Erik Wijmans

Education

Aug 2017– Present **Ph.D. in Computer Science**, *Georgia Institute of Technology*, Atlanta, GA, Advisors: Irfan Essa and Dhruv Batra.

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.

Honors and Awards

- 2020-21 Scholar Award Fellowship from the Achievement Rewards for College Scientists (ARCS) Foundation.
  Awarded to doctoral students who show exceptional promise to advance science and technology. ($8,000)

- Best Paper Award Nominee at the International Conference on Computer Vision (ICCV), 2019.
  Nominated for the Marr Prize at ICCV, which is awarded to the best paper appearing at ICCV. 11 nominees of 4303 submissions = top-0.25%

- 2019-20 Scholar Award Fellowship from the Achievement Rewards for College Scientists (ARCS) Foundation.
  Awarded to doctoral students who show exceptional promise to advance science and technology. ($8,500)

- Washington University in St. Louis Department of Computer Science and Engineering Outstanding Junior Award.
  Awarded to students who demonstrate academic and research excellence. (3 awards for ~100 eligible juniors)

- Harold P. Brown Engineering Fellowship.
  Award to 3-2 engineering students who demonstrate academic excellence and substantial community service. (2 awards for ~100 applicants)

Journal Publications

15. 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

14. B. Shacklett, **E. Wijmans**, A. Petrenko, M. Savva, V. Kolutn, D. Batra, K. Fata-halian.
    Large Batch Simulation for Deep Reinforcement Learning.
    In *International Conference on Learning Representations (ICLR)* , 2021
    https://arxiv.org/abs/2103.07013

13. 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

12. 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

11. 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

10. 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

9. **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

8. 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`

7. **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`

6. **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`

5. Y. Cao, S. Li, and **E. Wijmans**.
(Cross-)Browswer 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. **E. Wijmans**, I. Essa, and D. Batra.
How to Train PointGoal Navigation Agents on a (Compute and Sample) Budget.
In *arXiv*, 2020
`https://arxiv.org/abs/2012.06117`

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

May–Aug. **Research Intern, Intelligent Systems**, *Intel*, Santa Clara, CA.
2020 Host: Vladlen Koltun

May–Aug. **Research Intern**, *Facebook AI Research*, Menlo Park, CA.
2019 Host: Manolis Savva
- Studying what agents learn when they solve a large-scale AI task

May–Aug. **Research Intern**, *Facebook Reality Labs*, Redmond, WA.
2018 Host: Julian Straub
- Worked on the first steps towards the Replica Dataset and AI Habitat.

May–Aug. **NSF REU Fellow**, *Lehigh University*, Bethlehem, PA.
2016 Mentored by Yinzhi Cao (now at Johns Hopkins University).

May–Aug. **NSF REU Fellow**, *Washington University in St. Louis*, St. Louis, MO.
2015 Mentored by Yasutaka Furukawa (now at Simon Fraser University).

Posters and Invited Talks

2020 **Poster and Invited Talk**, *ICLR 2020*, Virtual, Anywhere on Earth.
For DD-PPO: Learning Near-Perfect PointGoal Navigators from 2.5 Billion Frames

2019 **Poster and Invited Talk**, *CVPR 2019*, Long Beach, CA.
For Embodied Question Answering in Photorealistic Environments with Point Cloud Perception

2019 **Invited Talk**, *Habitat Embodied Agents Workshop, 2019*, Long Beach, CA.
About my top entry to the Habitat-Challenge leader-board

2017 **Poster**, *CVPR 2017*, Honolulu, Hawaii.
For Exploiting 2D Floorplan for Building-scale Panorama RGBD Alignment

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, 2019, 2020

- Organizer for Habitat: Embodied AI Challenge & Workshop, CVPR 2019

- Reviewer for NeurIPS 2019-20, CVPR2020-21, ECCV2020, ICLR2021, and RA-L

Teaching

- 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