

Education

- Aug 2017–
Aug 2022 **Ph.D. in Computer Science**, *Georgia Institute of Technology*, Atlanta, GA,
Advisors: Irfan Essa and Dhruv Batra .
Committee: Sonia Chernova, Vladlen Koltun, Vincent Vanhoucke, Gregory Wayne
Thesis: Emergence of Intelligent Navigation Behavior in Embodied Agents
from Massive-Scale Simulation.
Awards: AAAI/ACM SIGAI Doctoral Dissertation Award, Sigma Xi Best Thesis, GT CoC
Outstanding Doctoral Dissertation
- May 2017 **Bachelor of Science, Computer Engineering, Summa Cum Laude**, *Washington University in St. Louis*, St. Louis, MO.
- May 2017 **Bachelor of Science, Engineering Physics, Magna Cum Laude**, *Juniata College*, Huntingdon, PA.

Employment

- July 2022 – **Research Scientist**, *Apple*, Cupertino, CA.
Present Working with Vladlen Koltun.

Honors and Awards

- 2022 AAAI/ACM SIGAI Doctoral Dissertation Award (1 of 2 recipients)
Annual award recognizing the most outstanding doctoral dissertation in artificial intelligence.
- Outstanding Paper Award at the International Conference on Learning Representations (ICLR) 2023.
4 papers from 4900 submissions = top-0.08% of submitted papers.
- 2023 Sigma Xi Best Ph.D. Thesis Award
Awarded to 10 Ph.D. theses from Georgia Tech in 2022 (~700 2022 Ph.D. theses).
- 2023 Georgia Institute of Technology College of Computing (CoC) Outstanding Doctoral Dissertation Award
Awarded to 3 dissertations in the CoC in 2022.
- 3x Scholar Award Fellowship from the Achievement Rewards for College Scientists (ARCS) Foundation (2019,2020,2021).
Awarded to doctoral students who show exceptional promise to advance science and technology.
- 2021 Georgia Institute of Technology College of Computing (CoC) Outstanding Graduate Research Assistant Award (GRA).
Awarded to two GRA's in the CoC.

- o Best Paper Award Nominee at the International Conference on Computer Vision (ICCV), 2019.

Nominated for the Marr Prize at ICCV. 11 nominees of 4303 submissions = top-0.25%

Journal Publications

24. A. Kadian, J. Truong, A. Gokaslan, A. Clegg, **E. Wijmans**, S. Lee, M. Savva, S. Chernova and D. Batra.
Are We Making Real Progress in Simulated Environments? Measuring the Sim2Real Gap in Embodied Visual Navigation.
In *IEEE Robotics and Automation Letters (RA-L)*, 2020
<https://arxiv.org/abs/1912.06321>

Conference Publications

23. M. Cusumano-Towner[†], D. Hafner[†], A. Hertzberg[†], B. Huval[†], A. Petrenko[†], E. Vinitsky[†], **E. Wijmans**[†], T. Killian, S. Bowers, O. Sener, P. Krähenbühl, V. Koltun.
Robust Autonomy Emerges from Self-Play.
In *International Conference on Machine Learning (ICML)*, 2025
<https://arxiv.org/abs/2502.03349>
22. **E. Wijmans**, B. Huval, A. Hertzberg, V. Koltun, P. Krähenbühl.
Cut Your Losses in Large-Vocabulary Language Models.
In *International Conference on Learning Representations (ICLR)*, 2025
Oral talk, top-1.8% of 11,672 submissions
<https://arxiv.org/abs/2411.09009>
21. S. K. Ramakrishnan, **E. Wijmans**, P. Krähenbühl, V. Koltun.
Does Spatial Cognition Emerge in Frontier Models?.
In *International Conference on Learning Representations (ICLR)*, 2025
<https://arxiv.org/abs/2410.06468>
20. B. Shacklett, L. G. Rosenzweig, Z. Xie, B. Sarkar, A. Szot, **E. Wijmans**, V. Koltun, B. Batra, K. Fatahalian.
An Extensible, Data-Oriented Architecture for High-Performance, Many-World Simulation.
In *ACM Transactions on Graphics (TOG)*, 2023
https://drive.google.com/file/d/1wn4VekbZ5A-TTGKMweN8HV9_IyJqd3dM/view
19. **E. Wijmans**, M. Savva, I. Essa, S. Lee, A. Morcos, and D. Batra.
Emergence of Maps in the Memories of Blind Navigation Agents.
In *International Conference on Learning Representations (ICLR)*, 2023
Outstanding Paper Award, top-0.08% of 4900 submissions
<https://arxiv.org/abs/2301.13261>

