# Wei-Sheng (Jason) Lai

Email | Homepage | Google Scholar | GitHub | Linkedin

## Experience

**Google LLC** *Mountain View, CA, USA*

Staff Software Engineer *May 2024 - Present*

Senoir Software Engineer *Nov. 2021 - April 2024*

Software Engineer *Aug. 2019 - Oct. 2021*

Enhance mobile camera imaging quality by computational photography, computer vision, and on-device ML optimization.

- Multi-Exposure Fusion (since Pixel 9)
- Video Boost (since Pixel 8) [Made By Google 2023][Made By Google 2024]
- Super Res Zoom (since Pixel 7)[Made By Google 2022][SIGGRAPH Asia 2023]
- Face Unblur (since Pixel 6)[Made By Google 2022][SIGGRAPH 2022]
- Post-ISP Image/Video Denoising (since Pixel 6)
- Face Distortion Correction [SIGGRAPH 2019, TIP 2021]

**Nvidia** *Santa Clara, CA, USA*

Research Intern *Sep 2017 - Nov. 2017, May 2018 - Nov. 2018*

- Wide-baseline video stitching for linear camera arrays (BMVC 2019)

**Adobe** *San Jose, CA, USA*

Research Intern *May 2017 - Aug. 2017*

- Blind video temporal consistency (ECCV 2018)

**Microsoft** *Redmond, WA, USA*

Research Intern *May 2016 - Aug. 2016*

- Hyperlapse generation from $360^\circ$ video (TVCG 2018)

## Education

Ph.D **University of California, Merced,** Electrical Engineering and Computer Science, *California, USA* *2015 - 2019*

M.S **National Taiwan University,** Communication Engineering, *Taipei, Taiwan* *2012 - 2014*

B.S **National Taiwan University,** Electrical Engineering, *Taipei, Taiwan* *2008 - 2012*

## Selected Publications

### Conferences

**High-Resolution Frame Interpolation with Patch-based Cascaded Diffusion** *AAAI, 2025*

*Junhwa Hur*, Charles Herrmann*, Saurabh Saxena, Janne Kontkanen, Wei-Sheng Lai, Yichang Shih, Michael Rubinstein, David J. Fleet, and Deqing Sun*

**Efficient Hybrid Zoom using Camera Fusion on Mobile Phones** *SIGGRAPH Asia, 2023*

*Xiaotong Wu, Wei-Sheng Lai, YiChang Shih, Charles Herrmann, Michael Krainin, Deqing Sun, and Chia-Kai Liang*

**Vision Transformer for NeRF-Based View Synthesis from a Single Input Image** *WACV 2023*

*Kai-En Lin, Lin Yen-Chen, Wei-Sheng Lai, Tsung-Yi Lin, YiChang Shih, and Ravi Ramamoorthi*

**Face Deblurring using Dual Camera Fusion on Mobile Phones** *SIGGRAPH, 2022*

*Wei-Sheng Lai, YiChang Shih, Lun-Cheng Chu, Xiaotong Wu, Sung-Fang Tsai, Michael Krainin, Deqing Sun, and Chia-Kai Liang*

**Stylizing 3D Scene via Implicit Representation and HyperNetwork** *WACV, 2022*

*Pei-Ze Chiang, Meng-Shiun Tsai, Hung-Yu Tseng, Wei-Sheng Lai, and Wei-Chen Chiu*

**Deep Online Fused Video Stabilization** *WACV, 2022*

*Zhenmei Shi, Fuhao Shi, Wei-Sheng Lai, Chia-Kai Liang and Yingyu Liang*

**Hybrid Neural Fusion for Full-frame Video Stabilization** *ICCV, 2021*

*Yu-Lun Liu, Wei-Sheng Lai, Ming-Hsuan Yang, Yung-Yu Chuang, and Jia-Bin Huang*

**Real-time Localized Photorealistic Video Style Transfer** *WACV, 2021*

*Xide Xia, Tianfan Xue, Wei-Sheng Lai, Zheng Sun, Abby Chang, Brian Kulis and Jiawen Chen*

