Md Raihan Uddin

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OBJECTIVES

Dedicated and detail-oriented researcher with a strong background in deep learning applications, high-performance computing, and edge-cloud computing. Passionate about advancing knowledge through innovative research in modeling, simulation, and system analysis. Eager to contribute my expertise to a dynamic research team and make a meaningful impact on cutting-edge projects in these domains.

RESEARCH INTEREST

- Machine learning, predictive analytics and computer vision.
- High performance computing
- Cloud and Edge Computing
- Modeling, simulation, and analysis

EDUCATION

PhD in Electrical and Computer Engineering 01/2023-present
GPA: 4.00 out of 4.00
Wichita State University, Wichita, Kansas

Bachelor of Science in Electrical Electronic & Communication Engineering 01/2015-12/2018
CGPA 3.87 out of 4.00
Bangladesh University of Professionals, Mirpur Cantonment, Dhaka, Bangladesh

SKILLS

Documentation: Microsoft Office, Latex.
Programming Skills: Python, C, C++, MATLAB.
Modeling Skills: VisualSim.

EXPERIENCES

Graduate Teaching Assistant (GTA) 01/2023-present
Wichita State University, Wichita, Kansas

- Course taught- ECE 875 (Computer System in Data Analytics), ECE 238 (Assembly Language Programming), ECE 394 (Introduction to Computer Architecture), ECE 194L (Introduction to Digital Design Lab).
- Graded the exam, quiz, and homework scripts to assist the professor for the courses- ECE 875 (Computer System in Data Analytics), ECE 238 (Assembly Language Programming), ECE 394 (Introduction to Computer Architecture), ECE 707 (ML Essentials and Applications).

Graduate Research Assistant (GRA) 01/2023-present
Wichita State University, Wichita, Kansas

- Conduct experiments and tests using simulation tool VisualSim
- Collect and analyze different parameters to model heterogeneous systems

Electrical Engineer, Italy Footwear Limited 01/2021-12/2022
Gazipur, Dhaka, Bangladesh

- Managing and maintaining power substation and distribution systems, optimizing load distribution and voltage regulation for uninterrupted operations.
- Conducting regular inspections and maintenance of transformers, circuit breakers, switchgears etc to ensure the stability and reliability of the incoming power supply.
- Managed and coordinated a team of employees to ensure seamless operations.

Workshop Engineer, Bangladesh Army 01/2018-01/2021
Captain (Retired)
Chattogram, Bangladesh

- Executed workshop activities includes repair of electrical equipment, maintaining and monitoring workshop activities.
- Ensure safe and effective operation of generator, motor, transformer, power distribution cables etc.
- Maintain & Monitoring LPS (Lighting Protection System), electrical maintenance of all kinds of DB Board, socket line etc.
- Prepare maintenance budget, report on weekly inspection in all electrical equipment, implement safety environment in the whole workshop.

RESEARCH EXPERIENCES

Enhancing Scalability of Heterogeneous Systems Using Attention Based Multi Agent Proximal Policy Optimization. (Present)

- Developing a methodology using reinforcement learning to distribute computations to edge and cloud servers.
- Integrating attention mechanism into multi agent proximal policy optimization to improve heterogeneous systems performance and scalability.

Deep Learning-Driven Task Scheduling Optimization for Enhanced Performance in Edge-Cloud Heterogeneous Systems. (Dec 2024)

- Developed a methodology using deep neural network to distribute computations to edge and cloud servers to increase the systems performance and scalability in dynamic way.

Reduction of Input Features from Large Dataset Using Machine Learning. (Dec 2023)

- Designed a methodology to reduce the number of input features by keeping the accuracy almost unchanged using permutation importance, random forest elimination with cross validation, auto encoder and random forest importance features.
- The number of computations due to reduced features was reduced significantly.

Auto Bin Using Arduino and Sensors. (May 2018)

- Using the servo motor the mouth of the bin was automized when the sensor sensed the presence of any person in front of it.
- Gave three different signals in three different conditions such as bin full, bin half or bin empty.

