Md Mahmudur Rahman

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PUBLICATIONS

Conference Proceedings

- **Md Mahmudur Rahman** and Sanjay Purushotham, "Fair and interpretable models for survival analysis," in Proceedings of the 28th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, 2022, pp. 1452–1462.
- **Md Mahmudur Rahman**, Koji Matsuo, Shinya Matsuzaki, and Sanjay Purushotham, "DeepPseudo: pseudo value based deep learning models for competing risk analysis," in Proceedings of the AAAI Conference on Artificial Intelligence, vol. 35, 2021, pp. 479–48.
- **Md Mahmudur Rahman** and Sanjay Purushotham, "Multi-state Survival Analysis using Pseudo value-based Deep Neural Networks," To appear in Proceedings of the 2023 siam international conference on data mining (sdm). Society for Industrial and Applied Mathematics, 2023.

Workshops and Symposiums

- **Md Mahmudur Rahman** and Sanjay Purushotham, "FedPseudo: Pseudo value-based Deep Learning Models for Federated Survival Analysis," KDD 2022 Workshop on Applied Data Science for Healthcare: Transparent and Human-centered AI," 2022.
- **Md Mahmudur Rahman** and Sanjay Purushotham, "PseudoNAM: A Pseudo Value Based Interpretable Neural Additive Model for Survival Analysis," AAAI 2021 Fall Symposium Series in Human Partnership with Medical AI," 2021.
- **Md Mahmudur Rahman**, Koji Matsuo, Shinya Matsuzaki, and Sanjay Purushotham, "DeepPseudo: A Deep learning approach based on Pseudo values for Competing Risk Analysis," KDD 2020 Workshop on Applied Data Science for Healthcare, KDD Virtual Conference," 2020.

EXPERIENCE

Graduate Research Assistant, Graduate School, UMBC

📅 August'19 – Present 📍 Maryland, USA

- Identified and provided solutions to the critical challenges in healthcare, especially in survival analysis, where the goal is to predict the risk of an event, such as death due to cancer, over time.
- Developed novel, efficient, fair, and interpretable pseudo-value-based deep learning approaches for solving complex survival analysis problems in order to improve the survival outcomes of the patients, clinical decision-making, treatment, and therapy interventions, and hospital resource allocations.
- Introduced federated survival analysis framework for privacy-preserving distributed training of survival models on decentralized clients' data.

Deputy Director, The Central Bank of Bangladesh

📅 April 2018 - On study leave 📍 Dhaka, Bangladesh

- Preprocessed and analyzed Export Receipts of Bangladesh & Central Account data using the Enterprise Data Warehouse system.
- Prepared the quarterly & annual review on Export Receipts and the manuscript of Annual Export Receipts of Goods & Services."

Lecturer in Statistics, Bangladesh University of Business and Technology

📅 June 2017 – September 2017 📍 Dhaka, Bangladesh

- Designed and taught multiple statistics courses.
- Accessed the progress of students and provided them with constructive feedback.

EDUCATION

- **Ph.D. Student, Information Systems**
  University of Maryland, Baltimore County
  CGPA: 3.86 out of 4.00

  📅 Expected Graduation: June 2024

- **M.Sc. in Statistics**
  University of Dhaka, Bangladesh
  GPA: 3.89 out of 4.00

  📅 Graduation: March 2017

  Thesis: Effect of Caesarean Section on Neonatal Health in Bangladesh after Controlling Selection Bias: Propensity Score-Based Analysis.

- **B.Sc. in Statistics**
  University of Dhaka, Bangladesh
  CGPA: 3.78 out of 4.00

  📅 Graduation: November 2014

SKILLS

- **Research:** Machine Learning, Survival Analysis, Fairness in AI, Explainable AI, Federated Learning, and Causal Inference.
- **Programming Language:** Python, R, Keras, PyTorch, Tensorflow, STATA, SPSS, SAS
- **Utilities:** LaTeX, Anaconda, Git, Jupyter Notebook, SQL, MS Word, PowerPoint, Excel

HONORS AND AWARDS

- Best Poster Award, IS Research Symposium, UMBC, 2022
  – Achieved first place at completed research track for the paper titled "Multi-State Survival Analysis using Pseudo value-based Deep Neural Networks."

- AAAI-21 & AAAI-22 Student Scholarship, AAAI
  – Worked as a volunteer at the AAAI-21 main conference and received a registration fee waiver.

- Best Poster Award, IS Poster Day, UMBC, 2021
  – Received best poster award at completed research track for the paper titled "DeepPseudo: pseudo value based deep learning models for competing risk analysis."

- Dean's Award - University of Dhaka, Bangladesh, 2016
  – Received Dean's Award for academic excellency.

- NST Fellowship for Research from Ministry of Science and Technology, Bangladesh, 2016
  – Received Fellowship for Masters' thesis.

RELEVANT COURSES

Deep learning, Data Analytics: Applications in Healthcare with R, Computational Methods for IS Research, Graphical and Statistical Modeling, Causal Inference in AI and ML, Introduction to NLP, Advanced Biostatistics, Theory of Inference