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Ethan Weber

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EDUCATION

University of California, Berkeley — Berkeley, CA
PhD Student in Computer Science — *Aug 2021 – Present*

Massachusetts Institute of Technology (MIT) — Cambridge, MA
M.Eng in Electrical Engineering and Computer Science — *Feb 2020 – May 2021*
BS in Electrical Engineering and Computer Science | **GPA:** 4.8/5.0 — *Sep 2016 – May 2020*
Relevant Coursework: Computer Vision, Machine Learning, Robotics, Perf. Eng., Algorithms

New Holstein High School: — New Holstein, WI
GPA: 4.0/4.0 | **Rank:** 1/90 — *Sep 2012 – May 2016*

PUBLICATIONS

Ethan Weber, Aleksander Hołyński, Varun Jampani, Saurabh Saxena, Noah Snavely, Abhishek Kar, and Angjoo Kanazawa. "NeRFiller: Completing Scenes via Generative 3D Inpainting." In arXiv, 2023 | Project Page | Paper | Code

Frederik Warburg*, **Ethan Weber***, Matthew Tancik, Aleksander Hołyński, and Angjoo Kanazawa. "Nerfbusters: Removing Ghostly Artifacts from Casually Captured NeRFs." In International Conference on Computer Vision (ICCV), 2023 | Project Page | Paper | Code

Matthew Tancik*, **Ethan Weber***, Evonne Ng*, Ruilong Li, Brent Yi, Justin Kerr, Terrance Wang, Alexander Kristoffersen, Jake Austin, Kamyar Salahi, Abhik Ahuja, David McAllister, and Angjoo Kanazawa. "Nerfstudio: A Framework for Neural Radiance Field Development." In Special Interest Group on Computer Graphics and Interactive Techniques (SIGGRAPH), 2023 | Project Page | Paper | Code

Georgios Pavlakos*, **Ethan Weber***, Matthew Tancik, and Angjoo Kanazawa. "The One Where They Reconstructed 3D Humans and Environments in TV Shows." In European Conference on Computer Vision (ECCV), 2022. | Project Page | Paper | Code

Vongani H. Maluleke, Neerja Thakkar, Tim Brooks, **Ethan Weber**, Trevor Darrell, Alexei A. Efros, Angjoo Kanazawa, Devin Guillory. "Studying Bias in GANs through the Lens of Race." In European Conference on Computer Vision (ECCV), 2022. | Project Page | Paper | Code

Ethan Weber, Dim P. Papadopoulos, Agata Lapedriza, Ferda Ofli, Muhammad Imran, and Antonio Torralba. "Incidents1M: a large-scale dataset of images with natural disasters, damage, and incidents." In IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2022. | Project Page | Paper | Code

Ethan Weber. "Detecting incidents, accelerating dataset annotation, and estimating depth with multi-view invariants." MEng Thesis, 2021. | Thesis Page

Dim P. Papadopoulos*, **Ethan Weber***, and Antonio Torralba. "Scaling up instance annotation via label propagation." In International Conference on Computer Vision (ICCV), 2021. | Project Page | Paper | Code

Ethan Weber, Nuria Marzo, Dim P. Papadopoulos, Aritro Biswas, Agata Lapedriza, Ferda Ofli, Muhammad Imran, and Antonio Torralba. "Detecting natural disasters, damage, and incidents in the wild." In European Conference on Computer Vision (ECCV), 2020. | Project Page | Paper | Code

Ethan Weber and Hassan Kane. "Building Disaster Damage Assessment in Satellite Imagery with Multi-Temporal Fusion." In AI For Earth Sciences Workshop at ICLR, 2020. | Presentation | Paper | Code

EMPLOYMENT

3D Reconstruction at Google — Mountain View, CA
Research Intern at Google AR — *May 2023 – Nov 2023*

- Researching 3D reconstruction NeRF methods at Google.

Research at BAIR — Berkeley, CA
PhD Student advised by Professor Angjoo Kanazawa — *May 2021 – Present*

- Researching 3D computer vision with Professor Angjoo Kanazwa.

Research at the MIT CSAIL — Cambridge, MA
Master's Student in the Torralba Lab (w/ Prof. Antonio Torralba) — *Sep 2019 – May 2021*

- Published first-author paper to ECCV 2020 on detecting natural disasters in imagery.
- Working on three projects: (1) depth prediction with multi-view invariant constraints, (2) efficient instance segmentation dataset creation, and (3) damage assessment of imagery using a latent space.
- Submitted a co-first-author paper for (2).
- Mentoring two students for projects (1) and (3).

