Yu-Lun Liu

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Education

2017–2022 **Ph.D.**, *National Taiwan University*, Taipei, Taiwan.
Department of Computer Science and Information Engineering, CMLAB
Thesis: Restoring and Enhancing Images and Videos by Combining Modeling and Learning
Advisor: Yung-Yu Chuang ⓘ link

2012–2014 **M.S.**, *National Chiao-Tung University*, Hsinchu, Taiwan.
Institute of Electronics, CommLab
Thesis: Wide-Angle Virtual View Synthesis with Depth-Based Background Modeling
Advisor: Hsueh-Ming Hang ⓘ link

2008–2012 **B.S.**, *National Chiao-Tung University*, Hsinchu, Taiwan.
Department of Electronics Engineering

Work Experience

Feb 2023 – **Computer Science, National Yang Ming Chiao Tung University**.
Assistant Professor

May 2022 – **Meta Reality Labs Research**.
Oct 2022 *Research Scientist Intern*

Jun. 2017 – **MediaTek Inc**.
Feb. 2022 *Senior Algorithm Development Engineer*

Sep. 2014 – **MediaTek Inc**.
Jun. 2017 *Algorithm Development Engineer*

Publications (ⓘ Google Scholar profile)

Journal papers

TPAMI 2021 **Learning to See Through Obstructions with Layered Decomposition**.
Yu-Lun Liu, Wei-Sheng Lai, Ming-Hsuan Yang, Yung-Yu Chuang, and Jia-Bin Huang
IEEE Transactions on Pattern Analysis and Machine Intelligence, 2021   ⓘ paper ⓘ project

Conference papers

CVPR 2023 **Progressively Optimized Local Radiance Fields for Robust View Synthesis**.
Andreas Meuleman, Yu-Lun Liu, Chen Gao, Jia-Bin Huang, Changil Kim, Min H. Kim, Johannes Kopf
Proceedings of IEEE Conference on Computer Vision and Pattern Recognition, 2023   ⓘ paper ⓘ project

CVPR 2023 **Robust Dynamic Radiance Fields**.
Yu-Lun Liu, Chen Gao, Andreas Meuleman, Hung-Yu Tseng, Ayush Saraf, Changil Kim, Yung-Yu Chuang, Johannes Kopf, Jia-Bin Huang
Proceedings of IEEE Conference on Computer Vision and Pattern Recognition, 2023   ⓘ paper ⓘ project

ICLR 2022 **Denoising Likelihood Score Matching for Conditional Score-based Data Generation** .
Chen-Hao Chao, Wei-Fang Sun, Bo-Wun Cheng, Yi-Chen Lo, Chia-Che Chang, Yu-Lun Liu, Yu-Lin Chang, Chia-Ping Chen, and Chun-Yi Lee
International Conference on Learning Representations, 2022   ⓘ paper

ICCV 2021 **Bridging Unsupervised and Supervised Depth from Focus via All-in-Focus Supervision**.
Ning-Hsu Wang, Ren Wang, Yu-Lun Liu, Yu-Hao Huang, Yu-Lin Chang, Chia-Ping Chen, and Kevin Jou
Proceedings of IEEE Conference on Computer Vision, 2021   ⓘ paper ⓘ project

ICCV 2021 **Hybrid Neural Fusion for Full-frame Video Stabilization**.
Yu-Lun Liu, Wei-Sheng Lai, Ming-Hsuan Yang, Yung-Yu Chuang, and Jia-Bin Huang
Proceedings of IEEE Conference on Computer Vision, 2021   ⓘ paper ⓘ project

