Yao-Chih Lee
yaochih.github.io · yclee@umd.edu · Nov 2024
Computer Vision and Deep Learning · 3D Vision and Video Synthesis

Education

09.2022 - Present
Ph.D. Student
Computer Science

University of Maryland College Park with a 4.0/4.0 GPA

Advisor | Jia-Bin Huang

Research areas | 3D vision and video synthesis (CVPR 2023 and ECCV 2024).

09.2018 - 06.2020
Master of Science
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

09.2014 - 06.2018
Bachelor of Science
Computer Science

National Chiao Tung University with a 4.14/4.3 GPA (rank 1st/50)
(now National Yang Ming Chiao Tung University)

Major | Network and Multimedia Program

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

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 and ICIP 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

2024
arXiv preprint

Generative Omnimatte: Learning to Decompose Video into Layers
Yao-Chih Lee, Erika Lu, Sarah Rumbley, Michal Geyer, Jia-Bin Huang, Tali Dekel and 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, and 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 and 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

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
Teaching Assistant

Computer Vision at UMD CMSC426

2023
Teaching Assistant

Introduction to Data Science at UMD CMSC320

2022
Teaching Assistant

Introduction to Artificial Intelligence at UMD CMSC421

2021
Teaching Assistant

3D Computer Vision with Deep Learning Applications at NTU CSIE5429

2019
Teaching Assistant

Digital Image Processing at NTU CSIE5612
Probability at NTU CSIE2121

2018
Teaching Assistant

Computer Vision for UAV Autopilot at NCTU DCP1249