

# Wei-Sheng (Jason) Lai

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## Experience

### Google LLC

STAFF SOFTWARE ENGINEER

Mountain View, CA, USA

May 2024 - Present

SENIOR 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.

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

### Nvidia

RESEARCH INTERN

Santa Clara, CA, USA

Sep 2017 - Nov. 2017, May 2018 - Nov. 2018

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

### Adobe

RESEARCH INTERN

San Jose, CA, USA

May 2017 - Aug. 2017

- Blind video temporal consistency (ECCV 2018)

### Microsoft

RESEARCH INTERN

Redmond, WA, USA

May 2016 - Aug. 2016

- Hyperlapse generation from 360° 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

<b>Learning to See Through Obstructions</b>	CVPR, 2020
<i>Yu-Lun Liu*, <a href="#">Wei-Sheng Lai</a>*, Ming-Hsuan Yang, Yung-Yu Chuang, and Jia-Bin Huang</i>	
<b>Visual Question Answering on 360° Images</b>	WACV, 2020
<i>Shih-Han Chou, Wei-Lun Chao, <a href="#">Wei-Sheng Lai</a>, Min Sun, and Ming-Hsuan Yang</i>	
<b>Video Stitching for Linear Camera Arrays</b>	BMVC, 2019
<i><a href="#">Wei-Sheng Lai</a>, Deqing Sun, Jinwei Gu, Orazio Gallo, Ming-Hsuan Yang, and Jan Kautz</i>	
<b>Distortion-Free Wide-Angle Portraits on Camera Phones</b>	SIGGRAPH, 2019
<i>YiChang Shih, <a href="#">Wei-Sheng Lai</a>, and Chia-Kai Liang</i>	
<b>Depth-Aware Video Frame Interpolation</b>	CVPR, 2019
<i>Wenbo Bao, <a href="#">Wei-Sheng Lai</a>, Chao Ma, Xiaoyun Zhang, Zhiyong Gao, and Ming-Hsuan Yang</i>	
<b>Learning Blind Video Temporal Consistency</b>	ECCV, 2018
<i><a href="#">Wei-Sheng Lai</a>, Jia-Bin Huang, Oliver Wang, Eli Shechtman, Ersin Yumer, and Ming-Hsuan Yang</i>	
<b>Gated Fusion Network for Joint Image Deblurring and Super-Resolution</b>	BMVC, 2018
<i>Xinyi Zhang, Hang Dong, Zhe Hu, <a href="#">Wei-Sheng Lai</a>, Fei Wang, and Ming-Hsuan Yang</i>	
<b>Deep Semantic Face Deblurring</b>	CVPR, 2018
<i>Ziyi Shen, <a href="#">Wei-Sheng Lai</a>, Tingfa Xu, Jan Kautz, and Ming-Hsuan Yang</i>	
<b>Learning a Discriminative Prior for Blind Image Deblurring</b>	CVPR, 2018
<i>Lerenhan Li, Jinshan Pan, <a href="#">Wei-Sheng Lai</a>, Changxin Gao, Nong Sang, and Ming-Hsuan Yang</i>	
<b>Generating a Perspective Image from a Panoramic Image by the Swung-to-Cylinder Projection</b>	ICIP, 2018
<i>Che-Han Chang, <a href="#">Wei-Sheng Lai</a>, and Yung-Yu Chuang</i>	
<b>Semi-Supervised Learning for Optical Flow with Generative Adversarial Networks</b>	NIPS, 2017
<i><a href="#">Wei-Sheng Lai</a>, Jia-Bin Huang, and Ming-Hsuan Yang</i>	
<b>Deep Laplacian Pyramid Networks for Fast and Accurate Super-Resolution</b>	CVPR, 2017
<i><a href="#">Wei-Sheng Lai</a>, Jia-Bin Huang, Narendra Ahuja, and Ming-Hsuan Yang</i>	
