Yao-Chih Lee
yaochih.github.io · yclee@umd.edu · Feb 2025
Computer Vision and Deep Learning · 3D Vision and Video Synthesis

Education

2022 - Present
Ph.D. Student
Computer Science

University of Maryland College Park with a 3.96/4.0 GPA
Advisor: Jia-Bin Huang
Research areas: 3D vision and video synthesis, particularly focusing on reconstructing real-world scenes from casual videos for synthesis and editing.

2018 - 2020
M.S.
Computer Science and Information Engineering

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
B.S.
Computer Science

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)

Work Experience

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)***

05.2023 - 11.2023
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)***

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.

09.2018 - 06.2020
Graduate Research Assistant

National Taiwan University in Taipei, Taiwan
Investigated video stabilization algorithms with deep learning approaches ***(CVPR 2021)***. Advised by Yi-Ping Hung and collaborated with MediaTek, Inc.

08.2016 - 06.2018
Undergraduate Research Assistant

National Chiao Tung University in Hsinchu, Taiwan
Developed a vision-based drone autopilot system and investigated learning-based local features for SLAM systems. Advised by Kuan-Wen Chen.

Publications

Highlight

2025
CVPR

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

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

2024
arXiv preprint

VividDream: Generating 3D Scene with Ambient Dynamics
Yao-Chih Lee, Yi-Ting Chen, Andrew Wang, Ting-Hsuan Liao, Brandon Y. Feng, 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

2023
arXiv preprint

Text-driven Visual Synthesis with Latent Diffusion Prior
Ting-Hsuan Liao, Songwei Ge, Yiran Xu, **Yao-Chih Lee**, Badour AlBahar, Jia-Bin Huang
webpage · 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

2022
arXiv preprint

Globally Consistent Video Depth and Pose Estimation with Efficiency
Yao-Chih Lee, Kuan-Wei Tseng, Guan-Sheng Chen, Chu-Song Chen
pdf · code

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

2018
TAICHI

A Design of Vision-based Navigation System for the Visually Impaired
Ping-Jung Duh, Yu-Cheng Sung, **Yao-Chih Lee**, Kuan-Wen Chen, Liang-Yu Fan Chiang
The Conference of Taiwan Computer-Human Interaction (TAICHI)

2017
TAICHI

A UAV Autopilot System for Sports Player Tracking
Yu-Cheng Sung, **Yao-Chih Lee**, Sarah Wang, Wei-Ting Hu, Kuan-Wen Chen
The Conference of Taiwan Computer-Human Interaction (TAICHI)

Honors and Awards

09.2014 - 06.2017
Award

Academic Achievement Awards at NCTU
Awarded 4 times to top 5% ranking in the semesters.

05.2017
Award

Undergraduate 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.

Service

2025 **Reviewer**
CVPR
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 **Computer Vision**
Teaching Assistant — UMD CMSC426
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