

RWICHEEK SARKER

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RESEARCH INTERESTS

LLM, Computer Vision, NLP, Robotics, GNN, Reinforcement Learning, HPC, Graph Learning, DNN Accelerators

RESEARCH EXPERIENCE

Graduate Research Assistant

August 2023 - Present

Department of Electrical and Computer Engineering

North Dakota State University (NDSU)

Working on Data Encoding and Compression in Multi-Level Cell NVM and Chiplet Based DNN Accelerators

PUBLICATIONS

R. Sarker, B. Christopher, Y. Xiao, J. Duan, V. M. Bhasi, K. Ni, and S. George, “**Energy efficient feram cache design using asymmetric encoding**,” in Proceedings of the 2026 Design Automation Conference (DAC), 2026 (In Review)

R. Sarker, V. M. Bhasi, K. Ni, and S. George, “**Efficient data compression with multi-level cell memory**,” in 2026 ACM/IEEE 53rd Annual International Symposium on Computer Architecture (ISCA). IEEE, 2026 (In Review)

B. Christopher, R. Sarker, V. M. Bhasi, and S. George, “**Multi-level cell memory driven efficient cache organization**,” in Twenty-Seventh International Symposium on Quality Electronic Design. IEEE, 2026 (In Review)

SELECTED PROJECT(S)

Implementation of GNN Models to Explore Complex Relational Data March 2025

Implemented different GNN models (GAT, HGT, GraphSAGE etc.) for heterogeneous graph data structures to perform relational predictions.

RF-based Split Ring Resonator with Cellulose Nanofiber for Soil pH Sensing August 2024

Developed a radio frequency based sensor to detect and measure soil pH. (In process of publishing)

Prompt Tokenization and Keyword Extraction using Word Embeddings June 2024

Implemented a framework to extract useful keywords from natural language prompts using vectorization in high dimensional space

Implementation of Adversarial Learning and Incremental Learning in AI October 2022

Implemented two recent algorithms on adversarial learning using uncertainty and incremental learning algorithm (EWC) in neural networks using tensorflow 2.0

Development of a Multi-Variable Metaheuristic Data Optimization System Using Artificial Intelligence October 2021

Developed an optimization system on task distribution using the Genetic Algorithm

ACADEMIC CREDENTIALS

Master of Science in Electrical and Computer Engineering

August, 2023 - Present

North Dakota State University

GPA: 3.88/4.00

Bachelor of Science in Mechanical Engineering

February, 2015 - April, 2021

Bangladesh University of Engineering and Technology

GPA: 2.53/4.00

STANDARDIZED TEST SCORES

Graduate Record Examination (GRE) - 11th October, 2022

Overall	Quantitative	Verbal	Analytical
306	160	146	4

TEACHING EXPERIENCE

Graduate Teaching Assistant

January 2024 - Present

Department of Electrical and Computer Engineering

North Dakota State University (NDSU)

Courses Contributed:

- ECE 173 - Introduction to Computing
- ECE 211 - Circuit Analysis I
- ECE 275 - Digital Design
- ECE 351 - Applied Electromagnetics
- ECE 375 - Digital Design (Advanced)
- ECE 623 - VLSI Design
- ECE 677 - Hardware Design for Machine Learning

PROFESSIONAL SKILLS

Programming Languages

Python, C/C++, MATLAB, Java, VHDL, x64

Modeling & Animation Simulation

x86, Bash, SQL, C#, HTML, PHP, JavaScript

SolidWorks, AutoCAD, CACTI, Autodesk Maya

GEM5, DramSim, NVMain, CST Microwave Studio

Ansys

EDA & Synthesis

Synopsys Design Compiler

Post Processing

Tecplot 360

Reverse Engineering

Ghidra, IDA Pro

Other

3E Plus, HTRI Xchanger Suite

PROFESSIONAL EXPERIENCE

Summer Project

May 2025

North Dakota State University

Fargo, ND

Performed nutrient analysis on runoff rainwater samples. Gained hands-on experience with sample extraction from lysimeter in the field. Coordinated with an external laboratory (AGVISE) to analyse prepared samples and perform interpretation over obtained results.

Industrial Trainee

October 2018

Square Denims Limited

Sylhet, Bangladesh

Achieved hands-on experience with the operations of Boilers, Chillers, Air Compressors, Water Supply Systems, Cooling Towers, HVAC System, Water Treatment Plant, Effluent Treatment Plant, Fire Detection and Prevention System and Power Generators.

Observed step by step manufacturing process of the Denims starting from Warping to Finishing and Maintenance.

LEADERSHIP EXPERIENCE

Project Leader

March 2019 - May 2023

Development of the RPA Subsystem for Windows Project

Techforce AI

Responsibilities Include: Ground-up development of the RPA windows subsystem, Managing development team, Reviewing code base, Testing and debugging the system

ACHIEVEMENTS

University Merit Scholarship

Spring 2015

Bangladesh University of Engineering and Technology

Bangladesh Education Board Scholarship

2014

Higher Secondary Certificate (HSC) Examination