

Tusher Karmakar

Ph.D. Student, Electrical and Computer Engineering, Iowa State University

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🌐 github.com/TusherKarmakar

Research Interests: Matrix Factorization, Machine Learning, Signal Processing, Data Privacy

Education

Iowa State University (ISU), Ames, Iowa, USA

Aug 2025 – Present

Ph.D. in Electrical and Computer Engineering (ECpE)

Advisor: Prof. Namrata Vaswani

Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh

2019 – 2024

B.Sc. in Electrical and Electronic Engineering

Major: Communication and Signal Processing; CGPA: 3.63/4.00

Undergraduate Thesis: *Privacy-Preserving Non-negative Matrix Factorization for Decentralized Data Using Correlated Noise*

Supervisor: Prof. Hafiz Imtiaz

Experience

Graduate Teaching Assistant, Iowa State University

Aug 2025 – Present

Department of Electrical and Computer Engineering (ECpE)

- Courses Assisted: EE 4420 (Introduction to Circuits and Systems), EE 2010 (Electric Circuits), EE 4480 (Introduction to AC Circuits and Motors)
- Responsibilities: grading, office-hour tutoring, laboratory instruction, and review-session support

Tutor (Mathematics Educator), Cymath

Aug 2025 – Present

Undergraduate Research Assistant, BUET

Jan 2023 – Apr 2024

Department of Electrical and Electronic Engineering

Supervisor: Prof. Hafiz Imtiaz

Worked on privacy-preserving data analysis and matrix factorization methods for decentralized data systems.

Selected Publications

1. Hafiz Imtiaz, **Tusher Karmakar**, Protoye Kumar Mohanata, “Privacy-Preserving Non-negative Matrix Factorization for Decentralized Data Using Correlated Noise,” *Signal, Image and Video Processing*, 2024.
2. Sandipa Chowdhury, Mohtasim Billah, Sudipto Pramanik, Shaikh Anowarul Fattah, **Tusher Karmakar**, “Bidirectional Cross-Dataset Transfer Learning for Human Activity Recognition with Dataset-Specific Adapters and EWC,” *11th IEEE International Women in Engineering (WIE) Conference on Electrical and Computer Engineering*, accepted, 2025.

Technical Skills

Programming: Python, MATLAB, C/C++, Verilog, PyTorch, TensorFlow

Hardware: Arduino, STM32, FPGA

Simulation Tools: HFSS, PSPICE, Proteus, Quartus

Documentation: \LaTeX , MS Office

Extracurricular Activities

- Member, BUET Football Team (2019–2024)
- Runner-up, BUET EEE Faculty Football Tournament (2021)
- High School Debating Club Member