

Mahbuba Tasmin

Curriculum Vitae

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Education

September 2022
Amherst, MA

University of Massachusetts Amherst

Doctor Of Philosophy | Computer Science

- Research Field: Machine Learning, Human Computer Interaction, Bioinformatics
- Building Prediction Trajectory Model from in-house collected wearable sensor data to correctly predict health scores.
- Human-centered qualitative research on serious game-based training efficacy on participants.

December 2019
Dhaka, Bangladesh

North South University

Bachelor of Science (B.Sc.) | Computer Science and Engineering

- CGPA: 3.89 (out of 4.00- 97.25% Marks)
- Graduated Summa Cum Laude
- Concentration: Artificial Intelligence and Algorithms
- Medium of Instruction: English

June 2014
Feni, Bangladesh

Feni Girls' Cadet College

Higher Secondary Certificate Examination (HSC) | Science

- GPA: 5.00 (out of 5.00)
- Medium of Instruction: English

May 2012
Feni, Bangladesh

Feni Girls' Cadet College

Secondary School Certificate Examination (SSC) | Science

- GPA: 5.00 (out of 5.00)
- Medium of Instruction: English

Work Experience

Mar 2022 - July 2022

AI Engineer | NITEX Solutions Ltd [[NITEX](#)]

- Instance Segmentation with Attribute Localization for Fashion Products training on Detectron2 model
- Object detection from Input Images using transfer learning on Resnet50
- OCR processing on fashion moodboard for identifying pantone color codes
- Extraction of individual image from collage using pretrained Detectron2 LayoutParser model and edge detection.
- NLP on production documents using Layoutparser model, OCR and regex operation

Jul 2020 – Feb 2022

Software Engineer (Research & Development)

- M2SYS Technology (Atlanta, Georgia) •Backend Engineer
- Specialize on – ML Application, Recommendation System, Image Classification, Natural Language Understanding, Named Entity Recognition, Regression Analysis, Clustering, Transfer Learning, Process Automation
- Accomplishments:

- Production-grade Image spoofing algorithm currently in active use
- Contextual Information powered Recommendation Engine used at the Search feature of 'CloudApper', a no-code application platform
- Computational Statistics applied to examine the data of corporate healthcare app 'CircleCare'
- Development of democratized and customer-centric Image Classification pipeline
- Preparation of ML- powered automated Resume Parsing pipeline.

Jan 2020 – Oct 2020

Graduate Research Assistant

- Center for Applied Scientific Computing, North South University
- Supervisors – Dr. Mamun Molla, Professor and Dr. Preetom Nag, Assistant Professor, Department of Mathematics and Physics
- Responsibilities- Mathematical Modeling, Simulation Engineering, Visualization of Results and Journal Writing in LaTeX

Jan 2020 – Apr 2020

Graduate Teaching Assistant

- Courses Taught: Differential Calculus (II, III and IV), Engineering Mathematics and Linear Algebra
- Responsibilities – Student Tutoring, Assignment Checking, Quiz Script Marking and Assisting Course Instructor

Feb 2019 – Dec 2019

Undergraduate Teaching Assistant

- Courses Taught: Operating Systems Design, Discrete Mathematics Principle, Object Oriented Programming (Java)
- Responsibilities: Student Tutoring, Assignment Checking, Exam Proctoring and Assisting Course Instructor

Feb 2018 - Mar 2021

Research Assistant

- NSU HUMAN-COMPUTER INTERACTION (NSU-HCI) Group
- Supervisor: Dr. Nova Ahmed, Associate Professor, Department of ECE
- Responsibilities: Qualitative Research, Conducting Interviews, Data-Collection, Transcription, Qualitative Analysis, Paper Writing

May 2018 – Dec 2018

The R-Squared Project (Volunteering Position)

- Responsibilities: Website Development, Database Configuration

Skills

Programming

- **Programming Languages:** Java, Python (Strong), C, Matlab, R, SQL
- **Scripting:** Groovy, JavaScript
- **Frameworks:** TensorFlow, Keras
- **Source Code Management System:** GitHub, GitLab, Bitbucket
- **Data Analysis:** Pandas, Matplotlib, NumPy, Scikit-Learn, Seaborn
- **Cloud Services:** Google Cloud Platform
- **Operating System:** Windows, Linux
- **Annotation:** Doccano, COCO Annotator

Technical Skills

- **Specialized Software:** Solr, Camunda (Automation Engine), Ubuntu Server Coding, LaTeX

Machine Learning: Image Processing, Data Mining, Linear Regression, Neural Network (CNN, LSTM, MLP, ResNet, RNN), Transfer Learning, Computer Vision, Adversarial Learning, Natural Language Processing, Recommendation System.

Publications

- Dec 2020** **Tasmin, M (2020).** *Assessment of Deep Learning Models for Human Activity Recognition on Multi-Variate Time Series Data and Non-targeted Adversarial Attack* , Manuscript submitted for publication.
- Springer Nature 2021** **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).
- IS 2020** **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.
- TALE 2020** N. Ahmed, T. Urmi and **M. Tasmin**, "Challenges and Opportunities for Young Female Learners in STEM from the Perspective of Bangladesh," *2020 IEEE International Conference on Teaching, Assessment, and Learning for Engineering (TALE)*, 2020, pp. 39-46.
- TALE 2019** **M. Tasmin**, N. Ahmed and T. Motahar, "Gender Disparity in Computer Science Education in Bangladesh: A Study of Women's Participation in Computer Science," *2019 IEEE International Conference on Engineering, Technology and Education (TALE)*, 2019, pp. 1-7.

