Tianye Li

✉ <firstname><lastname> AT protonmail DOT com
🏠 https://tianyeli.github.io/

▬▬▬ Education

01/2016 – 12/2022	**Ph.D. Computer Science**.
	University of Southern California (USC), Los Angeles, CA, United States
	Focus: Computer Vision and Computer Graphics
	Advisor: Prof. Hao Li and Prof. Randall Hill
	Thesis: Scalable Dynamic Digital Humans (defended in 08/2022)
08/2013 – 05/2015	**M.S. Electrical Engineering**, *honor program*.
	University of Southern California, Los Angeles, CA, United States, *GPA 3.89/4.00*
	Focus: Signal and Image Processing (Computer Vision and Machine Learning)
08/2009 – 07/2013	**B.Eng. Electronic and Information Engineering**.
	Xidian University, Xi'an, China, *GPA 87.5/100*
	Focus: Signal Processing

▬▬▬ Publications

CVPR 2023
Instant Multi-View Head Capture through Learnable Registration,
Timo Bolkart, <u>Tianye Li</u>, and Michael J. Black,
Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition, 06/2023.

CVPR 2022
(oral presentation)
Neural 3D Video Synthesis from Multi-view Video,
<u>Tianye Li</u>*, Mira Slavcheva*, Michael Zollhoefer, Simon Green, Christoph Lassner, Changil Kim, Tanner Schmidt, Steven Lovegrove, Michael Goesele, Richard Newcombe, and Zhaoyang Lv (*equal contributions),
Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition, 06/2022.

ICCV 2021
(oral presentation)
Topologically Consistent Multi-View Face Inference Using Volumetric Sampling,
<u>Tianye Li</u>, Shichen Liu, Timo Bolkart, Jiayi Liu, Hao Li, and Yajie Zhao,
Proceedings of the IEEE International Conference on Computer Vision, 10/2021.

TPAMI 2020
A General Differentiable Mesh Renderer for Image-based 3D Reasoning,
Shichen Liu, <u>Tianye Li</u>, Weikai Chen, and Hao Li,
IEEE Transactions on Pattern Analysis and Machine Intelligence, 07/2020.

ICCV 2019
(oral presentation)
Soft Rasterizer: A Differentiable Renderer for Image-based 3D Reasoning,
Shichen Liu, <u>Tianye Li</u>, Weikai Chen, and Hao Li,
Proceedings of the IEEE International Conference on Computer Vision, 10/2019.

ICCV 2019
(oral presentation)
Learning Perspective Undistortion of Portraits,
Yajie Zhao*, Zeng Huang*, <u>Tianye Li</u>, Weikai Chen, Chloe LeGendre, Xinglei Ren, Jun Xing, Ari Shapiro, and Hao Li (*equal contributions),
Proceedings of the IEEE International Conference on Computer Vision, 10/2019.

ECCV 2018
Deep Volumetric Video from Very Sparse Multi-View Performance Capture,
Zeng Huang, <u>Tianye Li</u>, Weikai Chen, Yajie Zhao, Jun Xing, Chloe LeGendre, Linjie Luo, Chongyang Ma, and Hao Li,
Proceedings of the 15th European Conference on Computer Vision, 09/2018.

SIGGRAPH Asia 2017
Learning a Model of Facial Shape and Expression from 4D Scans,
<u>Tianye Li</u>*, Timo Bolkart*, Michael J. Black, Hao Li, and Javier Romero (*equal contributions),
ACM Transactions on Graphics, Proceedings of the 10th ACM SIGGRAPH Conference and Exhibition in Asia, 11/2017.

ECCV 2016
Real-Time Facial Segmentation and Performance Capture from RGB Input,
Shunsuke Saito, <u>Tianye Li</u>, and Hao Li,
Proceedings of the 14th European Conference on Computer Vision, 10/2016.

Technical Experiences

02/2023 – 09/2023   **Research Scientist**, *Epic Games, Inc*, Pittsburgh, PA.
- Researched on photorealistic dynamic digital humans for next-generation games, VR/AR and the metaverse.

08/2017 – 08/2022   **Research Assistant**, *USC Institute for Creative Technologies*, Los Angeles, CA.

10/2015 – 08/2022   **Research Assistant**, *University of Southern California*, Los Angeles, CA.
- Researched on automated and scalable systems for high-quality 3D face reconstruction and registration.
- Researched on rasterization-based differentiable rendering for image-based 3D reasoning.
- Researched on perspective undistortion method for portraits.
- Researched on sparse-view 3D volumetric reconstruction for full-body performance capture.
- Built multi-view performance capture system using GoPros and Kinect cameras.
- Developed convolutional network for real-time facial segmentation and performance capture.
- Captured RGBD dataset for evaluating dense human body correspondence algorithm.
- Developed active appearance model for single-view dense face tracking.