Undergraduate Researcher in the Robot Locomotion Group (w/ Prof. Russ Tedrake) — *Sep 2017 – May 2019*

- Created a pipeline for self-supervised instance segmentation and automatic sparse keypoint discovery for robotic manipulation. | Project Page | Code
- Worked with NASA's humanoid robot, Valkyrie and Atlas for motion planning and fall recovery. Implemented algorithms in and out of simulation. Used Drake and collaborated with Toyota Research Institute.

Undergraduate Researcher in the Model-Based Embedded and Robotics Systems Group (w/ Prof. Brian Williams) — *Sep 2016 – Jun 2017*

- Worked on using a land rover and a quadcopter in cooperation to navigate an area and perform tasks autonomously.

Dense Reconstruction for Augmented Reality — Sunnyvale, CA
Computer Vision Software Engineering Intern at Niantic — *May 2019 – Aug 2019*

- Created dense reconstruction software for real-time augmented reality applications.

Art Recommendations with the Microsoft HoloLens — Cambridge, MA
Deep Learning Intern at Microsoft — *Jan 2019 – Feb 2019*

- Wrote an augmented reality application for the Microsoft HoloLens to recommend art with computer vision in The Metropolitan Museum of Art. | Code

Subject Tracking for Autonomous Quadcopters — Redwood City, CA
Deep Learning Intern at Skydio — *Jun 2018 – Aug 2018*

- Created and evaluated convolutional recurrent neural networks for trajectory prediction using images for semantic scene understanding.

Deep Learning and Computer Vision — Palo Alto, CA
Deep Learning Intern at The Markov Corporation — *Jan 2018 – Feb 2018*

- Worked on deep learning for stereo vision with computer vision algorithms in OpenCV and CNNs in Keras and TensorFlow.

Autonomous Vehicle Software Development for Volvo Cars — Detroit, MI
Summer Intern at Zenuity (Volvo / Autoliv) — *Jun 2017 – Aug 2017*

- Implemented computer vision algorithms, tests, and created software for autonomous valet parking.

LEADERSHIP & MENTORSHIP

Summer STEM Institute (SSI) Virtual
Research Mentor *Jul 2020 – Aug 2020*

- Taught two high school students computer vision by mentoring on projects. One student's paper titled "Interpretability in Deep Learning Models Used to Classify Building Damage in Satellite Imagery" was top ten in SSI and later accepted to a NeurIPS 2020 workshop on climate change.

TechX Cambridge, MA
SpecialX Director *Mar 2018 – May 2019*

- Organized VC and startup events, tech talks, an AR/VR demo day, and experimented with new ways to improve MIT's campus through tech.
- Organized recurring events called "Conversations" to connect like-minded students on campus over free meals.

PROJECTS, AWARDS, AND HONORS

Atenta: Correcting Posture with Webcams *Mar 2018 – Present*

- Built an application to detect and correct posture with laptop webcams. | Blog Post

Building Damage Assessment Competition Award Winner *Spring 2020*

- Placed 8th overall and received a monetary prize in the DIU (Defense Innovation Unit) satellite imagery competition xView2 to reduce the time needed for emergency response. More than 3500 people joined the competition and over 2000 models were submitted.
- Presentation at the AI for Earth Sciences ICLR 2020 workshop. | Presentation | Paper | Code

Interact Fellow *Spring 2020*

- Selected as one of 50 new Fellows to join Interact--a community to spur thoughtful conversations, entrepreneurial ventures, and intentional impact to make the world better.

Top SuperUROP Poster Prize *Spring 2019*

- Selected as one of 20 students for a top poster in a showcase with 100+ students. My poster was on the robotics perception project with Prof. Russ Tedrake.

Hackathon Award - "Best Travel Hack" *Fall 2017*

- Received the "Best Travel Hack", sponsored by Concur, and the "Best Use of Amadeus APIs", sponsored by Amadeus, at HackMIT.

Hackathon Award - "Best Overall Use of Microsoft Technology" *Fall 2015*

- Microsoft awarded us with "Best Overall Use of Microsoft Technology" at the University of Michigan's 36-hour hackathon (MHacks 6).

FIRST Robotics Dean's List Finalist *Spring 2015*

- Recognized as one of two high school students among the 60 teams at the Wisconsin FIRST Robotics Competition. The award is given to "great examples of leaders who have led their teams and communities to increased awareness for FIRST and its mission. These students have also achieved personal technical expertise and accomplishment."

MEDIA COVERAGE

MIT CSAIL Alliances Student Spotlight | Link *Fall 2020*
MIT CSAIL News Article "Detecting and responding to incidents with images" | Link *Summer 2020*

OTHER

Skills: Python, PyTorch, TensorFlow, Keras, C++, C, Java, JavaScript, HTML, CSS, C#, Linux, Hardware, CAD
Activities: TechX, Jump Rope Club Co-founder, Camp Kesem, AI at MIT, Contracting, CSAIL Research, Zeta Psi Fraternity, Interact Fellow