

Chih-Hui (John) Ho

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Education

- Sep. 2019 - **University of California San Diego, La Jolla, CA.**
Now PhD student in Electrical Computer Engineering
Advisor: Prof. Nuno Vasconcelos
- Sep. 2017 - **University of California San Diego, La Jolla, CA.**
Jun. 2019 M.S. in Computer Science, GPA: 3.87/4.0
- Jan. 2016 - **University of Illinois at Urbana-Champaign, Champaign, IL.**
May 2016 Exchange student in Computer Science, GPA: 3.71/4.0
- Sep. 2012 - **National Chiao Tung University, Hsinchu, Taiwan.**
Jun. 2016 B.S. in EECS Honor Program, GPA: 4.15/4.3

Research Interest

Computer Vision: Recognition, Multiview object classification, 3D understanding
Deep Learning: Metric learning, Adversarial attack, Self-supervised learning, Continuous learning

Publication

- 2020 **Chih-Hui Ho**, Nuno Vasconcelos, "Contrastive Learning with Adversarial Examples", In *Neural Information Processing Systems (NeurIPS)*, 2020
- 2020 Tz-Ying Wu, Pedro Morgado, Pei Wang, **Chih-Hui Ho**, Nuno Vasconcelos, "Solving Long-tailed Recognition with Deep Realistic Taxonomic Classifier", In *European Conference on Computer Vision (ECCV)*, 2020
- 2020 **Chih-Hui Ho**, Bo Liu, Tz-Ying Wu, Nuno Vasconcelos, "Exploit Clues from Views: Self-Supervised and Regularized Learning for Multiview Object Recognition", In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020
- 2020 Jen-Hui Chuang, **Chih-Hui Ho**, Ardian Umam, HsinYi Chen, Mu-Tien Lu, Jenq-Neng Hwang, Tai-An Chen, "Geometry-Based Camera Calibration Using Closed-Form Solution of Principal Line", *IEEE Transaction on Image Processing (TIP)* 2020. [Paper] [ArXiv]
- 2020 Brandon Leung, **Chih-Hui Ho**, Nuno Vasconcelos, "Black-Box Test-Time Shape REFINement for Single View 3D Reconstruction", [ArXiv]
- 2019 **Chih-Hui Ho**, Pedro Morgado, Amir Persekian, Nuno Vasconcelos, "PIEs: Pose Invariant Embeddings", In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019
- 2019 **Chih-Hui Ho**^{*}, Brandon Leung^{*}, Erik Sandstrom, Yen Chang, Nuno Vasconcelos, "Catastrophic Child's Play: Easy to Perform, Hard to Defend Adversarial Attacks", In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019
- 2019 Brandon Leung, **Chih-Hui Ho**, Amir Persekian, David Orozco, Yen Chang, Erik Sandstrom, Bo Liu, Nuno Vasconcelos, "OOWL500: Overcoming Dataset Collection Bias in the Wild", [ArXiv]
- 2018 Yu-Shiuan Tsai, Yi-Yu Hsieh, **Chih-Hui Ho**, Ya-Ching Chang, Yao-Yuan Chang, Heng-Jyun Lin, Han-Yang Wang, Yu-Chen Chou, Jen-Hui Chuang, "Rule-Based Optical Character Recognition for Serial Number on Renminbi Banknote", In *IS&T Electronic Imaging 2018 (EI)* (oral presentation)

Academic Services

- Reviewer NeurIPS (2021, 2020), CVPR (2022, 2021 (**Outstanding Reviewer**), 2020), ECCV (2020), ICCV (2021), TPAMI (2021), ICML (2022, 2021), ICLR (2022), ACCV (2020), WACV (2022, 2021), ECCV Imbalance Problems in Computer Vision Workshop (2020), ICIP (2019, 2020)
- Volunteer CVPR 2020 Area Chair Meeting, San Diego