06/2020 – 01/2021   **Research Intern**, *Facebook Reality Labs (now: Reality Labs, Meta)*, Redmond, WA (remote).
- Researched on high-quality 3D video synthesis with dynamic neural radiance fields.

05/2018 – 08/2018   **Research Intern**, *Snap Inc*, Venice, CA.
- Researched on single-view 3D reconstruction for general objects.

09/2016 – 06/2017   **Research Intern**, *Max Planck Institute for Intelligent Systems*, Tübingen, Germany.
- Researched on generic 3D morphable model for facial shape, expression and pose.
- Researched on high-quality (geometrically accurate and semantically / temporally consistent) mesh registration for marssive 4D facial scan datasets ($> 10^5$ meshes).

08/2015 – 10/2015   **Image Tech Research Engineer**, *Dolby Laboratories*, Burbank, CA.
- Developed applications and features that ease the creative process for next generation cinema.
- Provided documentation and guidance for new applications and features.

02/2015 – 08/2015   **Image Processing Intern**, *Dolby Laboratories*, Burbank, CA.
- Developed innovative image/video processing and video coding algorithms.
- Documented and presented new algorithms and implementations in various forms.

07/2012 – 08/2012   **Intern**, *Open Laboratory and Solution Center, Agilent Technologies (now: Keysight)*, Shanghai, China.
- Assisted customers with microwave and telecommunication instrument calibration.
- Experimented on standard microwave components and documented standard procedures.

Teaching Experiences

2018 – 2021   **Teaching Assistant**, *University of Southern California*.
- Multimedia Systems Design (CSCI 576), Fall 2021. Instructor: Prof. Parag Havaldar.
- Advanced Computer Vision (CSCI 677), Fall 2019. Instructor: Prof. Ram Nevatia.
- Digital Geometry Processing (CSCI 621), Spring 2018. Instructor: Prof. Hao Li.

2015   **Grader**, *University of Southern California*.
- Mathematical Pattern Recognition (EE 559), Spring 2015. Instructor: Prof. Keith Jenkins.

Academic Talks

2022   **Scalable Dynamic Digital Humans**.
- Ph.D. Dissertation defense, online, 08/2022
- Adobe Research, online, 09/2022
- Google, online, 09/2022

2022   **Neural 3D Video Synthesis from Multi-view Video**.
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR), New Orleans, Louisiana, United States, 06/2022

2021	**Topologically Consistent Multi-View Face Inference Using Volumetric Sampling**. ○ Max Planck Institute for Intelligent Systems, Tübingen, online, 09/2021 ○ IEEE International Conference on Computer Vision (ICCV), online, 10/2021 ○ Computer Vision and Learning Group, ETH Zürich, online, 12/2021
2021	**Reconstruction and Synthesis for Dynamic Humans and Scenes**. ○ Facebook Reality Labs, online, 04/2021 ○ ByteDance AI Lab, online, 04/2021
2017	**Learning a Model of Facial Shape and Expression from 4D Scans**. ○ ACM SIGGRAPH Conference and Exhibition in Asia, Bangkok, Thailand, 11/2017 ○ GAMES: Graphics And Mixed Environment Symposium, online, 12/2017

Professional Activities

Reviewer

2020 – 2023	IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
2019 – 2023	IEEE International Conference on Computer Vision (ICCV)
2020, 2022	European Conference on Computer Vision (ECCV)
2022	ACM SIGGRAPH (ACM Transactions on Graphics)
2022, 2023	ACM SIGGRAPH Asia (ACM Transactions on Graphics)
2021 – 2023	IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)
2020	International Journal of Computer Vision (IJCV)
2020	Conference on Neural Information Processing Systems (NeurIPS)
2020	AAAI Conference on Artificial Intelligence (AAAI)
2020	ACM Symposium on Virtual Reality Software and Technology (VRST)
2019	Conference of the European Association For Computer Graphics (Eurographics)
2018	Pacific Conference on Computer Graphics and Applications (Pacific Graphics)
2018	Computer Animation and Virtual Worlds (CAVW)
2017	ICCV Workshop PeopleCap
2017	IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR)

Honors

2021	Outstanding Reviewer, IEEE International Conference on Computer Vision (ICCV)
2021	Outstanding Reviewer, IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
2020	Outstanding Reviewer, IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
2015	Electrical Engineering Master Honor Program, University of Southern California
2010-2012	University scholarship, Xidian University

Skills

Programming	Python, C/C++, MATLAB; OpenCV, PyTorch, Caffe, TensorFlow
Devices	Kinect (v1 and v2), Intel RealSense, PrimeSense
Electronics	Signal generator, oscilloscopes, signal/network analyzer, soldering, circuits debugging
Languages	Mandarin Chinese (native), English (fluent), German (basic)

Last update: September 30, 2023