

# CHI-JUI (JERRY) HO

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## EDUCATION

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**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**

Advisor: Nick Antipa

**B.S. of Electrical Engineering**, National Taiwan University 2015 - 2019

GPA: 3.88/4.30

Advisor: Homer H. Chen

## EXPERIENCE

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**Research Scientist Intern** Jun 2024 - Sep 2024

Reality Labs, 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

**Summer Intern** Jul 2018 - Aug 2018

Department of Multimedia, Mediatek Hsinchu, Taiwan

**Research Assistant** Sep 2017 - Mar 2020

Multimedia Processing and Communications Lab, NTU Taipei, Taiwan

## RESEARCH PROJECTS

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**Differentiable Wave Optics** June 2022 - Now

- Propose a differentiable wave optics simulator, which accurately and efficiently models diffraction and off-axis aberration in compound optics.
- Apply the simulator to end-to-end optimization of scene reconstruction and classification, and analyze the influence of wave optics effects in optimized lens configuration and algorithm.

**Medical Image Registration.** Sep. 2020 - June 2022

- Propose an unsupervised learning approach to register multi-session 3D MRI data, captured before and after clinical treatment.
- Develop a coarse-to-fine registration pipeline to align multi-session rectal data.

**Deep Learning on OCT Image Classification.** July 2019 - Mar. 2020

- Propose a deep learning classifier to estimate the clinical stage of Squamous cell carcinoma (SCC) in 3D full field OCT data, and analyze how the network extracts cellular-level information for classification.

**Convolution Neural Network Approach to Phase Detection Autofocus.** Jan. 2018 - Aug. 2019

- To address the noise-sensitive problem in conventional autofocus algorithms, the proposed AF-Net enhances the robustness and completes the autofocus in 2 lens movements regardless of the noise level.

## PUBLICATION

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- C.-J. Ho, Y. Behle, R. Ramamoorthi, T.-M. Li, and N. Antipa, "A Differentiable Wave Optics Model for End-to-End Computational Imaging System Optimization," in *International Conference on Computer Vision, 2025*
- C.-J. Ho, 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.

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

## HONOR & AWARDS

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

## ACADEMIC SERVICE

<b>Journal Reviewer</b>	
IEEE Transactions on Computational Imaging	2025
Journal of Supercomputing	2025
Journal of Imaging Informatics in Medicine	2024, 2025
Computer Systems Science and Engineering	2023
IEEE Access	2021
<b>Teaching Assistant</b>	
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

<b>Frameworks</b>	PyTorch, OpenCV
<b>Programming Language</b>	Python, C++, Verilog, Matlab, Latex