

# SHIH-YANG SU

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## EDUCATION

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### Master of Science, Computer Engineering

Virginia Tech, Blacksburg VA, United States

Advisor: Prof. Jia-Bin Huang

- Visual Representation Learning, Embodied Vision Learning

Aug 2018 - Present

GPA: 3.92/4.00

### Bachelor of Science, Computer Science

National Tsing Hua University, Hsinchu, Taiwan

Advisor: Prof. Shang-Hong Lai, Prof. Chun-Yi Lee

- Object Detection on Embedded System, Multi-agent Reinforcement Learning

Sep 2013 - Jun 2017

GPA: 4.16/4.30, Rank: 3/120 (top 2.5%)

## PUBLICATIONS

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- **Graph generation with variational recurrent neural network**

*Shih-Yang Su, Hossein Hajimirsadeghi, Greg Mori*

Neural Information Processing Systems (**NeurIPS Workshop**), 2019 [[pdf](#)]

- **Diversity-driven exploration strategy for deep reinforcement learning**

*Zhang-Wei Hong, Tzu-Yun Shann, Shih-Yang Su, Yi-Hsiang Chang, Chun-Yi Lee*

Neural Information Processing Systems (**NeurIPS**), 2018 [[pdf](#)]

- **Virtual-to-real: Learning to control in visual semantic segmentation**

*Zhang-Wei Hong, Yu-Ming Chen, Hsuan-Kung Yang, Shih-Yang Su, Tzu-Yun Shann, Yi-Hsiang Chang, Brian Hsi-Lin Ho, Chih-Chieh Tu, Yueh-Chuan Chang, Tsu-Ching Hsiao, Hsin-Wei Hsiao, Sih-Pin Lai, Chun-Yi Lee*

International Joint Conference on Artificial Intelligence (**IJCAI**), 2018 [[video](#)][[pdf](#)]

- **A deep policy inference Q-network for multi-agent systems**

*Shih-Yang Su\*, Zhang-Wei Hong\*, Tzu-Yun Shann\*, Yi-Hsiang Chang, and Chun-Yi Lee*

(\*: equal contribution)

International Conference on Autonomous Agents and Multiagent Systems (**AAMAS**), 2018 [[pdf](#)]

- **Automatic conversion of pop music into chiptunes for 8-bit pixel art**

*Shih-Yang Su, Cheng-Kai Chiu, Li Su, and Yi-Hsuan Yang*

International Conference on Acoustics, Speech and Signal Processing (**ICASSP**), 2017 [[pdf](#)]

## RESEARCH AND WORK EXPERIENCE

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### Research Intern - Borealis AI

May 2019 - Aug 2019

Mentor: Dr. Hossein Hajimirsadeghi, Prof. Greg Mori

- Worked on graph structure generation with variational inference [[pdf](#)]
- Worked on graph convolutional network for banking application

### Research Assistant - Virginia Tech

Fall 2018

Advisor: Prof. Jia-Bin Huang

- Developed compact optical flow estimation model with implicit occlusion reasoning
- Worked on visual navigation algorithm in Habitat environment

### Research Assistant - National Tsing Hua University

Jan 2017 - April 2018

Advisor: Prof. Chun-Yi Lee

- Developed algorithm for multi-agent collaborative/competitive scenarios [[pdf](#)]

- Proposed ways to improve exploration for RL agent [\[pdf\]](#)
- Worked on virtual-to-real learning for vision-based robot navigation [\[pdf\]](#)

#### Research Assistant - National Tsing Hua University

Fall 2016

Advisor: Prof. Shang-Hong Lai

- Deployed algorithms on embedded system for real-time object detection

#### Research Assistant - Academia Sinica

Summer 2016

Advisor: Dr. Yi-Hsuan Yang, Dr. Li Su

- Developed algorithms for converting pop music into 8-bit song [\[pdf\]](#)

#### Quality Assurance Team Intern - Broadcom

Summer 2015

### PROFESSIONAL ACTIVITIES

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Conference Reviewer: NeurIPS 2019

Student Volunteer: NeurIPS 2018

### TEACHING

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Teaching Assistant - ECE / CS 6524 Deep Learning

Fall 2019

Teaching Assistant - ECE5424 / CS5824: Advanced Machine Learning

Spring 2019

Teaching Assistant - Hardware Laboratory

Fall 2016

### AWARDS

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#### ZyXEL Outstanding Student Scholarship

*Awarded to outstanding student in college of Electrical Engineering and Computer Science*

#### Excellent Graduation Project Award

*Awarded to top 5 graduation projects in Dept. of Computer Science*

#### Academic Achievement Awards (5 times, 2013-2017)

*Awarded to top 5% students in Dept. of Computer Science*

### SELECTED PROJECTS

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#### Pop-to-8bit [\[github\]](#)

**S.-Y. Su**, C.-K. Chiu, L. Su, and Y.-H. Yang

*A pipeline that combine both machine learning and signal processing techniques to convert pop musics into chiptune songs.*

#### Keras Image Captioning Model [\[github\]](#)

**S.-Y. Su**, Y.-R. Lin, S.-D. Yang

*NTHU CS565500 course project, CIDErD score: 0.765, Rank 1st in the class*

#### A deep policy inference Q-network for multi-agent systems [\[github\]](#)

**S.-Y. Su**, Z.-W. Hong, Y.-S. Chang, T.-Y. Shann, and C.-Y. Lee

*Tackling non-stationarity problem in multi-agent RL settings through inferring opponents/collaborators policies.*

### RELEVANT COURSES

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Large-scale Machine Learning

Linear System Theory

Statistical Inference

Parallel Programming

Computer Vision

Information Theory

Software Engineering

Calculus & Linear Algebra