**Dual-Stream Fusion Network for Spatiotemporal Video Super-Resolution** *WACV, 2021*

*Min-Yuan Tseng, Yen-Chung Chen, Yi-Lun Lee, Wei-Sheng Lai, Yi-Hsuan Tsai and Wei-Chen Chiu*

**Single-Image HDR Reconstruction by Learning to Reverse the Camera Pipeline** *CVPR, 2020*

*Yu-Lun Liu*, Wei-Sheng Lai*, Yu-Sheng Chen, Yi-Lung Kao, Ming-Hsuan Yang, Yung-Yu Chuang, and Jia-Bin Huang*

**Learning to See Through Obstructions** *CVPR, 2020*
*Yu-Lun Liu*, Wei-Sheng Lai*, Ming-Hsuan Yang, Yung-Yu Chuang, and Jia-Bin Huang*

**Visual Question Answering on 360° Images** *WACV, 2020*
*Shih-Han Chou, Wei-Lun Chao, Wei-Sheng Lai, Min Sun, and Ming-Hsuan Yang*

**Video Stitching for Linear Camera Arrays** *BMVC, 2019*
*Wei-Sheng Lai, Deqing Sun, Jinwei Gu, Orazio Gallo, Ming-Hsuan Yang, and Jan Kautz*

**Distortion-Free Wide-Angle Portraits on Camera Phones** *SIGGRAPH, 2019*
*YiChang Shih, Wei-Sheng Lai, and Chia-Kai Liang*

**Depth-Aware Video Frame Interpolation** *CVPR, 2019*
*Wenbo Bao, Wei-Sheng Lai, Chao Ma, Xiaoyun Zhang, Zhiyong Gao, and Ming-Hsuan Yang*

**Learning Blind Video Temporal Consistency** *ECCV, 2018*
*Wei-Sheng Lai, Jia-Bin Huang, Oliver Wang, Eli Shechtman, Ersin Yumer, and Ming-Hsuan Yang*

**Gated Fusion Network for Joint Image Deblurring and Super-Resolution** *BMVC, 2018*
*Xinyi Zhang, Hang Dong, Zhe Hu, Wei-Sheng Lai, Fei Wang, and Ming-Hsuan Yang*

**Deep Semantic Face Deblurring** *CVPR, 2018*
*Ziyi Shen, Wei-Sheng Lai, Tingfa Xu, Jan Kautz, and Ming-Hsuan Yang*

**Learning a Discriminative Prior for Blind Image Deblurring** *CVPR, 2018*
*Lerenhan Li, Jinshan Pan, Wei-Sheng Lai, Changxin Gao, Nong Sang, and Ming-Hsuan Yang*

**Generating a Perspective Image from a Panoramic Image by the Swung-to-Cylinder Projection** *ICIP, 2018*
*Che-Han Chang, Wei-Sheng Lai, and Yung-Yu Chuang*

**Semi-Supervised Learning for Optical Flow with Generative Adversarial Networks** *NIPS, 2017*
*Wei-Sheng Lai, Jia-Bin Huang, and Ming-Hsuan Yang*

**Deep Laplacian Pyramid Networks for Fast and Accurate Super-Resolution** *CVPR, 2017*
*Wei-Sheng Lai, Jia-Bin Huang, Narendra Ahuja, and Ming-Hsuan Yang*

**Learning Fully Convolutional Networks for Iterative Non-blind Deconvolution** *CVPR, 2017*
*Jiawei Zhang, Jinshan Pan, Wei-Sheng Lai, Rynson Lau, Ming-Hsuan Yang*

**A Comparative Study for Single-Image Blind Deblurring** *CVPR, 2016*
*Wei-Sheng Lai, Jia-Bin Huang, Zhe Hu, and Ming-Hsuan Yang*

