Md Fahim Sikder

AI Researcher

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Generative Models and Trustworthy AI

Current positions

2020–now · **Linköping University**, *Linköping, Sweden*, PhD Student.
Reasoning and Learning (ReaL) Lab, Artificial Intelligence and Integrated Computer System (AIICS) Division, Department of Computer and Information Science (IDA)

Past experience

2017–2020 · **Institute of Science Trade & Technology (ISTT)**, *Dhaka, Bangladesh*, Lecturer, Department of Computer Science & Engineering.
Course Examiner (Artificial Intelligence, Digital Image Processing, Data Structure, Algorithm Design and Analysis, Statistics and Probability, Operating Systems, Peripheral and Interfacing, Computer Graphics and Multimedia), coaching students for competitive programming (ACM ICPC and relevant contests), supervision of Bachelor's students.

Education

2026 · **PhD in Computer Science**, *Linköping University, Sweden*.
Dissertation: "Representative Synthetic Data for Fair Decision Making"
Advisors: Fredrik Heintz and Daniel de Leng

2018 · **MSc in Computer Science**, *Jahangirnagar University, Bangladesh*, CGPA 3.73/4.0.

2016 · **BSc in Computer Science & Engineering**, *Gopalganj Science & Technology University, Bangladesh*, CGPA 3.8/4.0.

Accomplishments

2025 · Champion, Employee Scheduling Category, Hackaping 2025

2023 · Call to Arms Award (Reviewer), ECAI, 2023

2018 · NVIDIA GPU Grant, NVIDIA, 2018

2016 · Champion, NASA Space Apps Challenge, Rajshahi Region, Bangladesh, 2016

Publications

Journal Publications

[J2] **M.F. Sikder**, R. Ramachandranpillai, F. Heintz. TransFusion: Generating Long, High-Fidelity Time Series using Diffusion Models with Transformers, *Machine Learning with Applications.*, Vol. 20, 100652, 2025.

[J1] R. Ramachandranpillai, **M.F. Sikder**, D. Bergström, F. Heintz. Bt-GAN: Generating Fair Synthetic Healthdata via Bias-transforming Generative Adversarial Networks. *Journal of Artificial Intelligence Research (JAIR)*, Vol. 79, pp. 1313-1341, 2024.

Conference Publications

[C9] **M.F. Sikder**, D. de Leng, F. Heintz. FairRep: Mitigating Intersectional Bias through Fair Representation Learning, *Under Review*.

[C8] **M.F. Sikder**, R. Ramachandranpillai, D. de Leng, F. Heintz. Promoting Intersectional Fairness through Knowledge Distillation, *Accepted at 28th European Conference on Artificial Intelligence (ECAI 2025)*.

[C7] **M.F. Sikder**, D. Bergström, R. Ramachandranpillai, F. Heintz. Synthesizing Longer and Higher-Fidelity Time-Series Data Using Generative Adversarial Networks. *Under Review*.

[C6] **M.F. Sikder**, R. Ramachandranpillai, D. de Leng, F. Heintz. FairX: A comprehensive benchmarking tool for model analysis using fairness, utility, and explainability. In *Proceedings of the 2nd Workshop on Fairness and Bias in AI (co-located with ECAI)*, 2024.

[C5] **M.F. Sikder**, M. Ferdous, S. Afroz, U. Podder, K. Fatema, M.N. Hossain, M.T. Hasan, M.K. Baowaly. Explainable Bengali Multiclass News Classification. In *Proceedings of the 26th ICCIT*, 2023.

[C4] R. Ramachandranpillai *(equal contribution)*, **M.F. Sikder** *(equal contribution)*, F. Heintz. Fair Latent Deep Generative Models (FLDGM) for Syntax-agnostic and Fair Synthetic Data Generation. In *Proceedings of the 26th ECAI*, 2023.

[C3] **M.F. Sikder**. Bangla Handwritten Digit Recognition & Generation. In *Proceedings of the IJCCI*, 2020.

[C2] **M.F. Sikder**, S. Halder, T. Hasan, M.J. Uddin, M.K. Baowaly. Smart Disaster Notification System. In *Proceedings of the 4th ICAEE*, 2017.

[C1] **M.F. Sikder**, M.J. Uddin, S. Halder. Predicting Students Yearly Performance using Neural Network: A Case Study of BSMRSTU. In *Proceedings of the 5th ICIEV*, 2016.

Other Publications

[O4] **M.F. Sikder**, R. Ramachandranpillai, D. de Leng, F. Heintz. Generative Models for Time-Series and Fair Data Generation, *Extended Abstract at SSBA/SSDL*, 2024.

