Erik Wijmans

Education

Aug 2017–Present **Ph.D. in Computer Science (2nd year student)**, *Georgia Institute of Technology*, Atlanta, GA, Advisers: 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.

Publications

Erik Wijmans[†], Samyak Datta[†], Oleksandr Maksymets[†], Abhishek Das, Georgia Gkioxari, Stefan Lee, Irfan Essa, Dhruv Batra, and Devi Parikh. Embodied question answering in photorealistic environments with point cloud perception. *CVPR*, 2019. **(Oral)**.

Erik Wijmans and Yasutaka Furukawa. Exploiting 2D floorplan for building-scale panorama rgbd alignment. *CVPR*, 2017.

Yinzhi Cao, Song Li, and Erik Wijmans. (Cross-)browser fingerprinting via os and hardware level features. *NDSS*, 2017.

Research

Dec 2018 – Present **AI Habitat**, *Georgia Tech*, Atlanta, GA.
Working with collaborators at FAIR, FRL, Intel, SFU, and Berkeley to develop a software suite for training embodied agents: `aihabitat.org`

- Studying sim2sim transfer
- Studying what agents learn when trained with massively distributed reinforcement learning

May 2018 – Present **Research Intern at FRL and FAIR**, *Facebook Reality Labs*, Redmond, WA.
Working with Julian Straub (FRL) and Dhruv Batra (FAIR)

- Studying the task dependence of visual representations learned for various embodied tasks in simulated environments

Dec 2017 – Nov 2018 **Embodied Question Answering in Photorealistic Environments with Point Cloud Perception**, *Georgia Tech*, Atlanta, GA.
Instantiated the task of EmbodiedQA in the Matterport3D environment and analyzed navigation models with different input modalities

- Performed and exhaustive ablation study of point cloud vs. RGB perception for the task of EmbodiedQA
- Developed a novel optimization objective for imitation learning
- Developed and analyzed several naive baselines that perform surprisingly in the evaluation procedure proposed in Das *et al*.

etw@gatech.edu

Aug 2015 – Nov 2016 **Exploiting 2D Floorplan for Building-scale Panorama RGBD Alignment**, *Washington University in St. Louis*, St. Louis, MO.

Worked with Prof. Yasutaka Furukawa to design a new method for RGBD panorama rectification

- Developed an algorithm that extracts floor plan information and dominant directions from a 3D point cloud
- Aligned with the ground truth floor plan by comparing gray-scale images and generated candidate placements using a novel image matching algorithm
- Selected a final placement for each point cloud by examining how consistent placements are with one another
- Project site: cvpr17.wijmans.xyz

May–Aug 2016 **(Cross-)Browser Fingerprinting via OS and Hardware Level Features**, *Lehigh University*, Bethlehem, PA.

Worked with Prof. Yinzhi Cao and Mr. Song Li to develop a new way to uniquely identify computers (machine fingerprinting)

- Created the first fingerprint to successfully utilize hardware and OS level features
- Nearly 100% unique fingerprint for single browsers
- Created a website that collects data and sends it to a server for analysis
- Created tools to analyze data and calculate the entropy of machine fingerprints
- Fingerprint collection demonstration: uniquemachine.org

Honors and Awards

- Washington University in St. Louis Department of Computer Science and Engineering Outstanding Junior Award (3 awards for ∼100 eligible juniors)
- Harold P. Brown Engineering Fellowship (2 awards for ∼100 applicants)
- William E. and Florence Schmidt Memorial Scholarship
- Calvert Ellis Scholarship
- Member of Sigma Pi Sigma (National Physics Honor Society)

Posters and Presentations

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