**Blur Kernel Estimation using Normalized Color-Line Priors** *CVPR, 2015*
*Wei-Sheng Lai, Jian-Jiun Ding, Yen-Yu Lin, and Yung-Yu Chuang*

## Journals

**Deep Image Deblurring: A Survey** *IJCV 2022*
*Kaihao Zhang, Wenqi Ren, Wenhan Luo, Wei-Sheng Lai, Björn Stenger, Ming-Hsuan Yang and Hongdong Li*

**Correcting Face Distortion in Wide-Angle Videos** *TIP 2021*
*Wei-Sheng Lai, YiChang Shih, Chia-Kai Liang, and Ming-Hsuan Yang*

**Learning to See Through Obstructions with Layered Decomposition** *TPAMI 2021*
*Yu-Lun Liu*, Wei-Sheng Lai*, Ming-Hsuan Yang, Yung-Yu Chuang, and Jia-Bin Huang*

**Toward Real-World Super-Resolution via Adaptive Downsampling Models** *TPAMI 2021*
*Sanghyun Son*, Jaeha Kim*, Wei-Sheng Lai, Ming-Hsuan Yang, and Kyoung Mu Lee*

**Exploiting Semantics for Face Image Deblurring** *IJCV 2020*
*Ziyi Shen, Wei-Sheng Lai, Tingfa Xu, Jan Kautz, and Ming-Hsuan Yang*

**Gated Fusion Network for Degraded Image Super-Resolution** *IJCV 2020*
*Xinyi Zhang, Hang Dong, Zhe Hu, Wei-Sheng Lai, Fei Wang, and Ming-Hsuan Yang*

**Dynamic Scene Deblurring by Depth Guided Model** *TIP 2020*
*Lerenhan Li, Jinshan Pan, Wei-Sheng Lai, Changxin Gao, Nong Sang, and Ming-Hsuan Yang*

**MEMC-Net: Motion Estimation and Motion Compensation Driven Neural Network for Video Interpolation and Enhancement** *TPAMI 2019*
*Wenbo Bao, Wei-Sheng Lai, Xiaoyun Zhang, Zhiyong Gao, Ming-Hsuan Yang*

**Blind Image Deblurring vis Deep Discriminative Priors** *IJCV 2019*
*Lerenhan Li, Jinshan Pan, Wei-Sheng Lai, Changxin Gao, Nong Sang, and Ming-Hsuan Yang*

**Fast and Accurate Image Super-Resolution with Deep Laplacian Pyramid Networks** *TPAMI 2019*
*Wei-Sheng Lai, Jia-Bin Huang, Narendra Ahuja, and Ming-Hsuan Yang*

**Semantic-driven Generation of Hyperlapse from 360° Video** *TVCG 2018*
*Wei-Sheng Lai, Yujia Huang, Neel Joshi, Chris Buehler, Ming-Hsuan Yang and Sing Bing Kang*

### Preprints

**Portrait Neural Radiance Fields from a Single Image** *arXiv 2021*

*Chen Gao, YiChang Shih, Wei-Sheng Lai, Chia-Kai Liang and Jia-Bin Huang*

## Academic Services

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|---|---|
| $1^{st}$ and $2^{nd}$ $360^{\circ}$ Perception and Interaction (360PI) Workshops | *Organizer* |
| SIGGRAPH, SIGGRAPH Asia, NeurIPS, CVPR, ICCV, ECCV, ACCV, WACV, AAAI | *Conference reviewer* |
| IJCV, TPAMI, TIP, TCVST, TMM, CVIU, DSP, PR, TCI, TVCJ | *Journal reviewer* |

## Honors & Awards

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|---|---|
| CVPR Doctoral Consortium Award | *2019* |
| Facebook PhD Fellowship Finalist | *2018* |
| Snap Research Fellowship Honorable Mention | *2017* |
| National Taiwan University Class A Scholarship | *2013* |
| National Taiwan University Presidential Award | *2009* |