Nur Muhammad "Mahi" Shafiullah

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Contact Information	60 Fifth Avenue, Fl. 5 New York, NY 10011	**Web:** https://mahis.life **Tel.:** +1 (617) 909 3049

Education

New York University — Sep. 2020 – Present
Courant Institute of Mathematical Sciences
Ph.D. Candidate in Computer Science
Advisor: Lerrel Pinto

Massachusetts Institute of Technology — Sep. 2015 – Aug. 2020
M.Eng. in Electrical Engineering and Computer Science — Jan. '19 – Aug. '20
Advisor: Aleksander Mądry
S.B. in Mathematics and in Computer Science — Sep. '15 – Jun. '19

Research Experience

Hello Robot Inc.; Research Consultant with Dr. Aaron Edsinger — Jan. '24 – May '24
GenAI & FAIR @ Meta AI; Visiting Scientist with Dr. Ishan Misra — Oct. '22 – Oct. '23
Embodied AI @ Meta AI; Reserach Intern with Dr. Arthur Szlam — May '22 – Sep. '22

Honors and Awards

PhD Communications Award, Amazon Robotics Research Symposium	2024
Best Paper, Lifelong Learning for Home Robots workshop @ CoRL 2024	2024
Outstanding Paper, MFM-EAI workshop @ ICML 2024	2024
Best Demo Award (Finalist), Intl. Conf. on Robotics & Automation (ICRA)	2024
Apple Scholars in AI/ML Fellowship, Apple MLR	2023–25
Two Sigma Fellowship, (Finalist, Declined)	2023
Jacob T. Schwartz Ph.D. Fellowship, NYU Courant	2023
AI Mentorship (AIM) Program, Meta & NYU	2022–23
Best Paper, Language and Robot Learning workshop @ CoRL 2022	2022
Burchard Scholars Program, MIT	2018–19
AMD Undergraduate Research and Innovation Scholarship, MIT	2017–18
Silver Medal, International Mathematical Olympiad (IMO)	2014
Bronze Medal, International Mathematical Olympiad (IMO) $\times 2$	2012–13
Natl. Team Bangladesh, International Olympiad in Informatics (IOI) $\times 2$	2012, 2015
National Champion, Bangladesh Mathematical Olympiad $\times 6$	2009–14

Research Mentoring

Current Students

Haritheja Etukuru	2023 – Now, BS @ New York University; *Grad.* '25
Omar Rayyan	2024 – Now, BS @ NYU Abu Dhabi; *Grad.* '25
Zhanqiu "Jack" Guo	2024 – Now, BS @ New York University; *Grad.* '25
Lisa Kondrich	2024 – Now, MS @ New York University; *Grad.* '26
Norihito Naka	2023 – Now, MS @ New York University; *Grad.* '25
Yibin Wang	2022 – Now, BS, MS @ New York University; *Grad.* '25

Past Students

Seungjae "Jay" Lee   2023 – 24, MS @ Seoul National University
Next Ph.D. at UMD

Peiqi Liu   2023 – 24, BS @ New York University
Next at Hello Robot Inc.

Yaswanth Orru   2023 – 24, MS @ New York University
Next at Fauna Robotics

Anant Rai   2022 – 23, MS @ New York University
Next at 1X Technologies

Yiqian "Eva" Liu   2022 – 23, BS @ New York University
Next MS at Columbia University

Zichen "Jeff" Cui   2022 – 24, MS @ New York University
Next Ph.D. at NYU GRAIL

Ariuntaya Altanzaya   2022–23, MS @ New York University
Next at Roboflow

Sridhar Pandian Arunachalam   2021–22, MS @ New York University
Next at 1X Technologies

Jyothish Pari   2020 – 21, BS @ New York University
Next Ph.D. at MIT

INVITED TALKS   **On Building General, Zero-Shot Robot Policies**

Cornell University CS 4756/5756: Robot Learning	Nov. 2024
Harvard Computational Robotics Group	Oct. 2024
MIT Embodied Intelligence Seminar	Oct. 2024
OpenAI Robotics Reading Group	Oct. 2024
CMU Manipulation Group Seminar	Sep. 2024

Behavior Generation with Latent Actions

HuggingFace LeRobot Research Talks	Aug. 2024

On Bringing Robots Home

Apple AI/ML Research	May 2024
UMich EECS 598: Action & Perception	Mar. 2024
Google Deepmind Robotics	Mar. 2024
Berkeley Robot Learning Lab	Feb. 2024
Meta Embodied AI Seminar	Jan. 2024
NYU CILVR Seminar	Dec. 2023

