**Yiming ZUO**

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**Education**

**Princeton University, Princeton, USA** Aug 2021 - Present

*Ph.D. in Computer Science*

* Research Advisor: [Prof. Jia Deng](https://www.cs.princeton.edu/~jiadeng/)

**Carnegie Mellon University, Pittsburgh, USA** Aug 2019 - Aug 2021

*M.S. in Robotics (MSR)*

* Research Advisor: [Prof. Katerina Fragkiadaki](https://www.cs.cmu.edu/~katef/)
* GPA: 4.19/4.33
* Core Courses: Computer Vision, Machine Learning, Reinforcement Learning, Robotics Manipulation & Control

**Tsinghua University, Beijing, China** Sep 2015 - Jul 2019

*B.Eng. in Electronic Engineering (with honors)*

* GPA: 3.80/4.00, Ranking: 21/246 (top 10%).
* Core Courses: Signal and Systems (A+), Image Processing (A+), Signal Processing Methods(A+), Machine Learning and Cognition(A), Probabilistic Theory and Stochastic Process (A).

**National University of Singapore, Singapore** Aug 2017 - Dec 2017

*Exchange student, Dept. of ECE*

* GPA: 5.0/5.0, with all five courses graded A+

**Johns Hopkins University, Baltimore, USA** Jun 2018 - Sep 2018

*Visiting Student at CCVL Lab*

* Research Advisor: [Prof. Alan L. Yuille](http://www.cs.jhu.edu/~ayuille/)

**Publications**

1. Adam Harley, **Yiming Zuo**, Katerina Fragkiadaki, et al. Track, Check, Repeat: An EM Approach to Unsupervised Tracking. In Proceedings of CVPR 2021 (pp. 16581-16591). [[pdf](https://openaccess.thecvf.com/content/CVPR2021/papers/Harley_Track_Check_Repeat_An_EM_Approach_to_Unsupervised_Tracking_CVPR_2021_paper.pdf)]
2. **Yiming Zuo,** Weichao Qiu, Yizhou Wang, Alan L. Yuille, et al. CRAVES: Controlling Robotic Arm with a Vision-based Economic System, in proceedings ofCVPR 2019 (pp. 4214-4223). [[pdf](https://openaccess.thecvf.com/content_CVPR_2019/papers/Zuo_CRAVES_Controlling_Robotic_Arm_With_a_Vision-Based_Economic_System_CVPR_2019_paper.pdf) | [website](https://craves.ai/)]
3. Xuecheng Nie, Jiashi Feng, **Yiming Zuo** andShuicheng Yan, Human Pose Estimation with Parsing Induced Learner, in proceedings ofCVPR 2018 (pp. 2100-2108). [[pdf](https://openaccess.thecvf.com/content_cvpr_2018/papers/Nie_Human_Pose_Estimation_CVPR_2018_paper.pdf)]

**Research Experience**

**Carnegie Mellon University, USA** Aug 2019 - Now

*Research Assistant to*[*Prof. Katerina Fragkiadaki*](https://www.cs.cmu.edu/~katef/)

* Proposed an Expectation-Maximization based approach for unsupervised object discovery and tracking. Our model takes RGBD videos as input, and iteratively finds agreements among modules and trains on pseudo labels.
* One of the main developers of a PyTorch-based 3D learning repository used by everyone in the research group (30+ people).

**Johns Hopkins University, USA and Peking University, China** Jun 2018 - Dec 2018

*Research Assistant to* [*Prof. Alan L. Yuille*](http://www.cs.jhu.edu/~ayuille/) *and* [*Prof. Yizhou Wang*](https://cfcs.pku.edu.cn/english/people/faculty/yizhouwang/index.htm)

* Designed a visual servoing system for a low-cost, sensor-free robotic arm based on a single RGB camera. Proposed a novel algorithm for domain adaptation using synthetic data for network training. Demonstrated that our system can accomplish complicated tasks like stacking dices.
* Project website: <https://craves.ai/>

**Research Assistant, National University of Singapore, Singapore** Aug 2017 - Dec 2017

*Research Assistant to* [*Prof. Jiashi Feng*](https://sites.google.com/site/jshfeng/)

* Trained an hourglass-like neural network for human pose estimation and proposed an improvement on the estimation pipeline structure. Reached the state-of-the-art human pose estimation accuracy on MPII dataset.

**Course Projects**

**Conditional Image Generation**

*Carnegie Mellon University 10-617, Fall 2020*

* Re-implemented the Self-Attention GAN (SAGAN). Compared the quality and diversity of the image generated with different conditional embedding strategies and auxiliary loss functions on fine-grained, few-shot datasets. [[pdf](https://zuoym15.github.io/files/10617_final.pdf)]

**Trajectory Tracking**

*Carnegie Mellon University 16-711, Spring 2020*

* Implemented a PID controller using Simulink. Compared centralized and de-centralized PID control system with Luenberger Observer and Butterworth Filter that solved trajectory tracking problem in a simulated noisy environment. [[pdf](https://zuoym15.github.io/files/KDC_final.pdf)]

**Unsupervised Image Classification**

*Carnegie Mellon University 10-701, Spring 2020*

* Re-implemented and compared the performance of several state-of-the-art unsupervised image classification algorithms, including MoCo, InfoGAN, and Capsule Autoencoder. Tested the accuracy and speed on MNIST and ShapeNet. [[pdf](https://zuoym15.github.io/files/10701_final.pdf)]

**Motion-Controlled Game**

*Tsinghua University, Electronic System Design, Fall 2018*

* Developed a “Battle City” game controlled by players’ motion and gesture. Used Microsoft Kinect for capturing RGBD videos. Deployed on FPGA and achieved real-time inference speed for a light-weighed neural network.

**Teaching Experience**

Teaching Assistant, *Media and Cognition*, Tsinghua University, taught by [Prof. Shengjin Wang](https://ieeexplore.ieee.org/author/37280458700), Fall 2018

**Academic Services**

Reviewer for ICRA 2021

**Academic Awards**

* Outstanding Undergraduate (Bachelor’s Degree with Honors), top 10% students, Tsinghua University, 2019
* GE Annual Book Prize for the Best Student in Communications, General Electric, Inc, 2018
* TI Book Prize for the Best Student in Digital Signal Processing and Systems, Texas Instrument, Inc, 2018
* Tsinghua Research Excellence Award, top 5%, Tsinghua University, 2018
* Tsinghua Academic Excellence Award, top 5%, Tsinghua University, 2018
* Qualcomm Scholarship (60 among 3000, top 2%), Qualcomm, Inc, 2017
* Wong Lo-Kat Scholarship for Outstanding Academic Performance, Wong Lo-Kat, Inc, 2017
* Scholarship for Outstanding Undergraduates, China Scholarship Council (CSC), 2017
* First Prize, Chinese High School Biology Olympiad, Zoological and Botanical Society of China, 2014

**Technical Skills and English Proficiency**

* Solid Programming skills with C/C++, Python, MATLAB, Java, and Verilog
* Hands-on experience with deep-learning frameworks (e.g. PyTorch)
* Hands-on experience with 3D engines (e.g. Blender, UE4)
* Mathematics: Probability theory, Stochastic Process, Complex Analysis, Calculus, Linear Algebra, and Game Theory
* TOEFL 111 (speaking 26), GRE 336 (verbal reasoning 166 + quantitative reasoning 170)