Md Yousuf Harun

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Education

Rochester Institute of Technology — Rochester, NY
PH.D. IN IMAGING SCIENCE — Aug. 2020 – Present
- *Thesis*: Towards Efficient Continual Deep Learning
- *Advisor*: Dr. Christopher Kanan

University of Hawaii — Honolulu, HI
M.S. IN ELECTRICAL ENGINEERING — Aug. 2018 – May 2020
- *Thesis*: Medical Image Segmentation using Deep Learning
- *Advisors*: Dr. Aaron Ohta and Dr. Il Yong Chun

Khulna University of Engineering & Technology — Khulna, Bangladesh
B.S. IN ELECTRICAL & ELECTRONIC ENGINEERING — Feb. 2012 – May 2016

Experience

Rochester Institute of Technology — Rochester, NY
GRADUATE RESEARCH ASSISTANT — May 2021 – Present
- Developed efficient continual deep learning algorithms for real-world applications. Mentored by Dr. Christopher Kanan.

Rochester Institute of Technology — Rochester, NY
RESEARCH TRAINEE IN NSF AWARE-AI — Jan. 2022 – May 2022
- Researched lifelong machine learning systems for human-robot interaction. Mentored by Dr. Christopher Kanan and Dr. Ferat Sahin.

University of Hawaii — Honolulu, HI
GRADUATE RESEARCH ASSISTANT — 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 — Dhaka, Bangladesh
ENGINEER — May 2017 – Oct. 2017
- Supervised the installation and maintenance of electrical substations & data centers.

Peer-Reviewed Publications

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]
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
3. **M.Y. Harun** and C. Kanan. Overcoming the Stability Gap in Continual Learning. *In: Transactions on Machine Learning Research (**TMLR**)*, 2024
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 [Event Certified for Presentation at CoLLAs-2024]

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
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
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
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 [3.7 impact factor]
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]

Peer-Reviewed Abstracts & Posters

1. **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
2. 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
3. **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]

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, 2020
- Teaching Excellence Award: University of Hawaii, 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 (UH), Duration: Aug. 2019 – Dec. 2019
- Mentor: Native Hawaiian Science and Engineering Mentorship Program, UH, May 2019 – Aug. 2019
- Teaching Assistant: Undergraduate Course - Basic Circuit Lab (UH), Duration: Jan. 2019 – May 2019
- Teaching Assistant: Undergraduate Course - Communication Systems Lab (UH), 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

- Neural Information Processing Systems (NeurIPS), 2024
- Conference on Lifelong Learning Agents (CoLLAs), 2024
- 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

- Program Assistant: Vertically Integrated Projects (VIP), University of Hawaii, 2020
- Organizer: Vertically Integrated Project (VIP) Exhibition, University of Hawaii, 2018-2020
- Volunteer: IEEE International Conference on Nano/Molecular Medicine and Engineering (NANOMED), 2018
- Student Affiliate: East-West Center, University of Hawaii, 2018-2020