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Mahbuba Tasmin
PHD STUDENT | COMPUTATIONAL BIOLOGY

Objective

I am a U.S.-based Ph.D. student with a strong foundation in machine learning, and Human-Computer Interaction (HCI). Prior to my doctoral studies, I spent two years as an AI engineer in the tech industry, where I specialized in image processing and NLP in production systems. My career goal is to harness these interdisciplinary skills to drive innovation in the field of computational biology.

Education

2022-Current **University of Massachusetts Amherst**
Doctor Of Philosophy | Computer Science
- Research Field: Computational Biology, Machine Learning
- Graduate Research Assistant

2016-2019 **North South University | Dhaka, Bangladesh**
(B.Sc.) | Computer Science and Engineering

- Thesis: "ML based Smart Analyzer with Real-time Feedback System for Driving Assistance"
- Concentration: Artificial Intelligence and Algorithms
- CGPA: 3.89 (out of 4.00- 97.25% Marks)
- Graduated Summa Cum Laude

Research experience

Current Research
Project: Phenotype prediction from genome expression using protein-3d structure as secondary information
Technical: Linear Mixed model, Optimization, Regression Analysis, Genome data processing
Key Features:
- Unique gene sequence-based prediction to enhance models' capacity to predict unknown genome sequence and identification of causal variants.

Past Projects (2023)
Project: Interactive Telemedicine Platform
Skills Utilized: Multimodal machine learning, HCI design principles, Natural Language processing
Key Features:
- Video classification and temporal segment prediction based on user queries.
- Automated generation of follow-up questions to enhance user interaction

2022
Project: Cognitive Training for Mild Cognitive Impairment
Skills Utilized: HCI methodologies, patient engagement strategies, Interview design.
Outcome: Conducted HCI studies to assess the effectiveness of game-based training programs.

Project: Stroke Rehabilitation Prediction
Skills Utilized: Sensor data analytics, predictive modeling.
Outcome: Developed and validated predictive algorithms through comprehensive user studies.

Teaching experience

Jan 2023 – Dec 2023

University of Massachusetts Amherst Amherst, MA
Graduate Teaching Assistant, Computer Science
- Head TA of *Theory and Practice of Software Engineering*, Graduate Level course (150++ students)
- Developed assignments, in-class exercises and course project guidelines.

Publications
Journals

1. Yang, Z., Yao, Z., **Tasmin, M.**, Vashisht, P., Jang, W.S., Ouyang, F., . . . Yu, H. (2023). Performance of multimodal gpt-4v on USMLE with image: Potential for imaging diagnostic support with explanations.

2. **Tasmin, M**. et al. (2022). Assessment of Deep Learning Models for Human Activity Recognition on Multi-variate Time Series Data and Non-targeted Adversarial Attack. In: Sgurev, V., Jotsov, V., Kacprzyk, J. (eds) Advances in Intelligent Systems Research and Innovation. Studies in Systems, Decision and Control, vol 379. Springer, Cham

3. **Tasmin, M**., Nag, P., Hoque, Z.T. et al. Non-Newtonian effect on heat transfer and entropy generation of natural convection nanofluid flow inside a vertical wavy porous cavity. SN Appl. Sci. 3, 299 (2021).

Conference Papers

M. Tasmin et al., "Comparative Study of Classifiers on Human Activity Recognition by Different Feature Engineering Techniques," 2020 IEEE 10th International Conference on Intelligent Systems (IS), 2020, pp. 93-101.

Mahbuba Tasmin. 2018. Multi-Dimensional Aspect Analysis of Text Input through Human Emotion and Social Factors. In Proceedings of the 2018 ACM International Joint Conference and 2018 International Symposium on Pervasive and Ubiquitous Computing and Wearable Computers (UbiComp '18). Association for Computing Machinery, New York, NY, USA, 1779–1781.

Industry Experience

I have worked as an **AI Engineer** for two years in Dhaka, Bangladesh.

Mar 2022 - July 2022

NITEX Solutions Ltd [NITEX] || **AI Engineer**
- Developed Instance Segmentation models for fashion products.

July 2020 - Feb 2022

M2SYS Technology || Software Engineer (AI & ML)
- Built a robust Image Spoofing Technology for large-scale attendance systems.
- Created a Contextual Recommendation Engine using NLP.

Honors and awards

| May 2023 | **Sudha and Rajesh Jha Scholarship** |
| | Received as a first-year Computer Science Graduate Student |

| Apr 2021 | **Summa cum laude** |
| | Awarded for undergraduate achievement (CGPA 3.89/4) |

Leadership Roles

| Nov 2018 – Dec 2019 | **Chapter Chair, NSU ACM Student Chapter** |
| | 1. Organized successful national level contests for engineering students |

Skills

Machine Learning & Computer Vision: Regression Analysis, Statistics, Transfer Learning, NLP
Programming & Data Analysis: Python (Strong), Java, Data Mining
Specialized Software: Apache Solr, Camunda, Ubuntu, LaTeX