

Md Yousuf Harun

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Education

Rochester Institute of Technology

PH.D. IN IMAGING SCIENCE

Rochester, NY
Aug. 2020 – Present

- *Thesis*: Towards Efficient Continual Deep Learning
- *Advisor*: Dr. Christopher Kanan
- *Highlights*: 5+ publications on developing robust and efficient deep learning systems
- *Anticipated Graduation Date*: Dec. 2025

University of Hawaii at Manoa

M.S. IN ELECTRICAL ENGINEERING

Honolulu, HI
Aug. 2018 – May 2020

- *Thesis*: Medical Image Segmentation using Deep Learning
- *Advisors*: Dr. Aaron Ohta and Dr. Il Yong Chun
- *Highlights*: 4 publications on deep learning for medical image segmentation

Khulna University of Engineering & Technology

B.S. IN ELECTRICAL & ELECTRONIC ENGINEERING

Khulna, Bangladesh
Feb. 2012 – May 2016

Experience

Rochester Institute of Technology

GRADUATE RESEARCH ASSISTANT

Rochester, NY
May 2021 – Present

- Developed efficient continual deep learning algorithms for real-world applications. Mentored by Dr. Christopher Kanan.

University of Hawaii at Manoa

GRADUATE RESEARCH ASSISTANT

Honolulu, HI
Aug. 2019 – May 2020

- Researched medical image segmentation using deep learning under the supervision of Dr. Aaron Ohta.
- Researched magnetic resonance imaging (MRI) image reconstruction under the supervision of Dr. Il Yong Chun.
- Developed AI-based software for segmenting human blastocyst cells to assist doctors at Pacific IVF Institute, Hawaii.

Dutch-Bangla Bank Limited

ENGINEER

Dhaka, Bangladesh
May 2017 – Oct. 2017

- Supervised the installation and maintenance of electrical substations & data centers.

Peer-Reviewed Publications

[* denotes equal contribution]

1. **M.Y. Harun***, K. Lee*, J. Gallardo, G. Krishnan, and C. Kanan. What Variables Affect Out-of-Distribution Generalization in Pretrained Models? *In: Neural Information Processing Systems (NeurIPS)*, 2024 [25.8% accept rate] [Link](#)
2. **M.Y. Harun**, J. Gallardo, J. Chen, and C. Kanan. GRASP: A Rehearsal Policy for Efficient Online Continual Learning. *In: Conference on Lifelong Learning Agents (CoLLAs)*, 2024 [Link](#)
3. **M.Y. Harun** and C. Kanan. Overcoming the Stability Gap in Continual Learning. *In: Transactions on Machine Learning Research (TMLR)*, 2024 [Link](#)
4. **M.Y. Harun***, J. Gallardo*, T.L. Hayes, R. Kemker, and C. Kanan. SIESTA: Efficient Online Continual Learning with Sleep. *In: Transactions on Machine Learning Research (TMLR)*, 2023 [CoLLAs-2024 Event Certified] [Link](#)

5. **M.Y. Harun**, J. Gallardo, T.L. Hayes, and C. Kanan. How Efficient Are Today's Continual Learning Algorithms? In: *CVPR Workshop on Continual Learning in Computer Vision (CLVISION)*, 2023 [Link](#)
6. **M.Y. Harun**, M.A. Rahman, J. Mellinger, W. Chang, T. Huang, B. Walker, K. Hori, and A. Ohta. Image Segmentation of Zona-Ablated Human Blastocysts. In: *IEEE International Conference on Nano/Molecular Medicine and Engineering (NANOMED)*, 2019 [Link](#)
7. **M.Y. Harun**, T. Huang, and A. Ohta. Inner Cell Mass and Trophectoderm Segmentation in Human Blastocyst Images using Deep Neural Network. In: *IEEE International Conference on Nano/Molecular Medicine and Engineering (NANOMED)*, 2019 [Link](#)
8. T.T. Huang, T. Kosasa, B. Walker, C. Arnett, C.T. Huang, C. Yin, **M.Y. Harun**, H.J. Ahn, and A. Ohta. Deep Learning Neural Network Analysis of Human Blastocyst Analysis from Time-lapse Image Files. In: *Reproductive BioMedicine Online (RBMO)*, 2021 [Link](#)
9. T. Huang, B. Walker, **M.Y. Harun**, M.A. Rahman, J. Mellinger, W. Chang, and A. Ohta. Automated Computer Analysis of Human Blastocyst Expansion from Embryoscope Time-Lapse Image Files. In: *American Society for Reproductive Medicine (ASRM)*, 2019 (Poster) [Link](#)

Pre-Prints

1. **M.Y. Harun**, J. Gallardo, and C. Kanan. Controlling Neural Collapse Enhances Out-of-Distribution Detection and Transfer Learning. *Arxiv*, 2025 [Link](#)
2. **M.Y. Harun** and C. Kanan. A Good Start Matters: Enhancing Continual Learning with Data-Driven Weight Initialization. *Arxiv*, 2025 [Link](#)
3. S. Srivastava, **M.Y. Harun**, R. Shrestha, and C. Kanan. Improving Multimodal Large Language Models Using Continual Learning. *Arxiv*, 2024 [Link](#)

