Office:
3800 E Stevens Way NE,
Room 284, Seattle, WA 98195

Jingwei Ma

Website: jingweim.github.io

Mobile & Email:
+1-206-765-9391
jingweim@cs.washington.edu

EDUCATION

University of Washington — Seattle, WA
Ph.D. in Computer Science and Engineering — *Sep 2021 – Present*
Advisors: Steve Seitz, Ira Kemelmacher-Shlizerman, Brian Curless

Massachusetts Institute of Technology (MIT) — Cambridge, MA
M.Eng in Electrical Engineering and Computer Science — *Jun 2020 – May 2021*
BS in Electrical Engineering and Computer Science — *Sep 2016 – May 2020*
Advisors: Antonio Torralba, Phillip Isola

PUBLICATIONS

Jingwei Ma, Erika Lu, Roni Paiss, Shiran Zada, Aleksander Holynski, Tali Dekel, Brian Curless, Michael Rubinstein, Forrester Cole. "VidPanos: Generative Panoramic Videos from Casual Panning Videos", SIGGRAPH Asia 2024.

Jingwei Ma, Lucy Chai, Minyoung Huh, Tongzhou Wang, Ser-Nam Lim, Phillip Isola, Antonio Torralba. "Totems: Physical Objects for Verifying Visual Integrity", ECCV 2022.

EMPLOYMENT

VidPanos: Generative Panoramic Videos from Casual Panning Videos — Seattle, WA
Student Researcher (w/ Erika Lu, Forrester Cole, Google) — *Jun 2023 – May 2024*

- Built a pipeline on top of different video generation models to complete partial video panoramas
- Discovered and addressed limitations of the generative model for the task of video completion
- Paper to appear at SIGGRAPH Asia 2024 (conference track). **[Link]**

The Campanile Movie Revisited with Radiance Fields [Video][Article] — Los Angeles, CA
Applied Research Intern (w/ Paul Debevec, Netflix) — *Jun 2022 – Sept 2022*

- Reconstructed drone captures using SOTA methods (Instant-NGP, Plenoxels, Mip-NeRF 360)
- Computed camera trajectory from the 1997 Campanile Movie and mapped it onto the radiance field reconstructed from the 2022 drone captures for re-rendering
- Wrote an internal report comparing the radiance field methods, also against traditional methods

Totems: Physical Objects for Verifying Visual Integrity — Cambridge, MA
Student Researcher (w/ Prof. Antonio Torralba and Prof. Phillip Isola) — *Jun 2020 – Nov 2021*

- Used refractive objects (*Totems*) as cryptography one-way functions for image forensics purposes
- Reconstructed scene radiance field from limited and distorted totem views with unknown poses
- Implemented a detection pipeline to compute manipulation heatmaps for totem-protected images
- Paper published at ECCV 2022. **[Link]**

RealVirtualhome: Neural Rendering for Indoor Simulator Cambridge, MA
Student Researcher (w/ Prof. Antonio Torralba) *Jun 2019 – May 2020*

- Trained Image-to-Image GANs to generate realistic images from simulator metadata.
- Worked with many datasets (ADE20K, LSUN) and models (openpose, MegaDepth, Uppernet).
- Improved generation realness by generating more object details.

Transfer Learning for Threat Detection at Security Checkpoints Sunnyvale, CA
Computer Vision Intern (w/ Synapse Technology) *Jan 2019*

- Studied SOTA work in Transfer Learning and proposed 5 potential solutions within a week.
- Implemented the domain classifier approach and ran experiments.

Multi-Person Pose and Gesture Recognition for Autonomous Driving Santa Clara, CA
Applied Research Intern (w/ Team DriveIX, NVIDIA) *May 2018 – Aug 2018*

- Trained models in keras and tensorflow. Did model pruning and optimization with TensorRT.
- Worked with public datasets (Human3.6M, COCO) and wrote scripts for making custom datasets.
- Built a multi-threading pipeline to compute 2d, 3d pose, gesture, tracking real-time with 1 GPU.

Vidmap: 3D Scene Reconstruction for Movies Cambridge, MA
Student Researcher (w/ Prof. Antonio Torralba and Prof. Sanja Fidler) *Sep 2017 – May 2019*

- Used segmentation and masking to isolate rigid components for reconstruction.
- Labeled and clustered scenes by aligning scripts and subtitles of movies.

PROJECTS, AWARDS, AND HONORS

HackMIT - OpenChoreo: Learning How to Dance from any Dance Video *Fall 2019*

- Awarded Top 10 and "Best Augmented Reality", sponsored by Niantic, Inc.
- Designed a human-pose matching algorithm using joint angles.

HackMIT - Music for All: World's Most Affordable Piano *Fall 2018*

- Won "Best Impossible Hack", sponsored by Pear VC.
- Made a piano using cardboard and detected piano keys from laptop webcam frames.

Pitch Competition - 3D Object Generation w/ AlphaZero-inspired MCTS and Octrees *Winter 2017*

- Won Best Google award.

HackMIT - MIT Sorting Hat: Sort People into MIT Dorms *Fall 2017*

- Awarded Top 10 and "Best Internet of Things", sponsored by Samsara.
- Created an original dataset. Used bag of words and semantic distance to calculate matching.

Startup project - Lambda Tea: Self-serve Boba Dispenser *Fall 2017*

- Cofounder. Project got into MIT sandbox 2017 and Y Combinator winter 2018.

Hack at Brown - Vox.io: Control Computers with Voice from anywhere *Spring 2016*

- Runner-up for Best Microsoft Prize.
- Implemented a language understanding model to match voice commands to computer commands.

OTHER

Skills: Python, PyTorch, Linux, Unity, Blender, Tensorflow, C++, Matlab, Java, JavaScript, Arduino
Activities: Pistol Team, Student Government, EECS Undergraduate Research Conference co-organizer