

## EDUCATION

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### Johns Hopkins University (JHU)

Ph.D. in Electrical and Computer Engineering

– Advisor: Prof. Vishal M. Patel

Baltimore, MD

Aug. 2019 –Present

### National Chiao Tung University (NCTU)

M.S. in Electronics Engineering

– Advisor: Prof. Hsueh-Ming Hang

Hsinchu, Taiwan

Sep. 2017 –Jun. 2019

B.S. in EECS Undergraduate Honors Program

Sep. 2013 –Jun. 2017

### University of Illinois at Urbana-Champaign (UIUC)

Exchange Program in Electrical and Computer Engineering

Champaign, IL

Aug. 2016 –Dec. 2016

## INDUSTRY EXPERIENCE

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### Amazon (Just Walk Out team)

Applied Scientist Intern

– Mentors: Poojan Oza, Sumanth Chennupati, and Alejandro Galindo

Seattle, WA

May 2022 –Aug. 2022

### Amazon (Astro team)

Applied Scientist Intern

– Mentors: Wei Wang, Jim Thomas, Jingjing Zheng, and Cheng-Hao Kuo

Bellevue, WA

May 2021 –Aug. 2021

## RESEARCH AREAS

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Adversarial machine learning [1, 3 - 7]; Domain adaptation [2, 3]; Semantic segmentation [8 - 12]; Monocular depth estimation [3]; Novelty detection [2]; Lane detection [10, 12]; Frequency domain computer vision [9]

## PUBLICATIONS

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- [1] **Shao-Yuan Lo**, Poojan Oza, and Vishal M. Patel. “Adversarially Robust One-class Novelty Detection.” In *IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)*, 2022.
- [2] **Shao-Yuan Lo**, Wei Wang, Jim Thomas, Jingjing Zheng, Vishal M. Patel, and Cheng-Hao Kuo. “Learning Feature Decomposition for Domain Adaptive Monocular Depth Estimation.” In *IEEE International Conference on Intelligent Robots and Systems (IROS)*, 2022.
- [3] **Shao-Yuan Lo** and Vishal M. Patel. “Exploring Adversarially Robust Training for Unsupervised Domain Adaptation.” In *Asian Conference on Computer Vision (ACCV)*, 2022.
- [4] **Shao-Yuan Lo** and Vishal M. Patel. “Defending Against Multiple and Unforeseen Adversarial Videos.” In *IEEE Transactions on Image Processing (T-IP)*, 2021.
- [5] **Shao-Yuan Lo** and Vishal M. Patel. “Error Diffusion Halftoning Against Adversarial Examples.” In *IEEE International Conference on Image Processing (ICIP)*, 2021.
- [6] **Shao-Yuan Lo**, Jeya Maria Jose Valanarasu, and Vishal M. Patel. “Overcomplete Representations Against Adversarial Videos.” In *IEEE International Conference on Image Processing (ICIP)*, 2021.

- [7] **Shao-Yuan Lo** and Vishal M. Patel. “MultAV: Multiplicative Adversarial Videos.” In *IEEE International Conference on Advanced Video and Signal-based Surveillance (AVSS)*, 2021.
- [8] **Shao-Yuan Lo**, Hsueh-Ming Hang, Sheng-Wei Chan, and Jing-Jhih Lin. “Efficient Dense Modules of Asymmetric Convolution for Real-Time Semantic Segmentation.” In *ACM International Conference on Multimedia in Asia (MMAsia)*, 2019. [Best Paper Award]
- [9] **Shao-Yuan Lo** and Hsueh-Ming Hang. “Exploring Semantic Segmentation on the DCT Representation.” In *ACM International Conference on Multimedia in Asia (MMAsia)*, 2019. [Oral]
- [10] **Shao-Yuan Lo**, Hsueh-Ming Hang, Sheng-Wei Chan, and Jing-Jhih Lin. “Multi-Class Lane Semantic Segmentation using Efficient Convolutional Networks.” In *IEEE International Workshop on Multimedia Signal Processing (MMSP)*, 2019.
- [11] Shang-Wei Hung, **Shao-Yuan Lo**, and Hsueh-Ming Hang. “Incorporating Luminance, Depth and Color Information by a Fusion-based Network for Semantic Segmentation.” In *IEEE International Conference on Image Processing (ICIP)*, 2019. [Oral]
- [12] Ping-Rong Chen\*, **Shao-Yuan Lo\***, Hsueh-Ming Hang, Sheng-Wei Chan, and Jing-Jhih Lin. “Efficient Road Lane Marking Detection with Deep Learning.” In *IEEE International Conference on Digital Signal Processing (DSP)*, 2018.

## AWARDS

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• <b>Government Scholarship to Study Abroad</b> , Ministry of Education, Taiwan	2020
• <b>Best Paper Award</b> , ACM MMAsia 2019	2019
• <b>Best Master Thesis Award</b> , Chinese Image Processing and Pattern Recognition Society	2019
• <b>Students’ Outstanding Contribution Award</b> (highest honor of graduation), NCTU	2019
• <b>Dean’s List</b> , EECS Honors Program, NCTU	2017
• <b>Scholarship for Outbound Exchange</b> , NCTU	2016
• <b>WINTEK Outstanding Freshman Scholarship</b> , WINTEK Corp. and NCTU	2013

## INVITED TALKS

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- Apr 5, 2022: “Adversarial Attacks and Defenses.” At the Deep Learning (EN.520.638) course, Johns Hopkins University. Host: Prof. Vishal M. Patel.
- Jan 10, 2022: “Defending Against Multiple and Unforeseen Adversarial Videos.” At National Yang Ming Chiao Tung University, Taiwan. Host: Prof. Wen-Hsiao Peng.
- Jan 5, 2022: “Defending Against Multiple and Unforeseen Adversarial Videos.” At Academia Sinica, Taiwan. Host: Prof. Jun-Cheng Chen.
- Jun 19, 2021: “Adversarial Attacks and Defenses in Videos.” At CVPR 2021 Tutorial on Adversarial Machine Learning in Computer Vision, Virtual. Host: Prof. Cihang Xie.

## ACADEMIC SERVICES

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- **Journal Reviewer:** IEEE T-PAMI, IEEE T-CSVT, IEEE T-SMC, Pattern Recognition
- **Conference Reviewer:** CVPR (2022), ICCV (2021), ECCV (2022), AAAI (2023), WACV (2021, 2022), ACCV (2022), ICIP (2022), AVSS (2021, 2022)
- **Teaching Assistant:** Deep Learning (EN.520.638), JHU, Spring (2021, 2022)

## PROGRAMMING SKILLS

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- **Programming Languages:** Python, MATLAB, C/C++
- **Deep Learning Libraries:** PyTorch, TensorFlow, Caffe
- **Hardware Design Tools:** Verilog, HSPICE, Cadence Virtuoso

## LEADERSHIP

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|--------------------------------------------------------------|------------|
| • Vice President, JHU Taiwanese Student Association          | 2020 –2022 |
| • Secretary, NCTU EECS Student Association                   | 2015 –2016 |
| • Treasurer, NCTU Chinese Chess Club                         | 2014 –2015 |
| • Arts Chair, NCTU EECS Summer Camp for High School Students | 2014 –2015 |