18. **E. Wijmans**, I. Essa, D. Batra.
VER: Scaling On-Policy RL Leads to Emergence of Navigation in Embodied Rearrangement.
In *Neural Information Processing Systems (NeurIPS)*, 2022
<https://arxiv.org/abs/2210.05064>
17. R. Partsey, **E. Wijmans**, N. Yokoyama, O. Dobosevych, D. Batra, O. Maksymets.
Is Mapping Necessary for Realistic PointGoal Navigation?.
In *Computer Vision and Pattern Recognition (CVPR)*, 2022
<https://arxiv.org/abs/2206.00997>
16. **E. Wijmans**, I. Essa, and D. Batra.
How to Train PointGoal Navigation Agents on a (Compute and Sample) Budget.
In *International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2022
<https://arxiv.org/abs/2012.06117>
15. S. K. Ramakrishnan, A. Gokaslan, **E. Wijmans**, O. Maksymets, A. Clegg, J. Turner, E. Undersander, W. Galuba, A. Westbury, A. X. Chang, M. Savva, Y. Zhao, D. Batra.
Habitat-Matterport 3D Dataset (HM3D): 1000 Large-scale 3D Environments for Embodied AI.
In *Neural Information Processing Systems Track on Datasets and Benchmarks*, 2021
<https://arxiv.org/abs/2109.08238>
14. A. Szot, A. Clegg, E. Undersander, **E. Wijmans**, Y. Zhao, J. Turner, N. Maestre, M. Mukadam, D. Chaplot, O. Maksymets, A. Gokaslan, V. Vondrus, S. Dharur, F. Meier, W. Galuba, A. Chang, Z. Kira, V. Koltun, J. Malik, M. Savva, D. Batra.
Habitat 2.0: Training Home Assistants to Rearrange their Habitat.
In *Neural Information Processing Systems (NeurIPS)*, 2021
Spotlight, top 3% of 9122 submissions.
<https://arxiv.org/abs/2106.14405>
13. J. Ye, D. Batra, A. Das, **E. Wijmans**.
Auxiliary Tasks and Exploration Enable ObjectNav.
In *International Conference on Computer Vision (ICCV)*, 2021
<https://arxiv.org/abs/2104.04112>
12. O. Maksymets, V. Cartillier, A. Gokaslan, **E. Wijmans**, W. Galuba, S. Lee, D. Batra.
THDA: Treasure Hunt Data Augmentation for Semantic Navigation.
In *International Conference on Computer Vision (ICCV)*, 2021
11. A. Petrenko, **E. Wijmans**, B. Shacklett and V. Koltun.
Megaverse: Simulating Embodied Agents at One Million Experiences per Second.
In *International Conference on Machine Learning (ICML)*, 2021
<http://vladlen.info/papers/megaverse.pdf>