Power System Analysis Using Newton-Raphson & Gauss Seidel Method. (BS Final Project, 2018)

- Analyzed the power system of Mirpur Cantonment Area in MATLAB using Newton-Raphson and Gauss Seidel Method.

PUBLICATIONS

- **M. R. Uddin** and A. Asaduzzaman, "Pairing Computations at the Edge and Cloud Servers to Improve Performance of Heterogeneous Systems," 2024 9th International Conference on Fog and Mobile Edge Computing (FMEC), Malmö, Sweden, 2024, pp. 212-219, doi: 10.1109/FMEC62297.2024.10710249.
- **M. R. Uddin**, A. Asaduzzaman, K. Le, R. R. Medarametla, "'Voice Activated Edge Devices Using Tiny Machine Learning Enabled Microcontroller", IEEE GreenTech Conference 2024.
- **M. R. Uddin**, A. Asaduzzaman, R. Soza, C. Minkler, "Avian Song Identification Using CNN", IEEE GreenTech Conference 2024.
- A. Asaduzzaman, L. Mercer, **M. R. Uddin** and Y. Woldeyes, "Modeling and Analyzing Wind Velocity at Entrance Doors to Avoid Accidents," 2023 IEEE High Performance Extreme Computing Conference (HPEC), Boston, MA, USA, 2023, pp. 1-5, doi: 10.1109/HPEC58863.2023.10363492.
- S.M. Hossain, S. Biswas, and **M.R. Uddin,** "Sustainable energy transition in Bangladesh: Challenges and pathways for the future," Engineering Reports, 17th Aug 2023.
- A. Asaduzzaman, V. S. P. T. Telikepalli and **M. R. Uddin**, "Performance Analysis of C and Python Parallel Implementations on a Multicore System Using Particle Simulation," 2024 International Conference on Artificial Intelligence, Computer, Data Sciences and Applications (ACDSA), Victoria, Seychelles, 2024, pp. 1-7, doi: 10.1109/ACDSA59508.2024.10467885.
- A. Asaduzzaman, **M. R. Uddin**, N. Nawal and M. Ang, "Reduction of Input Features from Machine Learning Datasets for Water Quality Analysis," ACDSA, Victoria, Seychelles, 2024, pp. 1-6, doi: 10.1109/ACDSA59508.2024.10467928.
- A. Asaduzzaman, D. D'Souza, **M. R. Uddin** and Y. Woldeyes, "Increase Security by Analyzing Password Strength using Machine Learning," 2024 Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunications Engineering (ECTI DAMT & NCON), Chiang-mai, Thailand, 2024, pp. 32-37, doi: 10.1109/ECTIDAMTNCON60518.2024.10479995.
- A. Asaduzzaman, **M. R. Uddin**, Y. Woldeyes and F. N. Sibai, "A Novel Salary Prediction System Using Machine Learning Techniques," ECTI DAMT & NCON, Chiang-mai, Thailand, 2024, pp. 38-43, doi: 10.1109/ECTIDAMTNCON60518.2024.

ACHIEVEMENTS

- First price in College of Engineering Annual Research Poster Presentation (2024) -$750
- Office of International Education (OIE) Scholarship (2024) - $2500
- Third price in College of Engineering Annual Research Poster Presentation (2023)
- DEAN's Certificate (Bachelor of Science, 2018)

PAPER REVIEWED

- Reviewed conference paper in IEEE SouthEast Conference 2024.

PROFESSIONAL ASSOCIATIONS

- Student Member of IEEE.

REFERENCES

- PhD Supervisor
  Abu Asadauzzaman, PhD, Associate Professor
  ECE Department, Wichita State University

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- **Visvakumar Aravinthan,** PhD, Associate Professor
  Chairperson, ECE Department, Wichita State University
  Mail: 1845 Fairmount Street WH-301, Wichita, KS 67260-0103
  Tel: (316) 978-6324; E-mail: visvakumar.aravinthan@wichita.edu