Yu-Ju Tsai

Curriculum Vitae

louis19950117@gmail.com
https://liagm.github.io/

Education

Ph.D. student — **University of California, Merced**, CA, USA.
- 2022 - Present, Electrical Engineering and Computer Science (**EECS**)
- Vision and Learning Lab
- Advisor: Prof. Ming-Hsuan Yang

Master of Science — **National Taiwan University**, Taipei, Taiwan.
- 2017 - 2019, Computer Science and Information Engineering (**CSIE**)
- Advisor: Prof. Ming Ouhyoung, Yung-Yu Chuang
- Thesis: "*Estimate Disparity of Light Field Images by Deep Neural Network*"
- GPA: 4.26/4.30, Rank: 4/131

Bachelor of Science — **National Taiwan University**, Taipei, Taiwan.
- 2013 - 2017, Computer Science and Information Engineering (**CSIE**)
- GPA: 3.91/4.30

Publications

BMVC 2022 — **SearchTrack: Multiple Object Tracking with Object-Customized Search and Motion-Aware Features**.
Zhong-Min Tsai, **Yu-Ju Tsai**, Chien-Yao Wang, Hong-Yuan Liao, Youn-Long Lin, and Yung-Yu Chuang
In Proceedings of the British Machine Vision Conference (BMVC 2022) Paper Code

AAAI 2020 — **Attention-based View Selection Networks for Light-field Disparity Estimation**.
Yu-Ju Tsai, Yu-Lun Liu, Ming Ouhyoung, and Yung-Yu Chuang
In Proceedings of AAAI Conference on Artificial Intelligence (AAAI 2020) Paper Code

SIGGRAPH Asia 2017 — **Affordable system for measuring motion-to-photon latency of virtual reality in mobile devices**.
Yu-Ju Tsai, Yu-Xiang Wang, and Ming Ouhyoung
In ACM SIGGRAPH Asia 2017 Posters (SA'17) Paper

VRIC 2017 — **Live Room Merger: A Real-Time Augmented Reality System for Merging Two Room Scenes**.
Chu-I Chao, Chien-Min Wang, Hsuan-Chi Kuo, Liang-Chi Tseng, Shih-Kai Lin, **Yu-Ju Tsai**, Ching-Chi Lin, and Da-Fang Chang
In Proceedings of the Virtual Reality International Conference - Laval Virtual 2017 (VRIC '17)

SIGGRAPH 2016 — **A modified wheatstone-style head-mounted display prototype for narrow field-of-view video see-through augmented reality**.
Pei-Hsuan Tsai, Yu-Hsuan Huang, **Yu-Ju Tsai**, Hao-Yu Chang, Masatoshi Chang-Ogimoto, and Ming Ouhyoung
In ACM SIGGRAPH 2016 Posters (SIGGRAPH '16) Paper

SIGGRAPH 2016 — **ThirdEye: a coaxial feature tracking system for stereoscopic video see-through augmented reality**.
Yu-Xiang Wang, **Yu-Ju Tsai**, Yu-Hsuan Huang, Wan-Ling Yang, Tzu-Chieh Yu, Yu-Kai Chiu, and Ming Ouhyoung
In ACM SIGGRAPH 2016 Posters (SIGGRAPH '16) Paper
Student Research Competition Bronze Prize

Research and Work Experiences

Research Assistant — **Communications and Multimedia Lab, National Taiwan University**, Taipei, Taiwan.
Sep. 2019 - Present
Advisor: Yung-Yu Chuang
Project: Multi-Object Tracking and Segmentation (MOTS)

- Combined long-term point-based object representation and position-aware motion model guided by kalman filter to solve tracking problem.

Project: Robotic grasping

- Developed a pipeline with object segmentation, grasping and matching for robotic pick-and-place.

Project: Light Field Disparity Estimation

- Proposed a network with attention module to utilize all views of light field to estimate disparity maps and reach top performance on benchmark.
- Paper is accepted to **AAAI 2020**.

Research Intern — **VIVE R&D Team, HTC**, Taipei, Taiwan.
May. 2017 - Dec. 2018

Project: Indoor Fisheye Camera Depth Estimation and Calibration

Research Intern — **Institute of Information Science, Academia Sinica**, Taipei, Taiwan.
Jul. 2016 - Aug. 2016
Advisor: Jan-Jan Wu

Project: Remote Augmented Reality Communication

- Developed a framework to merge two remote room by replacing target scene with 360 live video and displaying in a VR head-mounted device.
- Paper is accepted to **VRIC 2017**.

Undergraduate Research — **Communications and Multimedia Lab, National Taiwan University**, Taipei, Taiwan.
Sep. 2015 - Jun. 2017
Advisor: Ming Ouhyoung

Project: Latency of Virtual Reality

- Proposed a low cost and easy built-up framework to measure motion-to-photon latency of virtual reality applications in mobile devices with acceptable accuracy.
- Poster is accepted to **SIGGRAPH Asia 2017**.

Project: Video See-Through Augmented Reality

- Proposed a coaxial camera system with beam-splitter lens module to solve tracking problem in stereoscopic video see-through augmented reality.
- Built a narrow field-of-view(FoV) display with higher pixel density for near-field video see-through augmented reality applications.
- Posters are accepted to **SIGGRAPH 2016**.

Professional Activities

Journal Reviewer
- IEEE Transactions on Image Processing (**TIP**)

Conference Reviewer
- ACCV, CVPR

Student Volunteer
- ACM SIGGRAPH Asia 2016, 2017, 2019

Honors and Awards

Award — **Outstanding Reviewer**, The 16th Asian Conference on Computer Vision, 2022.
Award — **Chancellor's Graduate Fellowship**, University of California, Merced, 2022.
Award — **Honorary Member**, The Phi Tau Phi Scholastic Honor Society of the Republic of China, 2019.
Top 3% of graduated students
Award — **Excellent Teaching Assistants Awards**, CSIE, National Taiwan University, Apr. 2019.
For the course "*Neural Networks*" (Fall 2018)
Award — **Presidential Awards**, CSIE, National Taiwan University, Jan. 2017, Jun. 2017.
Top 5% of students in one semester
Award — **Bronze Prize**, ACM SIGGRAPH Student Research Competition, 2016.
For our work "*ThirdEye: a coaxial feature tracking system for stereoscopic video see-through augmented reality*"

Teaching Experiences

Teaching Assistant — **CSIE, National Taiwan University**, Taipei, Taiwan.

- CSIE 5052: Neural Networks (Fall 2018)
- CSIE 7633: Virtual Reality (Spring 2018)

References

Ph.D. Advisor **Ming-Hsuan Yang**, *Professor*, University of California, Merced, USA.
mhyang@ucmerced.edu Homepage

Research Mentor **Yung-Yu Chuang**, *Professor*, National Taiwan University, Taiwan.
cyy@csie.ntu.edu.tw Homepage

M.S. Advisor **Ming Ouhyoung**, *Adjunct Professor*, National Taiwan University, Taiwan.
ming@csie.ntu.edu.tw Homepage