Yao-Chih Lee

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My research interests include **video synthesis** and **3D computer vision**, particularly focusing on bridging generative foundation models with dynamic 3D modeling and controllability.

Keywords: generative models, video synthesis, 3D computer vision, 3D reconstruction

Experiences

05.2025 - 11.2025 — Research Intern

Adobe Research in San Jose, CA

Mentors: Zhengqi Li, Eli Shechtman, Zhoutong Zhang, Joon-Young Lee, Jiahui (Gabriel) Huang, and Jui-hsien Wang.

Generative Video Motion Editing with 3D Point Tracks ***(CVPR 2026)*** [webpage]

06.2024 - 12.2024 — Student Researcher

Google DeepMind in Cambridge, MA

Mentors: Forrester Cole, Erika Lu, Tali Dekel, and Sarah Rumbley

Generative Omnimatte: Learning to Decompose Video into Layers ***(CVPR 2025 Highlight)*** [webpage]

05.2023 - 12.2023 — Research Intern

Adobe Research in San Jose, CA

Mentors: Feng Liu, Zhoutong Zhang, Kevin Blackburn-Matzen, Simon Niklaus, and Jianming Zhang

Fast View Synthesis of Casual Videos with Soup-of-Planes ***(ECCV 2024)*** [webpage]

09.2020 - 03.2022 — Research Assistant

Academia Sinica in Taipei, Taiwan

Investigated an image restoration algorithm for medical CT images and other projects related to 3D computer vision. Supervised by Chu-Song Chen.

Education

2022 - present — Computer Science

Ph.D. Student, University of Maryland College Park

Advisor: Jia-Bin Huang

Research areas: generative video models and 3D vision.

Thesis: Fine-grained control for editing casual videos

2018 - 2020 — Computer Science and Information Engineering

M.S. National Taiwan University with a 4.24/4.3 GPA

Thesis: 3D Video Stabilization with Depth Estimation by CNN-based Optimization ***(CVPR 2021)***

Committee: Yi-Ping Hung (Advisor), Yung-Yu Chuang, Yu-Chiang Frank Wang, Chu-Song Chen, Kuan-Wen Chen

2014 - 2018 — Computer Science

B.S., National Chiao Tung University with a 4.14/4.3 GPA

(now National Yang Ming Chiao Tung University)

Major: Network and Multimedia Program (rank 1st/50)

Publications

2026 — CVPR

Generative Video Motion Editing with 3D Point Tracks

Yao-Chih Lee, Zhoutong Zhang, Jiahui Huang, Jui-Hsien Wang, Joon-Young Lee, Jia-Bin Huang, Eli Shechtman, Zhengqi Li

webpage · pdf

2026 — CVPR

TraceGen: World Modeling in 3D Trace-Space Enables Learning from Cross-Embodiment Videos

Seungjae Lee*, Yoonkyo Jung*, Inkook Chun*, **Yao-Chih Lee**, Zikui Cai, Hongjia Huang, Aayush Talreja, Tan Dat Dao, Yongyuan Liang, Jia-Bin Huang, Furong Huang

webpage · *pdf*

2025 CVPR Highlight (13.5%)

Generative Omnimatte: Learning to Decompose Video into Layers

Yao-Chih Lee, Erika Lu, Sarah Rumbley, Michal Geyer, Jia-Bin Huang, Tali Dekel, Forrester Cole

webpage · pdf

2024 ECCV

Fast View Synthesis of Casual Videos with Soup-of-Planes

Yao-Chih Lee, Zhoutong Zhang, Kevin Blackburn-Matzen, Simon Niklaus, Jianming Zhang, Jia-Bin Huang, Feng Liu

webpage · pdf

2023 CVPR

Shape-aware Text-driven Layered Video Editing

Yao-Chih Lee, Ji-Ze Genevieve Jang, Yi-Ting Chen, Elizabeth Qiu, Jia-Bin Huang

webpage · pdf

2023 CAI

Improved Contrastive Unpaired Translation for Metal Artifacts Reduction in Nasopharyngeal CT Images

Yu-Hsing Hsieh, Jia-Da Li, **Yao-Chih Lee**, Chu-Song Chen, LiFu Wu, and Skye H Cheng

IEEE Conference on Artificial Intelligence · pdf

2022 CVPRW

Artistic Style Novel View Synthesis Based on A Single Image

Kuan-Wei Tseng, **Yao-Chih Lee**, Chu-Song Chen

CVPR Workshop · webpage · pdf

2021 CVPR

3D Video Stabilization with Depth Estimation by CNN-based Optimization

Yao-Chih Lee, Kuan-Wei Tseng, Yu-Ta Chen, Chien-Cheng Chen, Chu-Song Chen, Yi-Ping Hung

webpage · pdf

2021 ICIP

PixStabNet: Fast Multi-Scale Deep Online Video Stabilization with Pixel-based Warping

Yu-Ta Chen, Kuan-Wei Tseng, **Yao-Chih Lee**, Chun-Yu Chen, Yi-Ping Hung

IEEE International Conference on Image Processing · pdf

2021 CVPRW

Part-aware Measurement for Robust Multi-View Multi-Human 3D Pose Estimation and Tracking

Hau Chu, Jia-Hong Lee, **Yao-Chih Lee**, Ching-Hsien Hsu, Jia-Da Li, Chu-Song Chen

CVPR Workshop · pdf

Honors and Awards

2025 Award

CVPR Outstanding Reviewer

710 outstanding reviewers out of a total of 12582 reviewers (5.6 %)

09.2014 - 06.2017 Award

Academic Achievement Awards at NCTU

Awarded 4 times to top 5% ranking in the semesters.

05.2017 Award

Undergraduate Research Project Excellence Award at NCTU

Awarded to the project of a visual-based UAV autopilot system for sports player tracking.

01.2017 Award

Core Course Award at NCTU

Awarded to the top 3 ranking in the core course, Operating System.

Professional Services

2026

Reviewer

CVPR

2025

Reviewer

CVPR · SIGGRAPH · ICCV · SIGGRAPH Asia · NeurIPS · PAMI

2024 **Reviewer**
CVPR · ECCV · ACCV · ACM TOMM

2023 **Reviewer**
CVPR · ICCV · SIGGRAPH Asia · Computer Vision and Image Understanding

2022 **Reviewer**
Pattern Recognition.

2021 **Reviewer**
Pattern Recognition.

Teaching

2024, 2026 **Computer Vision**
Teaching Assistant UMD CMSC426

2024, 2025 **Multimodal Foundation Models**
Teaching Assistant UMD CMSC848K

2023 **Introduction to Data Science**
Teaching Assistant UMD CMSC320

2022 **Introduction to Artificial Intelligence**
Teaching Assistant UMD CMSC421

2021 **3D Computer Vision with Deep Learning Applicions**
Teaching Assistant NTU CSIE5429

2019 **Digital Image Processing**
Teaching Assistant NTU CSIE5612

2019 **Probability**
Teaching Assistant NTU CSIE2121

2018 **Computer Vision for UAV Autopilot**
Teaching Assistant NCTU DCP1249