Robot Learning in a Post-Turing World

Honda Research, Tokyo	Jul. 2023
REAL Lab @ Columbia (now Stanford)	Nov. 2022

TUTORIALS   **Supervised Policy Learning for Real Robots**
Robotics: Science and Systems (RSS) 2024
https://supervised-robot-learning.github.io
***Shafiullah, Nur Muhammad Mahi**, Feng, Siyuan, Pinto, Lerrel & Tedrake, Russ*

TEACHING EXPERIENCE	**Graduate Deep Reinforcement Learning (CSCI-GA 3033-090)** Fall 2021

TEACHING EXPERIENCE

Graduate Deep Reinforcement Learning (CSCI-GA 3033-090) — Fall 2021
New York University
  Graduate Teaching Assistant

Introduction to Machine Learning (6.036) $\times 2$
Jointly Instructed with **Applied Machine Learning (6.862)** — Spring & Fall 2019
Massachusetts Institute of Technology
  Graduate Teaching Assistant

Principles of Discrete Applied Mathematics (18.200) — Fall 2018
Massachusetts Institute of Technology
  Teaching Assistant (Grading)

Design and Analysis of Algorithms (6.046/18.410) — Fall 2015 – Spring 2017
Massachusetts Institute of Technology
  Volunteer Student Tutor with Eta Kappa Nu (HKN) Honor Society

Combinatorics and Euclidean Geometry — 2010–15, 2022–23
Bangladesh Mathematical Olympiad National Camps
  Instructor and Deputy Leader for the National Math Team

ACADEMIC SERVICE

Workshop and Tutorial Organization
7$^{\text{th}}$ Workshop on Robot Learning @ ICLR '25 (proposed)
Tutorial on Supervised Policy Learning for Real Robots @ RSS '24
1$^{\text{st}}$ Workshop on Vision-Language Models for Navigation and Manipulation @ ICRA '24
1$^{\text{st}}$ Workshop on Learning Dexterous Manipulation @ RSS '23

Peer Reviewing
  Robotics — RSS, CoRL, RA-L, ICRA, T-RO, IROS, IJRR
  Machine Learning — ICLR, NeurIPS, ICML
  Computer Vision — T-PAMI

PRESS COVERAGE

Robot Utility Models: General Policies for Zero-Shot Deployment in New Environments
  MIT Technology Review, The Robot Report, Elektropraktiker (Germany),
IndiaAI.gov (India)

OK Robot: What Really Matters in Integrating Open-Knowledge Models for Robotics
  MIT Technology Review, Fox News, VentureBeat, TechXplore, Notebookcheck, Digital
Information World (Pakistan)
On Bringing Robots Home
  MIT Technology Review, New Scientist, TechXplore, TV Tokyo (Japan), Neue Zürcher
Zeitung (Switzerland), NDTV (India), MarkTechPost, Washington Square News

Open X-Embodiment: Robotic Learning Datasets and RT-X Models
  VentureBeat, Tech Times, Synced Review (Canada), TechForge (UK)
  Analytics India Magazine (India)

The Surprising Effectiveness of Representation Learning for Visual Imitation
  TechXplore

PREPRINTS

† *Equal Contribution,* ‡ *Equal Advising. Works Presented Reverse Chronologically.*

[1] **DynaMem: Online Dynamic Spatio-Semantic Memory for Open World Mobile Manipulation**   DOI: arXiv:2411.04999

International Conference of Robotics and Automation (ICRA) (Under Review)
Live Demo at *Conference on Robot Learning (CoRL) 2024*
Best Paper Award at *CoRL 2024 Workshop on Lifelong Learning for Home Robots*
Liu, P., Guo, Z., Warke, M., Chintala, S., Paxton, C., *Shafiullah, Nur Muhammad Mahi*‡ & Pinto, L.‡

[2] **Robot Utility Models: General Policies for Zero-Shot Deployment in New Environments**   DOI: arXiv:2409.05865

International Conference of Robotics and Automation (ICRA) (Under Review)
Live Demo at *Conference on Robot Learning (CoRL) 2024*
Oral Presentation at *CoRL 2024 Workshop on Language and Robot Learning (LangRob)*
Etukuru, H.†, Naka, N., Hu, Z., Lee, S., Mehu, J., Edsinger, A., Paxton, C., Chintala, S., Pinto, L., *Shafiullah, Nur Muhammad Mahi*†

[3] **On Bringing Robots Home**   DOI: arXiv:2311.16098

International Journal of Robotics Research (Under Review)
Live Demo at *Neural Information Processing Systems (NeurIPS) 2023*
Best Demo Award (Finalist) at *International Conference on Robotics and Automation (ICRA) 2024*
Shafiullah, Nur Muhammad Mahi†, Rai, A.†, Etukuru, H., Liu, Y., Misra, I., Chintala, S., Pinto, L.