10. B. Shacklett, **E. Wijmans**, A. Petrenko, M. Savva, V. Koltun, D. Batra, K. Fatahian.
Large Batch Simulation for Deep Reinforcement Learning.
In *International Conference on Learning Representations (ICLR)*, 2021
<https://arxiv.org/abs/2103.07013>
9. J. Ye, D. Batra, **E. Wijmans**[†], and A. Das[†].
Auxiliary Tasks Speed Up Learning PointGoal Navigation.
In *Conference on Robot Learning (CoRL)*, 2020
<https://arxiv.org/abs/2007.04561>
8. J. Krantz, **E. Wijmans**, A. Majumdar, D. Batra, and S. Lee.
Beyond the Nav-Graph: Vision-and-Language Navigation in Continuous Environments.
In *European Conference on Computer Vision (ECCV)*, 2020
<https://arxiv.org/abs/2004.02857>
7. M. Narasimhan, **E. Wijmans**, X. Chen, T. Darrell, D. Batra, D. Parikh, and A. Singh.
Seeing the Un-Scene: Learning Amodal Semantic Belief Maps for Room Navigation.
In *European Conference on Computer Vision (ECCV)*, 2020
<https://arxiv.org/abs/2007.09841>
6. A. Kadian, J. Truong, A. Gokaslan, A. Clegg, **E. Wijmans**, S. Lee, M. Savva, S. Chernova and D. Batra.
Are We Making Real Progress in Simulated Environments? Measuring the Sim2Real Gap in Embodied Visual Navigation.
In *International Conference on Intelligent Robots and Systems (IROS)*, 2020
<https://arxiv.org/abs/1912.06321>
5. **E. Wijmans**, A. Kadian, A. Morcos, S. Lee, I. Essa, D. Parikh, M. Savva, and D. Batra.
DD-PPO: Learning Near-Perfect PointGoal Navigators from 2.5 Billion Frames.
In *International Conference on Learning Representations (ICLR)*, 2020
<https://arxiv.org/abs/1911.00357>
4. M. Savva[†], A. Kadian[†], O. Maksymets[†], Y. Zhao, **E. Wijmans**, B. Jain, J. Straub, J. Liu, V. Koltun, J. Malik, D. Parikh, and D. Batra.
Habitat: A Platform for Embodied AI Research.
In *International Conference on Computer Vision (ICCV)*, 2019
Oral Talk, top 187 of 4303 submissions = top-4.3%
Best Paper Award Nominee, top 11 of 4303 submissions = top-0.25%
<https://arxiv.org/abs/1904.01201>
3. **E. Wijmans**[†], S. Datta[†], O. Maksymets[†], A. Das, G. Gkioxari, S. Lee, I. Essa, D. Parikh, and D. Batra.

Embodied Question Answering in Photorealistic Environments with Point Cloud Perception.

In *Computer Vision and Pattern Recognition (CVPR)*, 2019

Oral Talk, top 288 of 5160 submissions = top-5.5%

<https://arxiv.org/abs/1904.03461>

2. **E. Wijmans** and Y. Furukawa.
Exploiting 2D Floorplan for Building-Scale Panorama RGB-D Alignment.
In *Computer Vision and Pattern Recognition (CVPR)*, 2017
<https://arxiv.org/abs/1612.02859>
1. Y. Cao, S. Li, and **E. Wijmans**.
(Cross-)Browser Fingerprinting via OS and Hardware Level Features.
In *Network and Distributed System Security Symposium (NDSS)*, 2017
https://yinzhicao.org/TrackingFree/crossbrowsertracking_NDSS17.pdf

Workshop Publications and Tech Reports

4. G. Grande, D. Batra, **E. Wijmans**.
Realistic PointGoal Navigation via Auxiliary Losses and Information Bottleneck.
In *arXiv*, 2021
<https://arxiv.org/abs/2109.08677>
3. D. Batra and A. Gokaslan and A. Kembhavi and O. Maksymets and R. Mottaghi and M. Savva and A. Toshev and **E. Wijmans**.
ObjectNav Revisited: On Evaluation of Embodied Agents Navigating to Objects.
In *arXiv*, 2020
<https://arxiv.org/abs/2006.13171>
2. **E. Wijmans**, J. Straub, D. Batra, I. Essa, J. Hoffman, A. Morcos.
Analyzing Visual Representations in Embodied Navigation Tasks.
In *ICLR 2019 Workshop on Task Agnostic Reinforcement Learning and arXiv*, 2020
<https://arxiv.org/abs/2003.05993>
1. J. Straub, T. Whelan, L. Ma, Y. Chen, **E. Wijmans**, S. Green, J. J. Engel, R. Mur-Artal, C. Ren, S. Verma, A. Clarkson, M. Yan, B. Budge, Y. Yan, X. Pan, J. Yon, Y. Zou, K. Leon, N. Carter, J. Briales, T. Gillingham, E. Mueggler, L. Pesqueira, M. Savva, D. Batra, H. M. Strasdat, R. D. Nardi, M. Goesele, S. Lovegrove, and R. Newcombe.
The Replica Dataset: A Digital Replica of Indoor Spaces.
In *arXiv*, 2019
<https://arxiv.org/abs/1906.05797>

