

Tyler Zhu

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Education

UC Berkeley

MASTER'S OF SCIENCE IN EECS

AUG 2022 - MAY 2023

Advised by Jitendra Malik.

UC Berkeley

BACHELOR'S OF SCIENCE W/ HONORS

AUG 2018 - MAY 2022

Electrical Engineering and Computer Science

Selected Coursework

CS 182: Deep Learning A

CS 189: Machine Learning A-

CS 194-26: Intro Comp. Vision A

CS 271: Randomized Algorithms A

CS 280: Computer Vision A

CS 294-220: Computational Learning Theory A

EECS 126: Probability Theory A

EECS 127: Optimization Models A

Math 104: Real Analysis A

Technical Skills

Languages:

Python, C++, Java, LaTeX

Frameworks:

PyTorch

Service

Broadening Research

Collaborations Workshop

NeurIPS 2022, Co-organizer

ECCV 2022 Reviewer

Wrote two reviews on behalf of an Outstanding Reviewer.

Selected Awards

Berkeley Putnam Team Dec. 2019

Top 4 at Berkeley, Rank 168/3428 nationally

ICPC PacNW 7th Place Nov. 2018

5-time AIME Qualifier Mar. 2018

USAMO Qualifier Apr. 2017

Top 300 in the nation

USACO Platinum Feb. 2017

Top 300 in the nation

Projects

Parallelizing Reversible ViTs

Berkeley, CA

BERKELEY MALIK GROUP

June 2022 - Present

- Parallelized the backward pass of memory-efficient RevViTs for speedups.
- Increased throughput for certain models, e.x. on Rev-MViT-H by 9.2% from 12.1 to 13.2, and characterized criteria for when parallelization is beneficial.
- Findings summarized in a technical report, see below.

Densifying Depth Labels

Berkeley, CA

BERKELEY RISE LAB

Aug. 2021 - Mar. 2022

- Depth estimation labels are sparse, which is suboptimal for performance.
- Created denser "ground truths" by accumulating depth over time w/ COLMAP
- Found up to 42% reduced depth error for distant objects and up to 53% reduced error for small objects when training with dense depth.

Neural Network Augmentations

Berkeley, CA

BERKELEY AI RESEARCH

Feb. 2020 - May 2020

- Researched methods for making image recognition models robust to adversarial examples using deep network augmentations; see paper below.
- Developed the DeepAugment method decreasing baseline robustness error from 63.9% to 57.8%, and 53.2% w/ AugMix, both state of the art at the time.

Publications and Preprints

The Many Faces of Robustness: A Critical Analysis of Out-of-Distribution Generalization

D. Hendrycks, S. Basart, N. Mu, S. Kadavath, F. Wang, E. Dorundo, R. Desai, T. Zhu, S. Parajuli, M. Guo, Dawn Song, Jacob Steinhardt, Justin Gilmer, ICCV 2021. Found at <https://arxiv.org/abs/2006.16241>

Parallelizing Reversible Vision Transformers

T. Zhu. Technical Report. Found at <https://tylerzhu.com/parallelrevvit>

Experience

Discrete Math Head uGSI

Berkeley, CA

UC BERKELEY EECS DEPARTMENT

Aug. 2019 - Dec. 2020

- Head TA for discrete math course; ran logistics, made weekly section notes.
- Received 50+ detailed, positive reviews at end of Sp20; rated 4.52 vs. avg 4.41.

President

Berkeley, CA

MACHINE LEARNING @ BERKELEY

Jan. 2019 - May 2021

- Led student machine learning organization, managed industry partnerships, organized research talks and projects, and initiated mentorship programs.

Investment Trading Intern

New York, NY

CITADEL SECURITIES

June - Aug. 2020

- Worked on the semi-systematic single-stock options desk.

Software Engineering Intern

Sunnyvale, CA

GOOGLE

May - Aug. 2019

- Created an automated tool for removing unused and deprecated products.