# YI ZHANG

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## EDUCATION

**Johns Hopkins University** *09/2017 -*
Ph.D. candidate in Computer Science
Research interests: 3D Vision, Digital Human, Model Robustness, Analysis-by-Synthesis, Domain Adaptation

**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
· My research aims to build robust and interpretable computer vision by 1) exploring the analysis-by-synthesis idea using generative models; 2) estimating 3D structure from 2D image enabling 3D-aware models; 3) leveraging synthetic data with rich ground truth for training and evaluation.
· My recent projects are related to Neural Rendering and Diffusion Models.

**Amazon Go** 06/2022 - 08/2022
*Advisor: Sumanth Chennupati, Bharat Singh* *Seattle, WA*

· Applied Scientist Intern
· Worked on controllable human video synthesis.
· Combining computer graphics and neural rendering enabling realistic motion retargeting and background swapping.

**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 supervision from high quality synthetic human models.
· Built an AR 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
· Worked on deep learning based stereo vision

## PUBLICATION

**2023**

**Yi Zhang**, Pengliang Ji, Adam Kortylewski, Angtian Wang, Jieru Mei, and Alan L Yuille. 3D-Aware Neural Body Fitting for Occlusion Robust 3D Human Pose Estimation. In *The IEEE/CVF International Conference on Computer Vision (ICCV)*, 2023

Jiacong Xu, **Yi Zhang**, Jiawei Peng, Wufei Ma, Artur Jesslen, Pengliang Ji, Qixin Hu, Jiehua Zhang, Qihao Liu, Jiahao Wang, Wei Ji, Chen Wang, Xiaoding Yuan, Prakhar Kaushik, Guofeng Zhang, Jie Liu, Yushan Xie, Yawen Cui, Alan Yuille, and Adam Kortylewski. Animal3D: A Comprehensive Dataset of 3D Animal Pose and Shape. In *The IEEE/CVF International Conference on Computer Vision (ICCV)*, 2023

**2022**

Pengliang Ji, Angtian Wang, **Yi Zhang**, Adam Kortylewski, and Alan Yuille. Volumetric neural human for robust pose optimization via analysis-by-synthesis. In *SVRHM 2022 Workshop@ NeurIPS*

Qihao Liu, **Yi Zhang**, Song Bai, and Alan L Yuille. Explicit Occlusion Reasoning for Multi-person 3D Human Pose Estimation. In *European Conference on Computer Vision (ECCV)*, 2022

**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**

Yingda 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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|---|---|
| **Progragmming languages** | Python, C/C++, C#, MATLAB |
| **Deep learning frameworks** | PyTorch, Tensorflow, OpenMMLab |
| **Computer Graphics** | Unity, Unreal Engine 4, Blender, PyTorch3D |
| **Software Development** | MLOps, Git, Docker, CMake, Ninja |

## AWARDS AND HONORS

- 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$^{\text{st}}$ Prize      **Beijing Physics Society**      2014
- Zheng Geru Scholarship      **Tsinghua University**      2014
- Freshmen Scholarship Grade 2      **Tsinghua University**      2013