Chi-Jui (Jerry) Ho

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RESEARCH INTERESTS

Image Correspondence Estimation, Computational Imaging, Biomedical Imaging.

EDUCATION

University of California San Diego (UCSD) **San Diego, USA**
Ph.D. in Electrical and Computer Engineering *September 2020 -*
Will be supported by ECE Dept. fellowship for my first year of Ph.D. study.

National Taiwan University (NTU) **Taipei, Taiwan**
B.S. in Electrical Engineering *September 2015 - June 2019*

PUBLICATIONS

- Chi-Jui Ho, Manuel Calderon-Delgado, Chin-Cheng Chan, Ming-Yi Lin, Jeng-Wei Tjiu, Sheng-Lung Huang, and Homer H. Chen, "Detecting mouse squamous cell carcinoma from submicron full-field optical coherence tomography images by deep learning," in *Journal of Biophotonics*, 2020, doi: https://doi.org/10.1002/jbio.202000271
- Chi-Jui Ho, Chin-Cheng Chan, and Homer 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, doi: 10.1109/TIP.2019.2947349.
- Chi-Jui Ho and Homer H. Chen, "On the Distinction between Phase images and Two-View Light Field for PDAF of Mobile Imaging," in *Electronic Imaging*, 2020, doi: https://doi.org/10.2352/ISSN.2470-1173.2020.14.COIMG-390

RESEARCH EXPERIENCE

Multimedia Processing and Communications Lab, NTU **Taipei, Taiwan**
Research Assistant (with Prof. Sheng-Lung Huang and Prof. Homer H. Chen) *July 2019 - March 2020*

Research topic: *Skin Cancer Detection in Optical Coherence Tomography (OCT) Imaging*

- Provided heat map analysis for clinical features of skin cancer using CNN-based interpretation methods. This work was published in *Journal of Biophotonics*.

Multimedia Processing and Communications Lab, NTU **Taipei, Taiwan**
Undergraduate Research Assistant (with Prof. Homer H. Chen) *September 2017 - June 2019*

Research topic: *Phase Detection Autofocus (PDAF)* [Demo Video]

- Proposed a CNN-based approach that finds the in-focus position in two lens movements regardless of noise in most cases. This work was published in *IEEE Transactions on Image Processing*.
- Clarified the misconception that phase images is equivalent to two-view light field for PDAF. This work was published in *Electronic Imaging 2020*.

TEACHING EXPERIENCE

Department of Electrical and Engineering, NTU **Taipei, Taiwan**
Teaching Assistant (with Prof. Chien-Mo Li) *2018 Spring and 2019 Spring*

EE1006: Cornerstone EECS Design and Development

- Designed the final project for freshmen students with 7 professors.
- Instructed 8 teams of students in implementing searching algorithm to self-driving cars.

HONORS & AWARDS

Electrical and Computer Engineering Department Fellowship *Octobor 2020 - July 2021*
- Will be Supported by Dept. of ECE at UCSD for my first year of Ph.D. study.

1st prize in NTUEE Undergraduate Innovation Award *September 2019*
- Awarded out of all undergraduate research assistants in NTUEE.

6th place in AI Rush 2019 (100 teams attended) *August 2019*
- On behalf of Taiwan to attend the Asia-wide AI contest held by LINE and Naver.

College Student Research Creativity Award *July 2019*
- Ranked top 10 % in 2000 projects.

College Student Research Scholarship, MOST, TW *July 2018 - April 2019*
- Awarded to excellent students by Ministry of Science and Technology, Taiwan.

1st place in the final project contest of Computer Vision course (graduate level) *January 2019*
- Generated accurate depth maps in realistic scenes under challenging conditions.

1st place in the final project contest of Digital System Design course *June 2018*
- Achieved the lowest AT value (Area $\times$ time) of the pipelined MIPS design in the contest.

SELECTED TERM PROJECTS

A Survey of Optimization in Deep Neural Network *June 2019*
- Analyzed how to guarantee the convergence rate of a deep neural network through over-parameterization.

Breakout AI *January 2019*
- Automatically cleared the breakout stage regardless of the randomness.

Object Detection *June 2018*
- Implemented a Siamese network with specific training schedules to deal with few-shot learning.

Chinese QA *January 2018*
- Implemented the FastQA model to select the key sentence from text written in Chinese.

KEY SKILLS

Programming Language	Python, C++, Verilog, Matlab, Latex
Frameworks	Pytorch, OpenCV
Natural Language	Chinese (native speaker), English (fluent)

SELECTED COURSES TAKEN

Computer Vision	Computer Vision: from recognition to geometry
	Deep Learning for Computer Vision
Machine Learning	Mathematical Principles of Machine Learning, Machine Learning,
	Introduction to Artificial Intelligence and Machine Learning
Mathematics	The Design and Analysis of Algorithms, Convex Optimization
	Discrete Mathematics
Hardware	Digital System Design, Integrated Circuit Design
	Electrical Engineering Lab (digital Circuit), Power Electronics Laboratory

Underlined courses are at graduate level