Internships and Part-Time

- Aug. 2020 – **Visiting Scientist**, *Meta FAIR*, Menlo Park, CA.
May 2022
- May–Aug. 2020 **Research Intern, Intelligent Systems**, *Intel*, Santa Clara, CA.
Host: Vladlen Koltun
- Aug. 2019 – **Visiting Scientist**, *Facebook AI Research*, Menlo Park, CA.
May 2020
- May–Aug. 2019 **Research Intern**, *Facebook AI Research*, Menlo Park, CA.
Host: Manolis Savva
- Examine what agents learn when they learn to navigate (lead to Publication #19).
- Aug. 2018 – **Research Scientist (Contractor)**, *Facebook Reality Labs*, Redmond, WA.
May 2019
- May–Aug. 2018 **Research Intern**, *Facebook Reality Labs*, Redmond, WA.
Host: Julian Straub
- Worked on the first steps towards the Replica Dataset and AI Habitat.
- May–Aug. 2016 **NSF REU Fellow**, *Lehigh University*, Bethlehem, PA.
Mentored by Yinzhi Cao (now at Johns Hopkins University).
- May–Aug. 2015 **NSF REU Fellow**, *Washington University in St. Louis*, St. Louis, MO.
Mentored by Yasutaka Furukawa (now at Simon Fraser University).

Posters and Invited Talks

- Oct. 2021 **Invited Talk**, *Georgia Tech RoboGrads Seminar*, Atlanta, GA.
Emergence of Intelligent Behavior in Embodied AI Agents from Massive Scale Simulation
- Sept. 2021 **Invited Talk**, *UCL Dark*, Virtual.
Emergence of Intelligent Behavior in Embodied AI Agents from Massive Scale Simulation
- April 2021 **Invited Talk**, *Georgia Tech RoboGrads Seminar*, Atlanta, GA.
Training Virtual Robots in Realistic Simulators

Mentorship

- Fall 2019 – **Joel Ye**, *GT MS* → *CMU PhD Student*.
Spring 2021 Publications: #9 (CoRL' 20), #13 (ICCV'21)
- Fall 2019 – **Guillermo Grande**, *GT MS* → *Microsoft*.
Spring 2021 Tech Reports: #4

Professional Activities

- Lead Organizer for AI Habitat Tutorial, ECCV 2020
- Lead Organizer for Embodied AI Workshop, CVPR 2020, 2021
- Organizer for Visually Grounded Interaction and Language Workshop, 2018-21
- Organizer for Habitat: Embodied AI Challenge & Workshop, CVPR 2019

- Reviewer for NeurIPS, CVPR, ECCV, ICLR, and RA-L
- Area chair for NeurIPS 2023, 2025, and ICLR 2026
- Outstanding Reviewer, Computer Vision and Pattern Recognition Conference (CVPR) 2021

Teaching

- Guest Lecture on Embodied AI, Deep Reinforcement Learning for Intelligent Control, Spring 2022
- Guest Lecture on Neural Architecture Search, Deep Learning, Fall 2021
- Guest Lecture on Neural Architecture Search, Deep Learning, Fall 2020
- Guest Lecture on Embodied AI, Deep Learning, Fall 2019
- Teaching Assistant, Deep Learning, Fall 2018
- Teaching Assistant, Machine Learning, Fall 2017
- Teaching Assistant, Introduction to Systems Software, Spring 2016 – Spring 2017