Conferences and Presentations

- Apr 2021** **ACM Women in Computing Asia Pacific Celebration 2021 | Manilla, Philippines**
- Research Abstract Presentation: Video and Poster
 - Title: *Rooting the Gender Polarity in Computer Science: A Study on Women in Computer Science Education in Bangladesh*
- Aug 2020** **2020 IEEE 10th International Conference on Intelligent Systems (IS) | Varna, Bulgaria**
- Research Paper Presentation: Video and Slides
 - Title: *Comparative Study of Classifiers on Human Activity Recognition by Different Feature Engineering Techniques*
- June 2020** **ACM SIGCHI Virtual Summer School 2020: Research Methodologies CHI and CSCW [Dhaka, Bangladesh]**
- Research Abstract Presentation: 2nd Runner Up
 - Title: *Stories of Women in Afghanistan: Perspective of Career and Access to Technology*
- Dec 2019** **2019 IEEE International Conference on Engineering, Technology and Education (TALE) | Yogyakarta, Indonesia**

- Paper Presentation: *Gender Disparity in Computer Science Education in Bangladesh: A Study of Women's Participation in Computer Science*
- Oct 2018** **2018 ACM International Joint Conference and 2018 International Symposium on Pervasive and Ubiquitous Computing and Wearable Computers | Singapore**
- Extended Research Abstract Presentation: Ubicomp 2018 Broadening Participation Workshop
 - **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.

Honors & Awards

- Aug 2019** **Champion in Innovation Challenge Project Showcase**
- Best Project Award Intra-university final year Engineering Students Capstone Project competition with the project **“A Complete Road Health Monitoring System for Bangladesh: Crowdsourced Data Collection through User Application and Smart Analyzer with Real-time Feedback System for Driving Assistance”**
 - Capstone Thesis Project •VGG16 model for Image Segmentation • Feature Engineering of Time Series Data using CNN • Customized Map Routing through Peak Calculation by In-house Coding
- Jan 2017 – Dec 2019** **Merit Based Financial Aid Recipient**
- North South University Undergraduate Program
- Oct 2018** **ACM Student Travel Grant for UbiComp '18: The 2018 ACM International Joint Conference on Pervasive and Ubiquitous Computing**
- Supported: Conference Registration Fee, Accommodation and Airfare, One-Day Workshop Registration
 - Supported as Student Volunteer in the Conference
- Jan 2015** **Talent Pool Scholarship Awardee**
- Government scholarship for excellent result in HSC
- Mar 2013** **Board Scholarship Awardee**
- Government Scholarship for excellent result in SSC

Leadership Roles

- Nov 2018 – Dec 2019** **Chapter Chair, NSU ACM Student Chapter [[NSU ACM SC](#)]**
- First Female Chair of the first ACM chartered student chapter of Bangladesh
 - Organized successful national level contests for engineering students: Hackathon, Project Showcase, Datathon (Pioneer at University Level), Quadcopter Racing, Robotics Competitions)

	<ul style="list-style-type: none"> • Arranged skill-development workshops (e.g., Hour of Code) on campus for students of all majors from the University in collaboration with Industry experts. • Skills Earned – Team Management, Marketing and Collaboration, Corporate Duties, Financial Reporting and Administrative Formalities
Dec 2017 – Nov 2018	Sub Executive, Team Publications: NSU ACM Student Chapter
	<ul style="list-style-type: none"> • Managed the media and newspaper circulation of chapter events and updates
Feb 2018	Editor-in-Chief
	<ul style="list-style-type: none"> • Annual Publication “Abacus” from NSU ACM Student Chapter • Conducted the collection of writing submission, proof reading, design, and publishing of the magazine.
Jun 2017 – Mar 2018	Coordinator, NSU ACM-W Student Chapter

Services: Event Organizing

Nov 2019	Technovation 2.0 2019 [National Level Inter University Contest]
	<ul style="list-style-type: none"> •Lead Organizer •Eight Segments • 800+ Participants • Press Release
Nov 2019	ACM SIGCHI Winter School: How to Write a Research Paper for CHI2021
	<ul style="list-style-type: none"> •Dhaka, Bangladesh • Official Website
April 2019	HackNSU [Inter University Hackathon] • Hackathon Site • Press Release
March 2019	ACM SIGCHI Summer School: Research Methods in Human Computer Interaction: Building Bangladesh's Future HCI Professionals
	<ul style="list-style-type: none"> •Dhaka, Bangladesh • Official Website
Dec 2018	Hour of Code [In Collaboration with Code.org] • Press Release
Feb 2018	Technovation 2018
Jan 2018	NSU Inter University Girls' Programming Contest

Extra-Curricular Activities

March 2019	Participant at 3rd Women's Mathematics Olympiad 2019 (University Level)
Nov 2018	Participant at 10th National Undergraduate Mathematics Olympiad 2018
Spring 2018	Student Contributor in Editorial Board of School of Engineering and Physical Sciences (SEPS) Newsletter, Issue-3, North South University

Affiliations

July 2020 - Present	ACM Professional Member ACM-W Member
Jan 2017 – June 2020	ACM Student Membership
June 2019 - Present	IEEE Young Professional
May 2018 - Present	Dhaka ACM SIGCHI Chapter • Founding Member
Aug 2016 - Present	Bangladesh Youth Leadership Center (BYLC) • Professional Member

