

Md Yousuf Harun

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Summary

Ph.D. candidate specializing in **continual or lifelong machine learning** of large-scale vision, language, and multimodal models. Published **7+ first-author papers** in top-tier venues including NeurIPS, ICML, CVPR-W, CoLLAs, and TMLR, addressing a core challenge in AI—**building models that remain adaptable, scalable, and trustworthy in dynamic environments**. Passionate about advancing **efficient, robust, and generalizable AI systems** for real-world deployment.

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:** 8+ publications on robust and efficient deep learning systems

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
- Addressed core problems of AI such as catastrophic forgetting, computational efficiency, and forward transfer
- Worked on open-world learning, neural collapse, OOD generalization, LLMs, MLLMs/ VLMs, and foundation models

University of Hawaii at Manoa

GRADUATE RESEARCH ASSISTANT

Honolulu, HI

Aug. 2019 – May 2020

- Researched medical image segmentation using deep learning and MRI image reconstruction
- Developed AI software for segmenting human blastocyst cells to assist doctors at Pacific IVF Institute in Hawaii

Best Poster Award

- **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 [Link](#)

Peer-Reviewed Publications

[* denotes equal contribution]

1. **M.Y. Harun**, J. Gallardo, and C. Kanan. Controlling Neural Collapse Enhances Out-of-Distribution Detection and Transfer Learning. In: *International Conference on Machine Learning (ICML)*, 2025 [26.9% accept rate] (Oral at ICCV 2025 T2FM Workshop) [Link](#)
2. **M.Y. Harun** and C. Kanan. A Good Start Matters: Enhancing Continual Learning with Data-Driven Weight Initialization. In: *Conference on Lifelong Learning Agents (CoLLAs)*, 2025 [Link](#)

3. S. Srivastava, **M.Y. Harun**, R. Shrestha, and C. Kanan. Improving Multimodal Large Language Models Using Continual Learning. *In: Conference on Lifelong Learning Agents (CoLLAs)*, 2025 [Link](#)
4. **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](#)
5. **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](#)
6. **M.Y. Harun** and C. Kanan. Overcoming the Stability Gap in Continual Learning. *In: Transactions on Machine Learning Research (TMLR)*, 2024 [CoLLAs-2025 Event Certified] [Link](#)
7. **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](#)
8. **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](#)
9. **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](#)
10. **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](#)
11. 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](#)
12. 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 [Link](#)

Technical Skills

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

Dissertation

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

Awards & Scholarships

- RESEARCH EXCELLENCE AWARD: University of Hawaii at Manoa, 2020
- TEACHING EXCELLENCE AWARD: University of Hawaii at Manoa, 2019
- SCHOLARSHIP: 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 Talks

- Controlling Neural Collapse Enhances Out-of-Distribution Detection and Transfer Learning, Oral Presentation at *ICCV 2025 Workshop on Building Foundation Models You Can Trust (TrustFM)*
- Towards Efficient Continual Learning in Deep Neural Networks, Invited Talk at *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

Reviewer

- International Conference on Machine Learning (ICML), 2025
- ICML Workshop on Unifying Data Curation Frameworks Across Domains (DataWorld), 2025
- ICML Workshop on the Impact of Memorization on Trustworthy Foundation Models (MemFM), 2025
- IEEE ICDM Workshop on Open World Anomaly Detection in Dynamic and Evolving Environments (OWAD), 2025
- NeurIPS Workshop on Continual and Compatible Foundation Model Updates (CCFM), 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