

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
- 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 Jen-Hui Chuang, **Chih-Hui Ho**, Ardian Umam, HsinYi Chen, Mu-Tien Lu, Jenq-Neng Hwang, Tai-An Chen, "A New Technique of Camera Calibration: A Geometric Approach Based on Principal Lines" <https://arxiv.org/abs/1908.06539>, IEEE Transaction on Image Processing (TIP) 2019
- 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 (2020), CVPR (2022, 2021 (**Outstanding Reviewer**), 2020), ECCV (2020), ICCV (2021), ICML (2021), ICLR (2022), ACCV (2020), WACV (2022, 2021), ECCV Imbalance Problems in Computer Vision Workshop (2020), ICIP (2019, 2020)

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 language model with 1.3x smaller model size and 3x faster speed
- Sep. 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 - Jun. 2017 **Deep learning based human activity analysis for aerial images, C.**
 - 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 - Jun. 2017 **Assignment design for UIUC CS543 computer vision course, Matlab.**
 - 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's 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, \LaTeX

Leadership

- 2018-2019 ENLACE bi-national summer research program, UCSD
- 2018-2020 Summer Research Internship Program, UCSD
- 2013-2014 President of Student Association of EECS Department, NCTU

Award

- May 2021 2021 Qualcomm Innovation Fellowship Finalist [\[link\]](#)
- Spring 2019 UCSD graduate student association travel grant award
- Jan. 2016 - May 2016 Full Scholarship as exchange student at UIUC
- 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