Peer-Reviewed Abstracts & Posters

[Non-archival]

1. **M.Y. Harun***, K. Lee*, J. Gallardo, G. Krishnan, and C. Kanan. Disentangling the Causes of the Tunnel Effect in Deep Neural Networks. In: *IEEE Western NY Image and Signal Processing Workshop (WNYISPW)*, 2024 **(Oral)**
2. **M.Y. Harun** and C. Kanan. Towards Stable Continual Learning Under Distribution Shifts. In: *IEEE Western NY Image and Signal Processing Workshop (WNYISPW)*, 2024 **(Oral)**
3. S. Srivastava, **M.Y. Harun**, R. Shrestha, and C. Kanan. Improving Multimodal LLMs Using Continual Learning. In: *IEEE Western NY Image and Signal Processing Workshop (WNYISPW)*, 2024 **(Oral)**
4. **M.Y. Harun***, K. Lee*, J. Gallardo, G. Krishnan, and C. Kanan. What Variables Affect Out-of-Distribution Generalization in Pretrained Models? In: *15th Annual Machine Learning Symposium, NY Academy of Sciences (NYAS)*, 2024
5. S. Srivastava, **M.Y. Harun**, R. Shrestha, and C. Kanan. Improving Multimodal Large Language Models Using Continual Learning. In: *NeurIPS Workshop on Scalable Continual Learning for Lifelong Foundation Models*, 2024 [Link](#)
6. **M.Y. Harun**, J. Gallardo, and C. Kanan. Prioritized Training on Rehearsal Samples for Efficient Online Continual Learning. In: *IEEE Western NY Image and Signal Processing Workshop (WNYISPW)*, 2023 **(Best Poster Award)**

Dissertation

- Medical Image Segmentation for Embryo Image Analysis. Master's Dissertation, University of Hawaii at Manoa, 2020 [Link](#)

Awards & Scholarships

- BEST POSTER AWARD: IEEE Western NY Image and Signal Processing Workshop (WNYISPW), 2023
- TRAVEL GRANT: IEEE International Conference on Nano/Molecular Medicine and Engineering (NANOMED), 2019
- RESEARCH EXCELLENCE AWARD: University of Hawaii at Manoa, 2020
- TEACHING EXCELLENCE AWARD: University of Hawaii at Manoa, 2019
- TRAVEL GRANT: Bangladesh Sweden Trust Fund, 2018
- SCHOLARSHIP: Bangladesh Government Merit Scholarship in Higher Secondary Certificate Examination, 2011
- SCHOLARSHIP: Bangladesh Government Merit Scholarship in Secondary School Certificate Examination, 2009

Invited Talk

- Towards Efficient Continual Learning in Deep Neural Networks. *RIT Center for Human-aware Artificial Intelligence (CHAI) Seminar Series*, 2023

Teaching Experience

- TEACHING ASSISTANT: Undergraduate Course – Fourier Method for Imaging (RIT), Duration: Jan. 2021 – May 2021
- TEACHING ASSISTANT: Undergraduate Course – Imaging Science Fundamentals (RIT), Duration: Aug. 2020 – Dec. 2020
- TEACHING ASSISTANT: Undergraduate Course - C Programming Language (UHM), Duration: Aug. 2019 – Dec. 2019
- MENTOR: Native Hawaiian Science and Engineering Mentorship Program, UHM, May 2019 – Aug. 2019
- TEACHING ASSISTANT: Undergraduate Course - Basic Circuit Lab (UHM), Duration: Jan. 2019 – May 2019
- TEACHING ASSISTANT: Undergraduate Course - Communication Systems Lab (UHM), Duration: Aug. 2018 – Dec. 2018

Technical Skills

- PROGRAMMING LANGUAGES: C, C++, MATLAB, Python
- SCIENTIFIC COMPUTING PACKAGES: Numpy, Scipy, Scikit-learn, Pandas
- DEEP LEARNING FRAMEWORK: PyTorch
- OS & APPLICATIONS: Linux, MS Office, Git, Bash Scripting, LaTeX
- TYPING SPEED: 50 words per minute

Reviewer

- International Conference on Machine Learning (ICML), 2025
- Neural Information Processing Systems (NeurIPS), 2024
- Conference on Lifelong Learning Agents (CoLLAs), 2024-25
- European Conference on Computer Vision (ECCV), 2024
- IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2023-24
- CVPR Workshop on Continual Learning in Computer Vision (CLVISION), 2024
- IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2023
- IEEE International Conference on Robotics and Automation (ICRA), 2021

Service

- RESEARCH TRAINEE: AWARE-AI NSF Research Traineeship (NRT) Program, RIT, Jan. 2022 – May 2022
- PROGRAM ASSISTANT: Vertically Integrated Projects (VIP), University of Hawaii at Manoa, 2020
- ORGANIZER: Vertically Integrated Project (VIP) Exhibition, University of Hawaii at Manoa, 2018-2020
- VOLUNTEER: IEEE International Conference on Nano/Molecular Medicine and Engineering (NANOMED), 2018
- STUDENT AFFILIATE: East-West Center, University of Hawaii at Manoa, 2018-2020