

Matthew Wallingford

Allen Institute for AI (AI2)
3800 Latona Ave NE Suite 300
Seattle, WA 98105

mchw244@cs.washington.edu
<https://mattwallingford.github.io/>
Google Scholar

EDUCATION

University of Washington, Seattle

2019 - 2025

PhD student in Computer Science and Engineering advised by Prof. Ali Farhadi

Cornell University

2013 - 2019

Master of Science in Computer Science, advised by Prof. Bharath Hariharan

Bachelor of Arts in Mathematics, minor in Computer Science and Physics

WORK EXPERIENCE

Allen Institute for Artificial Intelligence - AI2

2025-Present

Research Scientist

Manager: Ranjay Krishna

Working on large-scale vision-language-action model training and robotic data creation.

Allen Institute for Artificial Intelligence - AI2

2021-2024

Student Researcher

Advisors: Aniruddha Kembhavi, Roozbeh Mottaghi

Long-term research collaboration with Allen Institute working on research at the intersection of 3D computer vision and embodied agents.

AWS AI Lab

June - August, 2021

Research Intern

Advisors: Avinash Ravichandran & Charles Fowlkes

Developed a method (Task Adaptive Parameter Sharing - CVPR '22) for efficiently fine-tuning and serving models on cloud.

Microsoft

May - August, 2018

Software Engineering Intern

Developed and deployed an anomaly detection system for user login data to detect system failures and security breaches on Azure Identity.

PUBLICATIONS

Preprints

* - equal contribution, † - core contributor

1. MolmoBot: Large-Scale Simulation Enables Zero-Shot Manipulation.

Abhay Deshpande*, Maya Guru*, Rose Hendrix*, Snehal Jauhri*, Ainaz Eftekhari†, Rohun Tripathi†, Max Argus†, Jordi Salvador†, Haoquan Fang†, **Matthew Wallingford**†, Wilbert Pumacay†, Yejin Kim†, Quinn Pfeifer, Ying-Chun Lee, Piper Wolters, Omar Rayyan, Mingtong Zhang, Jiafei Duan, Karen Farley, Winson Han, Eli Vanderbilt, Dieter Fox, Ali Farhadi, Georgia Chalvatzaki, Dhruv Shah†, Ranjay Krishna†.

Technical Report, 2026. † core contributor

Conference Publications

13. Beyond the Frame: Generating 360° Panoramic Videos from Perspective Videos.

Rundong Luo, **Matthew Wallingford**, Ali Farhadi, Noah Snavely, Wei-Chiu Ma.

International Conference on Computer Vision, ICCV 2025.

12. From an Image to a Scene: Learning to Imagine the World from a Million 360° Videos.

Matthew Wallingford, Anand Bhattad, Aditya Kusupati, Vivek Ramanujan, Matt Deitke, Sham Kakade, Aniruddha Kembhavi, Roozbeh Mottaghi, Wei-Chiu Ma, Ali Farhadi.

Neural Information Processing Systems, NeurIPS 2024.

11. Multilingual Diversity Improves Vision-Language Representations

Thao Nguyen, **Matthew Wallingford**, Sebastin Santy, Wei-Chiu Ma, Sewoong Oh, Ludwig Schmidt, Pang Wei Koh, Ranjay Krishna.

Neural Information Processing Systems, NeurIPS 2024.