Teaching Experience

UCSD ECE 271B Statistical Learning, ECE 271C Deep Learning and Applications

Professional Experience

- Jan. 2018 - **Graduate Student Researcher, Statistical Visual Computing Lab, UCSD.**
Now Working on multiview recognition, 3D vision, self-supervised learning, structured embedding
- Jun. 2021 - **Amazon AWS Applied Scientist Intern.**
Sept. 2021 Developed a visual grounding transformer model with 1.3x smaller size and 3x faster speed
- Sept. 2017 - **Research Volunteer, San Diego Supercomputer Center.**
Dec. 2017 Reduced error of large scale operational facility data (200 GB) in scientific workflow by 23%
- Nov. 2016 - **Research Assistant, NCTU Computer Vision Research Center.**
Jun. 2017
 - o Developed deep learning model for human activity analysis in aerial images
 - o Designed bill serial number recognition system with more than 99 % accuracy
 - o Developed camera calibration algorithm and implemented the algorithm into prototype
 - o Developed algorithm for automated optical inspection (AOI) for bobbin defects
- Jan. - Dec. 2015 **Software Engineer Internship, Industrial Technology Research Institute.**
 - o Developed a prototype to calibrate robotic arm with an industrial camera
 - o Represented ITRI to attend 2015 Taiwan Automation Intelligence and Robot Show
 - o Received Mechanical and Systems Research Lab Prospective Project Excellence Award
- Jul. - Aug. 2014 **Research Internship, Cornell University Advanced Multimedia Lab.**
2014 Design algorithm to generate image collage based on emotional ROIs

Selected Projects

- Jan. - Mar. 2018 **2018 Kaggle data science bowl, Keras.**
 - o Implemented image segmentation deep learning models for medical images
 - o Ranked top 18% in the competition
- Nov. 2016 - **Deep learning based human activity analysis for aerial images, C.**
Jun. 2017
 - o Trained convolutional neural network to detect human with more than 91%
 - o Analyzed human behavior with principle component analysis and vanishing point
- Nov. 2016 - **Assignment design for UIUC CS543 computer vision course, Matlab.**
Jun. 2017
 - o Implemented example code and designed example architecture to train Cifar 100
 - o Wrote deep learning tutorials and assignment walkthrough instructions on Kaggle
- Jul. - Dec. 2013 **Human tracking mobile robots with Kinect, C++.**
 - o Identified user patterns with SIFT and GMM background subtraction algorithms
 - o Integrated depth sensor information, target user features and mobile robot control

Skills

Languages Python, C/C++ , MATLAB, C#

Library Pytorch, Tensorflow, Numpy, Pandas, Matplotlib, MatConvNet, OpenCV, Keras, Kubernetes, L^AT_EX

Leadership

- 2018-2021 **Summer Research Internship Program, UCSD.**
 - o Mentored students in the Spring/Summer Research Intern Program (SRIP) in computer vision research.
- 2019-2020 **GEAR Research Mentor, UCSD.**
 - o Mentored students in Guided Engineering Apprenticeship in Research (GEAR) program in computer vision research.
- 2018-2019 **ENLACE bi-national summer research program, UCSD.**
 - o Mentored students in ENLACE, a high school outreach program promoting diversity in research, especially in Hispanic communities.

2013-2014 **President of Student Association of EECS Department, NCTU.**

- o Organize student events and invite speakers from industry for tech talk

Award

- May 2021 2021 Qualcomm Innovation Fellowship Finalist [\[link\]](#)
Spring 2019 UCSD graduate student association travel grant award
Jan. 2016 - Full Scholarship as exchange student at UIUC
May 2016
Jul. - Aug. 2014 Full Scholarship for an internship in Cornell University
Sep. 2012 - National Chiao Tung University scholarship
Jun. 2016

Exchange Experience

- Jan. - Jun. 2016 Exchange student at University of Illinois at Urbana-Champaign
Jul. - Aug. 2014 Short term internship in Advanced Multimedia Lab in Cornell University

Language

Mandarin, English