Ren Wang

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Education

National Taiwan University, Taipei, Taiwan 2021–present
Ph.D. Candidate in Computer Science and Information Engineering

- Advisor: Yung-Yu Chuang

National Tsing Hua University, Hsinchu, Taiwan 2013–2015
M.S. in Computer Science

- Advisor: Hwann-Tzong Chen

National Tsing Hua University, Hsinchu, Taiwan 2009–2013
B.S. in Computer Science

Work Experience

Google Taiwan, New Taipei City, Taiwan
Senior Software Engineer, Pixel Camera 10/2024–present

MediaTek Inc., Hsinchu, Taiwan
Senior Engineer, Multimedia Development Div. XVI 03/2023–06/2024
Senior Engineer, Multimedia Technology Development Div. 06/2020–02/2023
Engineer, Multimedia Technology Development Div. 02/2018–05/2020
Engineer, Advanced Communication Technology Div. 12/2015–01/2018

Selected Projects

Unified Codebase for AI-ISP Algorithm Development, MediaTek 2023–2024
Achievements

- Integrated 4 AI-ISP projects into a unified codebase with colleagues, where the projects included image denoising, video denoising, image enhancement, and remosaicing.
- Enabled 10+ engineers to utilize this codebase for developing algorithms within AI-ISP projects.

Responsibilities

- Led a team of 5+ engineers in the construction of the codebase's infrastructure.
- Established collaboration guidelines for cross-project and cross-functional teams.
- Improved the software architecture to support the diverse needs of AI-ISP projects.

Artificial Intelligence on Noise Reduction, MediaTek 2017–2022
Achievements

- Contributed to scaling this project across 25 smartphone series from June 2019 to Feb 2022, where the clients included OPPO, vivo, Xiaomi, realme, and OnePlus.

Responsibilities

- Applied cutting-edge AI techniques to image denoising on MediaTek's image signal processors.

- Optimized neural networks to reduce the computation time and memory/power consumption on MediaTek's deep learning accelerators.
- Collaborated closely with relevant projects, such as image enhancement, demosaicing, and HDR.

Activity and Gesture Recognition, MediaTek 2016–2017

Achievements

- Contributed to deploying this project on Helio X30 in 2017, where the client was Meizhu.

Responsibilities

- Did research on applying deep learning to gesture recognition using IMU sensors.
- Implemented statistical models and optimized their computational costs on mobile platforms, where the models included SVM, GMM, and HMM.

Publications

- Shao-Hao Lu, **Ren Wang**, Ching-Chun Huang, and Wei-Chen Chiu, "Boosting diffusion guidance via learning degradation-aware models for blind super resolution," in *Proceedings of IEEE/CVF Winter Conference on Applications of Computer Vision (WACV 2025)*, Feb 2025. **(oral presentation)**
- **Ren Wang**, Yu-Lun Liu, Yu-Hao Huang, and Ning-Hsu Wang, "Methods and apparatuses of depth estimation from focus information," U.S. Patent 11,967,096, issued Apr 23, 2024.
- Ning-Hsu Wang, **Ren Wang**, Yu-Lun Liu, Yu-Hao Huang, Yu-Lin Chang, Chia-Ping Chen, and Kevin Jou, "Bridging unsupervised and supervised depth from focus via all-in-focus supervision," in *Proceedings of IEEE/CVF International Conference on Computer Vision (ICCV 2021)*, Oct 2021.
- Chien-Chuan Su, **Ren Wang**, Hung-Jin Lin, Yu-Lun Liu, Chia-Ping Chen, Yu-Lin Chang, and Soo-Chang Pei, "Explorable tone mapping operators," in *Proceedings of International Conference on Pattern Recognition (ICPR 2020)*, Jan 2021.
- Ke-Chi Chang, **Ren Wang**, Hung-Jin Lin, Yu-Lun Liu, Chia-Ping Chen, Yu-Lin Chang, and Hwann-Tzong Chen, "Learning camera-aware noise models," in *Proceedings of European Conference on Computer Vision (ECCV 2020)*, Aug 2020.

Honors

- **MediaTek vAward** (16 times; for exemplary performance) 2015–2024
- **MediaTek Project Award** (for Dimensity 1000) July 2020
- **Valedictorian**, NTHU CS June 2013
- **Finalist of the Senior Project Contest**, NTHU CS Oct 2012

Academic Activities

Paper Reviewer

- IEEE Transactions on Image Processing
- IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2025

Teaching Assistant, National Tsing Hua University

- ISA 525700: Computer Vision for Visual Effects Spring 2015
- EECS 111000: Introduction to Programming (C language) Fall 2013, 2014

- CS 321100: Introduction to Communication Fall 2014

Technical Skills

- **Domain knowledge:** machine learning, computational photography, image processing
- **Programming:** Python, C/C++, Git, PyTorch, TensorFlow, scikit-learn, OpenCV