

# CHIH-HUI (JOHN) HO

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## EDUCATION

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

## RESEARCH INTEREST

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Computer vision, Image processing, Artificial intelligence, Machine learning, Deep learning

## PUBLICATION

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- **Chih-Hui Ho**, Pedro Morgado, Amir Persekian, Nuno Vasconcelos. PIEs: Pose Invariant Embeddings, In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019.
- **Chih-Hui Ho**<sup>\*</sup>, Brandon Leung<sup>\*</sup>, 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.
- 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>, 2019. Under review in IEEE Transactions on Image Processing (TIP).
- 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)

## TEACHING EXPERIENCE

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

## ACADEMIC SERVICES

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**Reviewer:** Computer Vision and Pattern Recognition (CVPR) 2020, IEEE International Conference on Image Processing (ICIP) 2019

## PROFESSIONAL EXPERIENCE

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| <b>Graduate Student Researcher, Statistical Visual Computing Lab, UCSD</b><br>• Working on multiview recognition, self-supervised learning, structured embedding                                                                                                                                                                                                                                             | Jan. 2018 - Now       |
| <b>Research Volunteer, San Diego Supercomputer Center</b><br>• Reduced error of large scale operational facility data (200 GB) in scientific workflow by 23%                                                                                                                                                                                                                                                 | Sep. 2017 - Dec. 2017 |
| <b>Research Assistant, NCTU Computer Vision Research Center</b><br>• Developed deep learning model for human activity analysis in aerial images<br>• Designed bill serial number recognition system with more than 99 % accuracy<br>• Developed camera calibration algorithm and implemented the algorithm into prototype<br>• Developed algorithm for automated optical inspection (AOI) for bobbin defects | Nov. 2016 - Jun. 2017 |
| <b>Software Engineer Internship, Industrial Technology Research Institute</b><br>• Developed a prototype to calibrate robotic arm with an industrial camera<br>• Represented ITRI to attend 2015 Taiwan Automation Intelligence and Robot Show<br>• Received Mechanical and Systems Research Lab Prospective Project Excellence Award                                                                        | Jan. - Dec. 2015      |
| <b>Research Internship, Cornell University Advanced Multimedia Lab</b>                                                                                                                                                                                                                                                                                                                                       | Jul. - Aug. 2014      |

- Design algorithm to generate image collage based on emotional ROIs

## PROJECTS

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

## EXCHANGE EXPERIENCE

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

## AWARDS

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- UCSD graduate student association travel grant award** Spring 2019
- Full Scholarship as exchange student at UIUC** Jan. 2016 - May 2016
- Full Scholarship for an internship in Cornell University** Jul. - Aug. 2014
- National Chiao Tung University scholarship** Sep. 2012 - Jun. 2016

## SKILLS

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

**Library:** Pytorch, Tensorflow, Numpy, Pandas, Matplotlib, MatConvNet, OpenCV, Keras, L<sup>A</sup>T<sub>E</sub>X