Md Ashiqur Rahman

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Education

Purdue University — **West Lafayette, IN**
Doctor of Philosophy in Computer Science — *2021–*
GPA – 3.96/4.0

Advisor: Raymond A. Yeh

Bangladesh University of Engg & Tech — **Dhaka, Bangladesh**
Bachelor of Science in Computer Science and Engineering — *2015–2019*
GPA – 3.93/4.0

Advisor: Md. Shamsuzzoha Bayzid

Professional Employment

Purdue University — **West Lafayette, IN**
Graduate Assistant in the Department of Computer Science — *2021-present*

- Teaching Assistant for courses on deep learning and computer graphics.

NVIDIA — **Santa Clara, CA**
Research Intern — *Summer 2023*
Manager: Anima Anandkumar

- Researched large-scale weather prediction and foundation model for scientific computing.

United International University — **Dhaka Bangladesh**
Lecturer in the Department of Computer Science — *2019-2021*

- Taught courses on computer graphics, networking system, and data structure.

Publications

Refereed Conference

[C1] **Md Ashiqur Rahman** and Raymond A. Yeh. Group downsampling with equivariant anti-aliasing. In *International Conference on Learning Representations* (*ICLR*), 2025.

[C2] **Md Ashiqur Rahman**, R. J. George, M. Elleithy, D. Leibovici, Z. Li, B. Bonev, C. White, J. Berner, R. A. Yeh, J. Kossaifi, K. Azizzadenesheli, and A. Anandkumar. Pretraining codomain attention neural operators for solving multiphysics PDEs. In *Advances in Neural Information Processing Systems* (*NeurIPS*), 2024.

[C3] **Md Ashiqur Rahman** and Raymond A. Yeh. Truly scale-equivariant deep nets with fourier layers. In *Advances in Neural Information Processing Systems* (*NeurIPS*), 2023.

[C4] **Md Ashiqur Rahman**, Abdullah Aman Tutul, and A. B. M. Alim Al Islam. Solving the maze of diagnosing parkinson's disease based on portable eeg sensing to be adaptable to go in-the-wild. *Proceedings of the 7th International Conference on Networking, Systems and Security*, 2020. (Best Paper Award).

[C5] Akm Ashiquzzaman, Abdul Kawsar Tushar, **Md Ashiqur Rahman**, and Farzana Mohsin. An

efficient recognition method for handwritten arabic numerals using cnn with data augmentation and dropout. *Data Management, Analytics and Innovation*, 2018.

Refereed Journal

[J1] **Md Ashiqur Rahman**, Abdullah Aman Tutul, Mahfuza Sharmin, and Md. Shamsuzzoha Bayzid. Beene: deep learning-based nonlinear embedding improves batch effect estimation. *Bioinformatics*, 2023.

[J2] **Md Ashiqur Rahman**, Manuel A. Florez, Anima Anandkumar, Zachary E. Ross, and Kamyar Azizzadenesheli. Generative adversarial neural operators. *Transactions on Machine Learning Research*, 2022.

[J3] **Md Ashiqur Rahman**, Zachary E. Ross, and Kamyar Azizzadenesheli. U-no: U-shaped neural operators. *Transactions on Machine Learning Research*, 2022.

[J4] **Md Ashiqur Rahman**, Abdullah Aman Tutul, Sifat Muhammad Abdullah, and Md. Shamsuzzoha Bayzid. Chapao: Likelihood and hierarchical reference-based representation of biomolecular sequences and applications to compressing multiple sequence alignments. *PLoS ONE*, 2022.

Preprints / In Submission

[S1] Hrishikesh Viswanath, **Md Ashiqur Rahman**, Abhijeet Vyas, Andrey Shor, Beatriz Medeiros, Stephanie Hernandez, Suhas Eswarappa Prameela, and Aniket Bera. Neural operator: Is data all you need to model the world? an insight into the impact of physics informed machine learning. 2023.

[S2] **Md Ashiqur Rahman**, Jasorsi Ghosh, Hrishikesh Viswanath, Kamyar Azizzadenesheli, and Aniket Bera. Pacmo: Partner dependent human motion generation in dyadic human activity using neural operators. *ArXiv*, abs/2211.16210, 2022.

[S3] Hrishikesh Viswanath, **Md Ashiqur Rahman**, Rashmi Bhaskara, and Aniket Bera. Adafnio: Adaptive fourier neural interpolation operator for video frame interpolation. 2022.

Teaching Experience

Purdue University **West Lafayette, IN**
Teaching Assistant - CS587: Foundations of Deep Learning *Spring 2024*

- Co-designed and graded course assignments and exam questions involving equivariant models, optimizing deep neural networks, generative models, and optimization layers.

Purdue University **West Lafayette, IN**
Teaching Assistant - CS373: Data Mining and Machine Learning *Fall 2022, Spring 2023*

- Co-designed course assignments and exam questions involving fundamentals of machine learning, perceptron, SVM, learning theory, and data privacy.

Purdue University **West Lafayette, IN**
Teaching Assistant - CS334: Fundamentals of Computer Graphics *Fall 2021, Fall 2023*

- Co-designed course assignments and exam questions involving GPU programming, ray tracing, texture mapping, and procedural modeling.

United International University **Dhaka, Bangladesh.**
Lecturer *2019 - 2021*

- Redesigned and instructed courses, including Data Structures and Algorithms, Simulation and Modeling, Intro to Computer Graphics, and Computer Networking.

Services

Professional Service

Conference Reviewer: Neural Information Processing Systems (NeurIPS)

Conference Reviewer: International Conference on Machine Learning (ICML)

Conference Reviewer: International Conference on Representation Learning (ICLR)

Conference Reviewer: Computer Vision and Pattern Recognition (CVPR)

Research with Undergraduates

Michael Cheng
Undergraduate, Purdue, Fall 2024 – Present. Conducting undergraduate research under the supervision of Professor Raymond A. Yeh. As a mentor, I receive weekly updates, provide feedback, set project directions, and offer hands-on guidance in project development and implementation.
Research topic: Equivariant machine learning for computer vision.

Changxiang Gao
Undergraduate, Purdue, Summer 2024 – Fall 2024. Conducted undergraduate research under the supervision of Professor Raymond A. Yeh. As a mentor, I received weekly updates, defined project goals, and provided hands-on guidance for implementation.
Research topic: Any-resolution image classification.

Anugu Arun Reddy
Visiting Scholar, Purdue, Summer 2024 under the supervision of Professor Aniket Bera. As a mentor, I defined the project scope, received weekly updates, and guided the implementation process.
Research topic: Human motion generation.