<b>Learning Fully Convolutional Networks for Iterative Non-blind Deconvolution</b>	CVPR, 2017
<i>Jiawei Zhang, Jinshan Pan, <a href="#">Wei-Sheng Lai</a>, Rynson Lau, Ming-Hsuan Yang</i>	
<b>A Comparative Study for Single-Image Blind Deblurring</b>	CVPR, 2016
<i><a href="#">Wei-Sheng Lai</a>, Jia-Bin Huang, Zhe Hu, and Ming-Hsuan Yang</i>	
<b>Blur Kernel Estimation using Normalized Color-Line Priors</b>	CVPR, 2015
<i><a href="#">Wei-Sheng Lai</a>, Jian-Jiun Ding, Yen-Yu Lin, and Yung-Yu Chuang</i>	
<b>JOURNALS</b>	
<b>Deep Image Deblurring: A Survey</b>	IJCV 2022
<i>Kaihao Zhang, Wenqi Ren, Wenhan Luo, <a href="#">Wei-Sheng Lai</a>, Björn Stenger, Ming-Hsuan Yang and Hongdong Li</i>	
<b>Correcting Face Distortion in Wide-Angle Videos</b>	TIP 2021
<i><a href="#">Wei-Sheng Lai</a>, YiChang Shih, Chia-Kai Liang, and Ming-Hsuan Yang</i>	
<b>Learning to See Through Obstructions with Layered Decomposition</b>	TPAMI 2021
<i>Yu-Lun Liu*, <a href="#">Wei-Sheng Lai</a>*, Ming-Hsuan Yang, Yung-Yu Chuang, and Jia-Bin Huang</i>	
<b>Toward Real-World Super-Resolution via Adaptive Downsampling Models</b>	TPAMI 2021
<i>Sanghyun Son*, Jaeha Kim*, <a href="#">Wei-Sheng Lai</a>, Ming-Hsuan Yang, and Kyoung Mu Lee</i>	
<b>Exploiting Semantics for Face Image Deblurring</b>	IJCV 2020
<i>Ziyi Shen, <a href="#">Wei-Sheng Lai</a>, Tingfa Xu, Jan Kautz, and Ming-Hsuan Yang</i>	
<b>Gated Fusion Network for Degraded Image Super-Resolution</b>	IJCV 2020
<i>Xinyi Zhang, Hang Dong, Zhe Hu, <a href="#">Wei-Sheng Lai</a>, Fei Wang, and Ming-Hsuan Yang</i>	
<b>Dynamic Scene Deblurring by Depth Guided Model</b>	TIP 2020
<i>Lerenhan Li, Jinshan Pan, <a href="#">Wei-Sheng Lai</a>, Changxin Gao, Nong Sang, and Ming-Hsuan Yang</i>	
<b>MEMC-Net: Motion Estimation and Motion Compensation Driven Neural Network for Video Interpolation and Enhancement</b>	TPAMI 2019
<i>Wenbo Bao, <a href="#">Wei-Sheng Lai</a>, Xiaoyun Zhang, Zhiyong Gao, Ming-Hsuan Yang</i>	
<b>Blind Image Deblurring vis Deep Discriminative Priors</b>	IJCV 2019
<i>Lerenhan Li, Jinshan Pan, <a href="#">Wei-Sheng Lai</a>, Changxin Gao, Nong Sang, and Ming-Hsuan Yang</i>	
<b>Fast and Accurate Image Super-Resolution with Deep Laplacian Pyramid Networks</b>	TPAMI 2019
<i><a href="#">Wei-Sheng Lai</a>, Jia-Bin Huang, Narendra Ahuja, and Ming-Hsuan Yang</i>	
<b>Semantic-driven Generation of Hyperlapse from 360° Video</b>	TVCG 2018
<i><a href="#">Wei-Sheng Lai</a>, Yujia Huang, Neel Joshi, Chris Buehler, Ming-Hsuan Yang and Sing Bing Kang</i>	

## 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<sup>st</sup> and 2<sup>nd</sup> 360° 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