[O3] **M.F. Sikder**, R. Ramachandranpillai, F. Heintz. Generating Private and Fair Long-Sequenced Longitudinal Healthcare Records, *Extended Abstract at SAIS*, 2023.

[O2] **M.F. Sikder**. Sequential Ice Hockey Events Generation using Generative Adversarial Networks, *Student Project Competition at LINHAC*, 2022.

[O1] D. Bergström, **M.F. Sikder**, F. Heintz. Privacy-preserving Synthetic Trajectory Data Generation, *Extended Abstract at SAIS*, 2020.

Invited Talks

[T2] "Generative Models for Time-Series and Fair Data Generation", SWECSS, Linköping University, April 2024.

[T1] "Research Trends & Opportunities in Deep Learning", Bangabandhu Sheikh Mujibur Rahman Science & Technology University, August 2023.

Teaching and Education

Linköping University

2022– **Artificial Intelligence (TDDC17)**.
Lab assistant with assessment responsibility.

2022– **Foundations of AI and Machine Learning (TDDE56)**.
Course assistant responsible for the seminar sessions and project supervision.

Institute of Science Trade & Technology (ISTT)

2017–2020 **Data Structure**.
Course examiner.

2017–2020 **Algorithm Design and Analysis**.
Course examiner.

2017–2019 **Operating System**.
Course examiner.

2019–2020 **Artificial Intelligence**.
Course examiner.

2018–2019 **Digital Image Processing**.
Course examiner.

2018–2019 **Computer Graphics and Multimedia**.
Course examiner.

2019–2020 **Statistics and Probability**.
Course examiner.

2019 **Digital Signal Processing**.
Course examiner.

Supervision

Master's students

- Anton Bergman, Shamil Limbasiya, **Comparative Study of TGN vs. TGAT for Dynamic Graph Learning**, Linköping University, May 2025. *External Supervisor: Google Stockholm.*
- Oskar Eriksson, Sven Grinnerby, **Enhancing Time-Series Forecasting with Multimodal Learning – Integrating time series, text sentiment and personell data through comparative fusion strategies**, Linköping University, May 2025.
- Martin Brolin, **Estimated Time to Recovery for Outages in the Distributed Electrical Network with Machine Learning Methods**, TBD, Linköping University. *Co-supervised with Mattias Tiger.*
- Hugo Ekinge, **How to Estimate Local Performance using Machine Learning Engineering (HELP ME)**, Linköping University, October 2023.
- Oscar Linnarsson, **Classification of Magnetic Resonance Imaging Sequence Type Using A Deep Multi-Modal Neural Network**, Linköping University, June 2023. *Co-supervised with David Bergström.*
- Sebastian Flinck Lindström, Markus Wetterberg, **Uni-Modal Fusions Compared to Multi-Modal Classifiers on the Categorization of Medical Objects**, Linköping University, June 2022. *Co-supervised with Resmi Ramachandranpillai.*

Bachelor's students (selection)

- Sadek Nurul, Taohid Al Farabi, **Chest X-ray Image Classification using Deep Learning**, Institute of Science, Trade & Technology (ISTT), January 2020.
- Rakib Ahmed, Md Hanif Sikder, **Predicting Students' Performance in Final Examination using Deep Neural Network**, Institute of Science, Trade & Technology (ISTT), September 2019. *Co-supervised with Kaniz Fatema.*
- Asib Al Abani, Sajia Afrin, Mahbub Alam, **Face Recognition using Deep Neural Network**, Institute of Science, Trade & Technology (ISTT), October 2018.

Other research activities

Program committees

- Member, European Conference on Artificial Intelligence (ECAI), 2023.
- Member, Swedish National Computer Networking and Cloud Computing Workshop (SNCNW), 2023.

Reviewing (selection)

- Journal of Artificial Intelligence Research (JAIR), 2024 - Present.
- Annual AAAI Conference on Artificial Intelligence (AAAI), 2024.
- International Conference on Learning Representations (ICLR), 2024, 2025.
- Neural Computing and Applications, 2024.
- European Conference on Artificial Intelligence (ECAI), 2023.

Co-curricular activities

- Presidium Member, Linköping University PhD Student Network (LiUPhD) (Board 2024/25)
- Department Representative - IDA, Linköping University PhD Student Network (LiUPhD) (Board 2023/24)
- Chair, IDA PhD Council (Board 2024/25, 2025/26)

Languages

Bengali	Native
English	Fluent