Mahmudul Hasan

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EDUCATION

Stony Brook University, Stony Brook, NY, USA Feb. 2020 – August. 2025 (Expected)
PhD Candidate, Computer Science GPA: 4.00/4.00

Stony Brook University, Stony Brook, NY, USA Feb. 2020 – Dec. 2023
M.Sc. in Computer Science GPA: 4.00/4.00

Khulna University of Engineering and Technology (KUET), Khulna, Bangladesh Jan. 2013 – Jan. 2018
B.Sc. in Computer Science and Engineering GPA: 3.78/4.00

PROFESSIONAL EXPERIENCES

Graduate Research Assistant | Stony Brook University, NY, USA Feb. 2021 – Present

- Latent space disentanglement using probabilistic and generative models for pathology data (*MICCAI'24*). Application of disentangled latent space in Multiple Instance Learning and Tissue Segmentation (Ongoing) | Python, Pytorch
- Development of Advanced Spatial Analysis Toolkit for Point Cloud Data (ongoing). Introduced spatial phenotype using g-function (*ACM BCB'24*) | Python, R, Spatstat, Dash, Javascript
- Spatial Analysis of Tumor Microenvironment in Pancreatic Cancer. Introduced a novel spatial analysis framework for tumor microenvironment analysis for Multiplex IHC data (*Journal of Translational Medicine'24; AACR'22*). | Python, QuPath

Image Analysis Intern | Genentech / Roche, California, USA May. 2022 – August. 2022

- Developed an advanced morphological tool for the analysis of collagen fibers (curvilinear structure) | Python, OpenCV

Graduate Teaching Assistant | Stony Brook University, NY, USA Feb. 2020 - Feb. 2021

- For the CSE214 course Data Structure, conducted office hours, curated questions, and graded homework | Java

Lecturer | Khulna University of Engineering and Technology, Khulna, Bangladesh Aug. 2018 – Jan. 2020

- Recitation and Conducted Research (*Internet of Things'19, IEEE ACCESS'20, JMIR'21*).

SELECTED PUBLICATIONS (A.R - Acceptance Rate; I.F: Impact Factor)

Semi-Supervised Contrastive VAE for Disentanglement of Digital Pathology Images A.R: 30%
***Mahmudul Hasan**, Xiaoling Hu, Shahira Abousamra, Prateek Prasanna, Joel Saltz, Chao Chen* MICCAI'24

New Spatial Phenotypes Uncover Survival Differences for Breast Cancer Patients A.R: 29%
***Mahmudul Hasan**, et. al. (Oral)* ACM BCB'24

A Novel Framework for Characterization of Tumor-Immune Spatial Relationships in TME
***Mahmudul Hasan**, et. al.* Arxiv'22

Attack and anomaly detection in IoT sensors in IoT sites using machine learning approaches I.F: 6.0
***Mahmudul Hasan**, Md Milon Islam, Md Ishrak Islam Zarif, MMA Hashem* IOT'19

TECHNICAL SKILLS

Languages, Tools, Frameworks: Python, C, C++, Java, PyTorch, Keras, TensorFlow, OpenCV, MATLAB, R, HTML, CSS, Javascript, Git, LaTeX, Slurm, Wandb, Cloud, QuPath.

Domain Experiences: Computer Vision (CV), Artificial Intelligence (AI), Deep Learning (DL), Machine Learning (ML), Spatial Statistics, Medical Image Analysis (MI), LLM, Generative Models, Probabilistic Models.

Selected Awards

"Dashboard for Breast Cancer subtype prediction" - Star Project in CSE 564 Visualization 2022

Dean's Award, KUET, Bangladesh 2018

Selected in National Collegiate Programming Contest (NCPC), Bangladesh 2017