ICPR 2020	**Explorable Tone Mapping Operators**. Chien-Chuan Su, Ren Wang, Hung-Jin Lin, <u>Yu-Lun Liu</u>, Chia-Ping Chen, Yu-Lin Chang, and Soo-Chang Pei Proceedings of the 25th International Conference on Pattern Recognition, 2020 ⓘ paper
ECCV 2020	**Learning Camera-Aware Noise Models**. Ke-Chi Chang, Ren Wang, Hung-Jin Lin, <u>Yu-Lun Liu</u>, Chia-Ping Chen, Yu-Lin Chang, and Hwann-Tzong Chen Proceedings of European Conference on Computer Vision, 2020 ⓘ paper ⓘ project
CVPR 2020	**Learning to See Through Obstructions**. <u>Yu-Lun Liu</u>, Wei-Sheng Lai, Ming-Hsuan Yang, Yung-Yu Chuang, and Jia-Bin Huang Proceedings of IEEE Conference on Computer Vision and Pattern Recognition, 2020 ⓘ paper ⓘ project
CVPR 2020	**Single-Image HDR Reconstruction by Learning to Reverse the Camera Pipeline**. <u>Yu-Lun Liu</u>*, Wei-Sheng Lai*, Yu-Sheng Chen, Yi-Lung Kao, Ming-Hsuan Yang, Yung-Yu Chuang, and Jia-Bin Huang Proceedings of IEEE Conference on Computer Vision and Pattern Recognition, 2020 ⓘ paper ⓘ project
AAAI 2020	**Attention-based View Selection Networks for Light-field Disparity Estimation**. Yu-Ju Tsai, <u>Yu-Lun Liu</u>, Yung-Yu Chuang, and Ming Ouhyoung Proceedings of AAAI Conference on Artificial Intelligence, 2020 ⓘ paper
AAAI 2019	**Deep Video Frame Interpolation using Cyclic Frame Generation**. <u>Yu-Lun Liu</u>, Yi-Tung Liao, Yen-Yu Lin, and Yung-Yu Chuang Proceedings of AAAI Conference on Artificial Intelligence, 2019 ⓘ paper ⓘ project **Oral Presentation**
APSIPA 2014	**Background modeling using depth information**. <u>Yu-Lun Liu</u> and Hsueh-Ming Hang Signal and Information Processing Association Annual Summit and Conference, 2014
PCS 2013	**Virtual view synthesis using backward depth warping algorithm**. Du-Hsiu Li, Hsueh-Ming Hang, and <u>Yu-Lun Liu</u> Picture Coding Symposium, 2013

Preprints

arXiv 2023	**Portrait Distortion Correction with Perspective-Aware 3D GANs**. Zhixiang Wang, <u>Yu-Lun Liu</u>, Jia-Bin Huang, Shin'ichi Satoh, Sizhuo Ma, Guru Krishnan, Jian Wang arXiv, 2023 ⓘ paper ⓘ project

Talks

Invited Talk	**Dynamic and Local Radiance Fields for Robust View Synthesis**. MediaTek Inc., Hsinchu, Taiwan, May. 2023.
Invited Talk	**Dynamic and Local Radiance Fields for Robust View Synthesis**. Institute of Communications Engineering, NTHU, Hsinchu, Taiwan, April. 2023.
Invited Talk	**Dynamic and Local Radiance Fields for Robust View Synthesis**. The 5th Augmented Intelligence and Interaction (AII) Workshop, Taoyuan, Taiwan, March. 2023.
Guest Lecture	**What School and the Workplace Didn't Teach Me**. NYCU, Hsinchu, Taiwan, March. 2023.
Invited Talk	**Learning to See the Unseen**. Taichung Municipal Taichung First Senior High School, Taichung, Taiwan, March. 2023.
Invited Talk	**Learning to See the Unseen**. Research Center for Information Technology Innovation, Academia Sinica, Taipei, Taiwan, January. 2023.
Invited Talk	**Learning to See the Unseen**. Institute of Information Systems and Applications, NTHU, Hsinchu, Taiwan, November. 2022.
Guest Lecture	**Recent Progress on Video Restoration**. CommE7005, NTU, Taipei, Taiwan, Mar. 2022.
Guest Lecture	**Rethinking Multimedia and IC Design in the Era of AI**. CommE7005, NTU, Taipei, Taiwan, Nov. 2021.
Guest Lecture	**CV Final Project - Video Frame Interpolation**. EEE5053, NTU, Taipei, Taiwan, May. 2021.

Guest Lecture	**Rethinking Multimedia and IC Design in the Era of AI**. DEE4592, NCTU, Hsinchu, Taiwan, Mar. 2021.
Invited Talk	**Learning to See Through Obstructions**. 2020 CVPR Taiwan Sharing Session, NTU, Taipei, Taiwan, July. 2020.
Invited Talk	**Single-Image HDR Reconstruction by Learning to Reverse the Camera Pipeline**. 2020 CVPR Taiwan Sharing Session, NTU, Taipei, Taiwan, July. 2020.
Guest Lecture	**CV Final Project - Depth Estimation**. EEE5053, NTU, Taipei, Taiwan, Jan. 2020.
Invited Talk	**Deep Video Frame Interpolation using Cyclic Frame Generation**. The 3rd Augmented Intelligence and Interaction (AII) Workshop, Taoyuan, Taiwan, July. 2019.
Oral	**Deep Video Frame Interpolation using Cyclic Frame Generation**. AAAI, Honolulu, Hawaii, USA, Jan. 2019.
Guest Lecture	**CV Final Project - Depth Estimation**. EEE5053, NTU, Taipei, Taiwan, Jan. 2019.

