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EDUCATION

University of Washington

Ph.D. in Computer Science and Engineering

Advisors: Steve Seitz, Ira Kemelmacher-Shlizerman, Brian Curless

Seattle, WA
Sep 2021 – Present

Massachusetts Institute of Technology (MIT)

M.Eng in Electrical Engineering and Computer Science

BS in Electrical Engineering and Computer Science

Advisors: Antonio Torralba, Phillip Isola

Relevant Coursework: Computational Cognitive Science, Algorithms for Inference, Machine Learning, Computer Vision, Design and Analysis of Algorithms, Software Construction, Computation Structures, Computational Photography, VR App Development, Interconnected Embedded Systems

Cambridge, MA
Jun 2020 – May 2021
Sep 2016 – May 2020

PUBLICATIONS

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

The Campanile Movie Revisited with Radiance Fields [[Video](#)][[Article](#)]

Applied Research Intern (w/ Paul Debevec, Netflix)

Los Angeles, CA
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

Student Researcher (w/ Prof. Antonio Torralba and Prof. Phillip Isola)

Cambridge, MA
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

RealVirtualhome: Neural Rendering for Indoor Simulator

Student Researcher (w/ Prof. Antonio Torralba)

Cambridge, MA
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 realism 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.
- Created a synthetic movie dataset with Blender.

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