REFEREED PUBLICATIONS

[4] **OK-Robot: What Really Matters in Integrating Open-Knowledge Models for Robotics**
Robotics: Science and Systems (RSS) 2024
Live demo at *International Conference on Robotics and Automation (ICRA) 2024*
Liu, P.†, Orru, Y.†, Vakil, J., Paxton, C., *Shafiullah, Nur Muhammad Mahi*‡ & Pinto, L.‡

[5] **Behavior Generation with Latent Actions**
Spotlight (*3.5%*) at *International Conference of Machine Learning (ICML) 2024*
Outstanding Paper Award at *Multi-modal Foundation Models for Embodied AI workshop, ICML 2024*
Lee, S., Wang, Y., Etukuru, H., Kim, H., *Shafiullah, Nur Muhammad Mahi*‡ & Pinto, L.‡

[6] **Open X-Embodiment: Robotic learning datasets and RT-x models**
Best Paper Award at *International Conference in Robotics and Automation (ICRA) 2024*
Open X-Embodiment Collaboration

[7] **CLIP-Fields: Weakly Supervised Semantic Fields for Robotic Memory**
Robotics: Science and Systems (RSS) 2023
Best Paper Award at *CoRL Workshop on Language and Robot Learning 2023*
Shafiullah, Nur Muhammad Mahi, Paxton, C., Pinto, L., Chintala, S., Szlam, A.

[8] **From Play to Policy: Conditional Behavior Generation from Uncurated Robot Data**
Oral Presentation (*5%*) at *Intl. Conference on Learning Representations (ICLR) 2023*
Cui, Zichen, Wang, Yibin, *Shafiullah, Nur Muhammad Mahi*, Pinto, Lerrel

[9] **Behavior Transformers: Cloning k Modes with One Stone**
Neural Information Processing System (NeurIPS) 2022
Shafiullah, Nur Muhammad Mahi, Cui, Zichen, Altanzaya, Ariuntaya, Pinto, Lerrel

[10] **The Surprising Effectiveness of Representation Learning for Visual Imitation**
Robotics: Science and Systems (RSS) 2022
Pari, J.[†], *Shafiullah, Nur Muhammad Mahi*[†], Arunachalam, S.P., Pinto, L.

[11] **One After Another: Learning Incremental Skills for a Changing World**
International Conference on Learning Representations (ICLR) 2022
Shafiullah, Nur Muhammad Mahi, Pinto, Lerrel

[12] **Training for Faster Adversarial Robustness Verification via Inducing ReLU Stability**
International Conference on Learning Representations (ICLR) 2019
Xiao, K. Y., Tjeng, V., *Shafiullah, Nur Muhammad Mahi*, Mądry, A.

OUTREACH, VOLUNTEERING, & SOCIAL GOOD		
Mentor, Ph.D. Application Advising, NYU GRAIL	2021–Present
Mentor, Collegiate Research Initiative, NYU	2023
Deputy Leader, Bangladesh National Math Team, IMO 2023 Japan	2023
Consultant, Bangladesh National Data Analytics Task Force (COVID-19)	2020–22
Online Learning Transition Consultant, Brac University Bangladesh	2020–21
Internal Relations Chair, MIT HKN Honor Society	2019–20
MIT Global Teaching Lab, Stuttgart, Germany	2018
Editor (Photography), THE TECH, MIT's Student Newspaper	2017-19
MIT Peer Mentoring Program	2017–18
Co-president, MIT Bangladeshi Students Association	2016-18
Co-president, MIT International Students Association	2016-17
Volunteer Tutor, MIT HKN Honor Society	2015–17
Mentor, Bangladesh Olympiad in Informatics	2014–2015
Mentor, Bangladesh Mathematical Olympiad	2010–2015

REFERENCES

1. **Lerrel Pinto**, *Assistant Professor of CS, NYU Courant.* lerrel@cs.nyu.edu

2. **Russ Tedrake**, *Professor of EECS, Aero/Astro, MechE, MIT.* russt@mit.edu

3. **Abhinav Gupta**, *Professor, CMU Robotics Institute.* abhinavg@cs.cmu.edu

4. **Rob Fergus**, *Professor of CS, NYU Courant.* fergus@cs.nyu.edu

5. **Charles C. Kemp**, *Cofounder & Chief Technology Officer, Hello Robot Inc. Previously Associate Professor, Georgia Institute of Technology.* ck@hello-robot.com