance Training

Course: Mat112, Eng102

SCHOLARSHIPS

Tuition Waiver

North South University

General Scholarship

Junior School Certificate - 2011

OTHER ACTIVITIES

Assisted in Peer Review of Published Research Assisted my research supervisor in reviewing multiple journal articles, providing insights on methodologies and key findings.

- International Journal for Numerical Methods in Biomedical Engineering
- · Journal of Nanomaterials, Nanoengineering and Nanosystems
- Multidiscipline Modeling in Materials and Structures
- Modern Physics Letters B

Interests

Poetry enhances my analytical and expressive abilities, while Painting cultivates patience and attention to detail, both of which enrich my creative thinking.

Duolingo: 115 (nblt 95)

LANGUAGES

English Professional

Bangla Native

LINKS

Email 2 meemanika70@gmail.com

Portfolio Website My Portfolio

Skype live:.cid.e82f986f516d5924

ResearchGateAnika-MeemGithubAnikaMeem

Instagram <u>dear anomaly</u>

REFERENCES

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2. Shahnewaz Siddique

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3. Mahdy Rahman Chowdhury

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