CHI-JUI (JERRY) HO

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EDUCATION

Ph.D. of Electrical and Computer Engineering, UC San Diego   2020-2026 (expected)
GPA: 3.90/4.00
Research interests: **Computational Imaging** and **Medical Imaging**
Relevant courses (all A): Physic Optics and Fourier Optics, Digital Signal Processing, and Statistical Learning
Advisor: Nick Antipa

Bachelor of Electrical Engineering, National Taiwan University   2015 - 2019
GPA: 3.88/4.30
Relevant courses (all A or A+): Computer Vision, Machine Learning, Mathematical Principle of Machine Learning,
Deep Learning on Computer Vision, and Convex Optimization
Advisor: Homer H. Chen

EXPERIENCE

Research Scientist Intern   Jun 2024 - Sep 2024
Reality Lab, Meta   *Redmond, WA*
Graduate Student Researcher   Sep 2020 - Now
Computational Imaging System Lab, UCSD   *San Diego, CA*
Graduate Student Researcher   Sep 2020 - Mar 2022
Video Processing Lab, UCSD   *San Diego, CA*
Research Assistant   Jul 2019 - Mar 2020
Multimedia Processing and Communications Lab, NTU   *Taipei, Taiwan*
Undergraduate Researcher   Sep 2017 - Jun 2019
Multimedia Processing and Communications Lab, NTU   *Taipei, Taiwan*
Summer Intern   Jul 2018 - Aug 2018
Department of Multimedia, Mediatek   *Hsinchu, Taiwan*

PUBLICATION

- <u>C.-J. Ho</u>, Y. Behle, R. Ramamoorthi, T.-M. Li, and N. Antipa, "A Differentiable Wave Optics Model for End-to-End Imaging System Optimization," Accepted as Oral in *Photonic West 2024*

- <u>C.-J. Ho</u>, S. Duong, Y. Wang, C. Nguyen, B.Bui, S. Truong, T. Nguyen, and C. An, "An Unsupervised Learning Approach to 3D Rectal MRI Volume Registration," in *IEEE Access*, vol. 10, pp. 87650-87660, 2022, doi: 10.1109/ACCESS.2022.3199379.

- <u>C.-J. Ho</u>, M. Valentine, W. Xiong, and N. Antipa, "Compressed Sensing of 2D IR Using Spectroscopic Models," Accepted as Poster in *International Conference on Coherent Multidimensional Spectroscopy*, 2022.

- <u>C.-J. Ho</u>, Y. Wang, J. Zhang, T. Nguyen, and C. An, "A Convolutional Neural Network Pipeline for Multi-Temporal Retinal Image Registration," in *International SoC Design Conference*, 2021.

- <u>C.-J. Ho</u>, M. Calderon-Delgado, M.-Y. Lin, J.-W. Tjiu, S.-L. Huang, and H. H. Chen, "Classification of Squamous Cell Carcinoma from FF-OCT Images: Data Selection and Progressive Model Construction," in *Computerized Medical Imaging and Graphics* 93 (2021): 101992.

- <u>C.-J. Ho</u>, M. Calderon-Delgado, C.-C. Chan, M.-Y. Lin, J.-W. Tjiu, S.-L. Huang, and H. H. Chen, "Detecting mouse squamous cell carcinoma from submicron full-field optical coherence tomography images by deep learning," in *Journal of Biophotonics*, 2020.

- <u>C.-J. Ho</u>, C.-C. Chan, and H. H. Chen, "AF-Net: A Convolutional Neural Network Approach to Phase Detection Autofocus," in *IEEE Transactions on Image Processing*, vol. 29, pp. 6386-6395, 2020.

- <u>C.-J. Ho</u> and H. H. Chen, "On the Distinction between Phase images and Two-View Light Field for PDAF of Mobile Imaging," in *Electronic Imaging*, 2020.

PROJECTS

Differentiable Wave Optics. We propose a differentiable simulator, which is able to model wave optics in compound optical system with full field-of-view. The proposed simulator is applicable to end-to-end imaging system optimization.

Compressed Sensing on 2D IR Spectrum Reconstruction. We increase the efficiency of 2D IR data collection by jointly optimizing the sampling strategy and reconstruction.

Deep Neural Network Approach to Phase Detection Autofocus. Unlike conventional PDAF algorithms easily fails on noisy data, the proposed AF-Net, a CNN-based approach, enhances the robustness and completes the autofocus in 2 lens movements.

Unsupervised Learning for MRI Image Registration. Our unsupervised learning based framework performs coarse-to-fine registration and yields accurate alignment between multi-session rectal data.

Deep Learning on OCT Image Classification. Our full-field OCT machine is able to capture cellular level information, thereby facilitates the development of a deep learning algorithm for SCC stage classification.

HONOR & AWARDS

Department Fellowship	Oct. 2020 - Jul. 2021
Electrical and Computer Engineering, UCSD	*San Diego, CA*
Merit Award	Jun. 2020
LITEON Technology Corp.	*Taipei, Taiwan*
First prize of Undergraduate Innovation Award	Sep. 2019
Electrical Engineering, NTU	*Taipei, Taiwan*
College Student Research Creativity Award	Sep. 2019
MOST Taiwan	*Taiwan*
6th place of AI Rush	Aug. 2019
Naver and LINE	*Chuncheon, Korea*
College Student Research Scholarship	Jul. 2018 - Apr. 2019
MOST Taiwan	*Taiwan*

ACADEMIC SERVICE

Journal Reviewer

Journal of Imaging Informatics in Medicine	2024
Computer Systems Science and Engineering	2023
IEEE Access	2021

Teaching Assistant

ECE 45: Circuits and Systems, UCSD	Sep. 2024 - Dec. 2024
ECE 45: Circuits and Systems, UCSD	Sep. 2023 - Dec. 2023
CSE 142: Computer Architecture Software Perspective, UCSD	Aug. 2023 - Sep. 2023
ECE 65: Components & Circuits Lab, UCSD	Jul. 2023 - Aug. 2023
EE 1006: Cornerstone EECS Design and Development, NTU	Feb. 2019 - Jul. 2019
EE 1006: Cornerstone EECS Design and Development, NTU	Feb. 2018 - Jul. 2018

SKILLS

Frameworks	PyTorch, OpenCV
Programming Language	Python, C++, Verilog, Matlab, Latex