Selected Honors and Awards

Nov 2013	**Academic Achievement Award**, *Institute of Electronics*, NCTU.
May 2013	**Academic Achievement Award**, *Institute of Electronics*, NCTU.

Teaching Experiences

Spring 2023	**CSIC30107 Video Compression**, *Department of Computer Science, National Yang Ming Chiao Tung University*.
Spring 2013	**Teaching Assistant of DEE1315 Probability and Statistics with Prof. Hsueh-Ming Hang**, *Department of Electronics Engineering, National Chiao Tung University*.

Academic Services

Organizer	2020 CVPR Taiwan Sharing Session
Journal Reviewer	IEEE Transactions on Image Processing (**TIP**) ACM Computing Surveys (**CSUR**) Applied Soft Computing Pattern Recognition ACM Transactions on Graphics (**TOG**) Information Fusion IEEE Transactions on Multimedia International Journal of Computer Vision Computer Vision and Image Understanding Computers & Graphics Multidimensional Systems and Signal Processing International Journal of Pattern Recognition and Artificial Intelligence
Conference Reviewer	ACM SIGGRAPH (**SIGGRAPH**), 2022, 2023 IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2022, 2023 IEEE Conference on Computer Vision (**ICCV**), 2021, 2023 European Conference on Computer Vision (**ECCV**), 2020, 2022 British Machine Vision Conference (**BMVC**), 2023 Asian Conference on Computer Vision (**ACCV**), 2020, 2022 International Conference on Learning Representations (**ICLR**), 2022, 2023 Conference on Neural Information Processing Systems (**NeurIPS**), 2022, 2023 International Conference on Machine Learning (**ICML**), 2023 AAAI Conference on Artificial Intelligence (**AAAI**), 2021, 2022, 2023 International Joint Conference on Artificial Intelligence (**IJCAI**), 2021, 2022, 2023 ACM International Conference on Multimedia (**MM**), 2018 IEEE International Conference on Multimedia and Expo Workshops (**ICMEW**), 2023

Research Mentor	Research Mentor for interns at MediaTek Inc., 2019, 2020, 2021, 2022.
Professional Societies	IEEE student member AAAI student member

Technical Skills

Programming	C/C++, Python
Toolbox / Software	MATLAB, OpenCV, PyTorch, TensorFlow

References

Ph.D. Advisor	**Yung-Yu Chuang**, *Professor of Department of Computer Science and Information Engineering*, National Taiwan University. ✉ cyy@csie.ntu.edu.tw 🛈 homepage
M.S. Advisor	**Hsueh-Ming Hang**, *Professor of Department of Electronics Engineering*, National Chiao Tung University. ✉ hmhang@mail.nctu.edu.tw 🛈 homepage
Director	**Johannes Kopf**, *Director of the Computational Photography Group*, Meta. ✉ johannes.peter.kopf@gmail.com
Director	**Shaw-Min Lei**, *Director of the Multimedia Technology Development Division*, MediaTek Inc. ✉ shawmin.lei@mediatek.com
Manager of Department	**Yu-Lin Chang**, *Manager of the Intelligent Vision Processing Department*, MediaTek Inc. ✉ yulinchang@google.com
Manager of Department	**Chia-Ping Chen**, *Manager of the Intelligent Vision Processing Department*, MediaTek Inc. ✉ chiaping.chen@mediatek.com
Research Mentor	**Ming-Hsuan Yang**, *Professor of Electrical Engineering and Computer Science*, University of California at Merced. ✉ mhyang@ucmerced.edu 🛈 homepage
Research Mentor	**Jia-Bin Huang**, *Associate Professor of Department of Computer Science*, University of Maryland, College Park. ✉ jbhuang@umd.edu 🛈 homepage
Research Mentor	**Yen-Yu Lin**, *Professor of Department of Computer Science*, National Yang Ming Chiao Tung University. ✉ lin@cs.nctu.edu.tw 🛈 homepage
Research Mentor	**Wei-Sheng Lai**, *Software Engineer*, Google. ✉ wlai24@ucmerced.edu 🛈 homepage
Research Mentor	**Changil Kim**, *Research Scientist*, Meta. ✉ changil@csail.mit.edu 🛈 homepage
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Research Mentor	**Chen Gao**, *Research Scientist*, Meta. ✉ gaochen@meta.com 🛈 homepage