YANG ZHENG

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EDUCATION

Stanford University, CA, United States — Sep 2022 - Present
Ph.D. in Computer Science
Advisor: Prof. Leonidas J. Guibas and Prof. Gordon Wetzstein

Tsinghua University, Beijing, P.R.China — Aug 2018 - Jul 2022
B.Eng. in Automation
Minor in Psychology
Advisor: Prof. Yebin Liu
GPA: 3.92/4.0, Rank: Top 1%

PUBLICATIONS & MANUSCRIPTS

Conference Paper

1. **PhysAvatar: Learning the Physics of Dressed 3D Avatars from Visual Observations**
Yang Zheng*, Qingqing Zhao*, Guandao Yang, Wang Yifan, Donglai Xiang, Florian Dubost, Dmitry Lagun, Thabo Beeler, Federico Tombari, Leonidas J. Guibas, Gordon Wetzstein.
ECCV 2024
[Paper][Project Page]

2. **Inferring Hybrid Neural Fluid Fields from Videos**
Koven Yu*, **Yang Zheng***, Yuan Gao, Yitong Deng, Bo Zhu, Jiajun Wu
NeurIPS 2023
[Paper]

3. **PointOdyssey: A Large-Scale Synthetic Dataset for Long-Term Point Tracking**
Yang Zheng, Adam W. Harley, Bokui Shen, Gordon Wetzstein, Leonidas J. Guibas.
ICCV 2023, Oral
[Paper][Project Page][Code]

4. **Gimo: Gaze-informed human motion prediction in context**
Yang Zheng, Yanchao Yang, Kaichun Mo, Jiaman Li, Tao Yu, Yebin Liu, C. Karen Liu, Leonidas J. Guibas.
ECCV 2022
[Paper][Project Page][Code]

5. **Deepmulticap: Performance capture of multiple characters using sparse multiview cameras**
Yang Zheng*, Ruizhi Shao*, Yuxiang Zhang, Tao Yu, Zerong Zheng, Yebin Liu.
ICCV 2021
[Paper][Project Page][Code]

Manuscripts

1. **6D Camera Relocalization in Visually Ambiguous Extreme Environments**
Yang Zheng, Tolga Birdal, Fei Xia, Yanchao Yang, Yueqi Duan, Leonidas J. Guibas.
[Paper]

RESEARCH EXPERIENCES

Geometric Computing Group and **SCI, Stanford University** *Jun, 2023 – Now*
Research Assistant Supervisor: Prof. Leonidas J. Guibas and Prof. Gordon Wetzstein
3D vision

Stanford Vision and Learning Lab, Stanford University *Apr, 2023 – Jun, 2023*
Research Assistant Supervisor: Prof. Jiajun Wu
3D vision

Stanford Computational Imaging Lab, Stanford University *Jan, 2023 – Apr, 2023*
Research Assistant Supervisor: Prof. Gordon Wetzstein
3D vision

Geometric Computing Group, Stanford University *Sep, 2021 – Jan, 2023*
Research Assistant Supervisor: Prof. Leonidas J. Guibas
3D vision, Robotics

Broadband Network & Digital Media Lab, Tsinghua University *Jul, 2020 – Mar, 2021*
Undergraduate Research Assistant Supervisor: Prof. Yebin Liu
3D human reconstruction

Intelligent Vision Group, Tsinghua University *Jun, 2019 – Apr, 2020*
Undergraduate Research Assistant Supervisor: Prof. Jiwen Lu
Video understanding

SELECTED PROJECTS

Learning Physics of Digital Avatars from Visual Observations
Advisors: Profs. Leonidas J. Guibas and Gordon Wetzstein

- ◇ Introduced a new inverse rendering paradigm for avatars created from real-world captures that incorporates the physics of loose garments in a principled manner.
- ◇ A pipeline that includes accurate and efficient mesh reconstruction and tracking using 4D Gaussians; automatic optimization of the garments' physical material properties; and accurate appearance estimation using physically based inverse rendering.

Long-term Point Tracking
Advisors: Profs. Leonidas J. Guibas and Gordon Wetzstein

- ◇ Introduced PointOdyssey, a large-scale synthetic dataset for the training and evaluation of long-term fine-grained tracking algorithms, which is collected by re-purposing human and animal motion capture data in outdoor scenes with randomized 3D assets.
- ◇ Proposed a novel point tracking method, greatly widening the temporal receptive field of current methods and achieving state-of-the-art performance.

Gaze-informed Human Motion Prediction
Advisor: Prof. Leonidas J. Guibas and Prof. Yebin Liu

- ◇ Proposed a large-scale human motion dataset that enables investigating the benefits of eye gaze under diverse scenes and motion dynamics.
- ◇ Proposed a novel architecture with a bidirectional multi-modal fusion that better suits gaze-informed human motion prediction through mutually disambiguating motion and gaze.
- ◇ Validated the usefulness of eye gaze in improving human motion prediction accuracy.

Multi-human Reconstruction
Advisor: Prof. Yebin Liu

- ◇ Proposed a novel method for high-fidelity multi-view reconstruction of multiple interacting characters by introducing an attention-aware coarse-to-fine reconstruction pipeline.

- ◇ Firstly achieved detailed reconstruction of clothed humans in real world multi-person scenes from only sparse view inputs.
- ◇ Contributed a high-quality 3D human dataset, MultiHuman, containing 150 multi-person scans with detailed geometry and photorealistic texture.

HONORS & AWARDS

- **2021 SenseTime Scholarship** (Scholarship for excellent Chinsese undergraduates, 31 students awarded)
- **2021 Changtong Scholarship** (Highest scholarship for seniors in the Dept. of Automation, **0.1%**)
- **2020 Jiang Nanxiang Scholarship** (Highest scholarship for juniors in Tsinghua, **0.1%**)
- **2019 National Scholarship** (Highest scholarship given by the government of China, $<$ **0.1%**)
- **2019 Tsinghua Innovation Award of Science and Technology** (Awarded to undergraduate students with excellent research potentials, **<1%**)
- **2019 3rd place** in the 21th **Electronic Design Competition**, Tsinghua University
- **2018 2nd place** in the 2nd **Artificial Intelligence Challenge**, Tsinghua University

RESEARCH INTEREST

Fields	3D Vision, Graphics
Methods	Deep Learning, Neural Networks

TECHNICAL SKILLS

Programming languages	C, C++, Python, Javascript, PHP
Frameworks & **Tools**	PyTorch, Tensorflow, MATLAB, Qt, Blender, LaTeX, etc.