# YI ZHANG

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## EDUCATION

**Johns Hopkins University** *09/2017 -*
Ph.D. student in Computer Science

**Tsinghua University** *09/2013 - 06/2017*
B.Eng. in Electronic Engineering

- **GPA**: 92.0/100
- **Ranking**: 10/240 (4%)
- **Average of Math & Physics related Courses**: 96.1/100

## REASERCH EXPERIENCE

**Department of Computer Science, Johns Hopkins University** 09/2017 -
*Advisor: Alan Yuille* *Baltimore, MD*

· Research Assistant
· Proposed a framework for detecting failures and anomalies in semantic segmentation.
· Developed a pipeline to generate photo-realistic synthetic human action sequences using motion-captured human animation.
· Developed a bootstrap pipeline to augment action recognition with noval appearance, viewpoints, and backgrounds.
· Developed a structured method for *spatiotemporal activity detection* in untrimmed surveillance videos with good interpretability.
· Worked on how to efficiently sample synthesized training data to learn better deep models.
· Worked on supervised/unsupervised *domain adaptation* from synthetic to real for image/video classification and semantic segmentation.
· Leveraging multi-task learning to improve the generalization of action recognition algorithms.
· Developped an analysis-by-synthesis approach for human pose estimation using differentiable renderer and neural mesh model.
· Participated in the development of an open-sourced software UnrealCV.
· Experience on several computer vision tasks: *stereo vision*, *human pose estimation*, *object detection*, *video classification* and *image-to-image translation*.
· Experience on using a low-cost MoCap device.

**AI lab, Bytedance, Inc** 06/2020 - 09/2020
*Advisor: Jing Liu, Peng Wang, Linjie Luo* *Mountain View, CA*

· Research Intern
· Worked on human depth estimation using training data and rich intermediate supervisions from high quality synthetic human models.
· Built an demo showcasing interactive effects with the estimated human depth.

**Department of Computer Science, Johns Hopkins University** 06/2016 - 09/2016
*Advisor: Alan Yuille* *Baltimore, MD*

· Research Assistant
· Created a synthetic data generation tool - UnrealStereo - for stereo vision diagnosis of several state-of-the-art methods.

**State Key Lab. of Intelligent Technology & Systems, Tsinghua** 03/2016 - 06/2017
*Advisor: Xiaolin Hu* *Beijing, China*

· Research Assistant

**New Generation Network Technology & Application Lab, Tsinghua** 11/2014 - 09/2015
*Adviser: Yongfeng Huang* *Beijing, China*

· Undergraduate Student Research Training

## PUBLICATION

2021

Xinyue Wei, Weichao Qiu, **Yi Zhang**, Zihao Xiao, and Alan Yuille. Nuisance-label supervision: Robustness improvement by free labels. In *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCVW)*, pages 1541–1550, 2021

Tae Soo Kim, Jonathan Jones, Michael Peven, Zihao Xiao, Jin Bai, **Yi Zhang**, Weichao Qiu, Alan Yuille, and Gregory D. Hager. Daszl: Dynamic action signatures for zero-shot learning. *Proceedings of the AAAI Conference on Artificial Intelligence*, 35(3):1817–1826, May 2021

2020

Yinda Xia*, **Yi Zhang***, Fengze Liu, Wei Shen, and Alan L Yuille. Synthesize then Compare: Detecting Failures and Anomalies for Semantic Segmentation. In *European Conference on Computer Vision (ECCV)*, 2020 (**Oral**)

2019

**Yi Zhang**, Xinyue Wei, Weichao Qiu, Zihao Xiao, Gregory D. Hager, and Alan Yuille. RSA: Randomized Simulation as Augmentation for Robust Human Action Recognition. *arXiv preprint arXiv:1912.01180*, 2019

Jialing Lyu, Weichao Qiu, Xinyue Wei, **Yi Zhang**, Alan Yuille, and Zheng-Jun Zha. Identity preserve transform: Understand what activity classification models have learnt. *arXiv preprint arXiv:1912.06314*, 2019

2018

**Yi Zhang**, Weichao Qiu, Qi Chen, Xiaolin Hu, and Alan Yuille. UnrealStereo: Controlling Hazardous Factors to Analyze Stereo Vision. In *International Conference on 3D Vision (3DV)*, Verona, Italy, 2018 (**Oral**)

Qi Chen, Weichao Qiu, **Yi Zhang**, Lingxi Xie, and Alan L Yuille. SampleAhead: Online Classifier-Sampler Communication for Learning from Synthesized Data. In *British Machine Vision Conference (BMVC)*, Newcastle upon Tyne, UK, 2018 (**Oral**)

2017

Weichao Qiu, Fangwei Zhong, **Yi Zhang**, Siyuan Qiao, Zihao Xiao, Tae Soo Kim, and Yizhou Wang. UnrealCV: Virtual Worlds for Computer Vision. In *Proceedings of the 25th ACM International Conference on Multimedia*, MM '17, pages 1221–1224, New York, NY, USA, 2017. ACM

## TECHNICAL STRENGTHS

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|---|---|
| **Proficient languages:** | C/C++, MATLAB, Python |
| **Deep learning frameworks:** | Caffe, PyTorch, Tensorflow |
| **Familiar environment:** | Linux |
| **Experience of use:** | Unity, Unreal Engine 4, Java |

## AWARDS AND HONORS

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| • Bank of Tokyo-Mitsubishi UFJ Scholarship | **Tsinghua University** | 2016 |
| • Huawei Scholarship | **Tsinghua University** | 2015 |
| • Excellence in Science and Technology Innovation Award | **Tsinghua University** | 2015 |
| • National College Students Physics Competition 1$^{st}$ Prize | **Beijing Physics Society** | 2014 |
| • Zheng Geru Scholarship | **Tsinghua University** | 2014 |
| • Freshmen Scholarship Grade 2 | **Tsinghua University** | 2013 |