

Matthew Wallingford

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EDUCATION

University of Washington, Seattle

2019 - present

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

PUBLICATIONS

Preprints

* - equal contribution

3. **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.
*Under Review, **NeurIPS** 2024.*
2. **Multilingual Diversity Improves Vision-Language Representations**
Thao Nguyen, **Matthew Wallingford**, Sebastin Santy, Wei-Chiu Ma, Sewoong Oh, Ludwig Schmidt, Pang Wei Koh, Ranjay Krishna.
*Under Review, **NeurIPS** 2024.*
1. **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.
*Under Review, **NeurIPS** 2024.*

Conference Publications

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, Charles 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.

WORK EXPERIENCE

Allen Institute for Artificial Intelligence - AI2

2021-Present

Student Collaborator

Advisors: [Aniruddha Kembhavi](#), [Roozbeh Mottaghi](#) & [Ali Farhadi](#)

Long-term collaboration with Allen Institute working on challenges associated with computer vision, representation learning, and embodied agents.

AWS AI Lab

June - August, 2021

Research Intern

Advisors: [Avinash Ravichandran](#) & [Charles Fowlkes](#)

Developed method (Task Adaptive Parameter Sharing - CVPR '22) for efficiently fine-tuning and deploying models.

Microsoft

May - August, 2018

Data Science Intern

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

TALKS

• **Learning 3D Representations from Video**

– UIUC Vision Group

May 2023

– UW Graphics Group

July 2023

– Workshop on Neural Fields (ICLR 2023)

June 2023

• **Towards Real World Machine Learning**

– Google Brain - Meta Learning Group

March 2020

– University of Washington CSE Colloquium

March 2020

SERVICE

• *Reviewer* - NeurIPS (2022-Present, Top reviewer '23), ICLR (2022-Present), CVPR (2019-Present)

• *Reader (ML/AI): PhD Admissions* - *Paul G. Allen School of CSE, University of Washington*

2020-Present

• *Reader* - *Allen School PhD Pre-Application Mentorship Service (PAMS)*

2020-2022