10. **The Unmet Promise of Synthetic Training Images: Using Retrieved Real Images Performs Better**
Scott Geng, Cheng-Yu Hsieh, Vivek Ramanujan, **Matthew Wallingford**, Chun-Liang Li, Pang Wei Koh, Ranjay Krishna.
Neural Information Processing Systems, NeurIPS 2024.
9. **Superposed Decoding: Multiple Generations from a Single Autoregressive Inference Pass**
Ethan Shen, Alan Fan, Sarah M. Pratt, Jae Sung Park, **Matthew Wallingford**, Sham M. Kakade, Ari Holtzman, Ranjay Krishna, Ali Farhadi, Aditya Kusupati.
Neural Information Processing Systems NeurIPS 2024.
8. **Neural Priming for Sample-Efficient Adaptation.**
Matthew Wallingford*, Vivek Ramanujan*, Alex Fang, Aditya Kusupati, Roozbeh Mottaghi, Aniruddha Kembhavi, Ludwig Schmidt, Ali Farhadi.
Neural Information Processing Systems (NeurIPS), 2023.
7. **Objaverse-XL: A Universe of 10M+ 3D Objects.**
Matt Deitke, Ruoshi Liu, **Matthew Wallingford**, Huong Ngo, Oscar Michel, Aditya Kusupati, Alan Fan, Christian Laforte, Vikram Voleti, Samir Yitzhak Gadre, Eli VanderBilt, Aniruddha Kembhavi, Carl Vondrick, Georgia Gkioxari, Kiana Ehsani, Ludwig Schmidt, Ali Farhadi.
Neural Information Processing Systems (NeurIPS), Datasets and Benchmarks, 2023.
6. **Neural Radiance Field Codebooks.**
Matthew Wallingford, Aditya Kusupati, Alex Fang, Vivek Ramanujan, Aniruddha Kembhavi, Roozbeh Mottaghi, Ali Farhadi.
International Conference on Learning Representations (ICLR), 2023
5. **FLUID: A Unified Evaluation Framework for Flexible Sequential Data.**
Matthew Wallingford, Aditya Kusupati, Keivan Alizadeh-Vahid, Aaron Walsman, Aniruddha Kembhavi, Ali Farhadi.
Transactions on Machine Learning Research (TMLR), 2023.
4. **Matryoshka Representation Learning.**
Aditya Kusupati, Gantavya Bhatt, Aniket Rege, **Matthew Wallingford**, Aditya Sinha, Vivek Ramanujan, William Howard-Snyder, Kaifeng Chen, Sham Kakade, Prateek Jain, Ali Farhadi.
Neural Information Processing Systems (NeurIPS), 2022.
3. **Task Adaptive Parameter Sharing for Multi-Task Learning.**
Matthew Wallingford, Hao Li, Alessandro Achille, Avinash Ravichandran, Charless Fowlkes, Rahul Bhotika, Stefano Soatto.
Conference on Computer Vision and Pattern (CVPR), 2022.
2. **LLC: Accurate, Multi-purpose Learnt Low-dimensional Binary Codes.**
Aditya Kusupati, **Matthew Wallingford**, Vivek Ramanujan, Raghav Somani, Jae Sung Park, Krishna Pillutla, Prateek Jain, Sham Kakade, Ali Farhadi.
Neural Information Processing Systems (NeurIPS), 2021.
1. **RoboTHOR: An Open Simulation-to-Real Embodied AI Platform.**
Matt Deitke, Winson Han, Alvaro Herrasti, Aniruddha Kembhavi, Eric Kolve, Roozbeh Mottaghi, Jordi Salvador, Dustin Schwenk, Eli VanderBilt, **Matthew Wallingford**, Luca Weihs, Mark Yatskar, Ali Farhadi.
Conference on Computer Vision and Pattern(CVPR), 2020.

TALKS

- **Towards 3D Foundation Models**

- Google DeepMind *April. 2025*
- Snapchat Research *April. 2025*
- Niantic Research *Jan. 2025*
- Wild-3D Workshop (ECCV 2024) *Sept. 2024*

- **Structured Representations for Embodied Agents**

- UIUC Computer Vision Seminar *May 2023*
- UW Graphics Seminar *July 2023*
- Workshop on Neural Fields (ICLR 2023) *June 2023*

- **Continually Learning from Data**

– Google Brain

March 2020

– University of Washington CSE Colloquium

March 2020

SERVICE

• **Reviewer** - NeurIPS (Top reviewer '23), ICLR, CVPR, ICCV

2019-2026

• **Mentorship**

– Andy Ye

BS Student (UW)

2025-Present

– Ethan Shen

BS Student (UW) → PhD (UW)

2024-2025

– Andre Ye

BS Student (UW) → PhD (MIT)

2024