

SHIH-YANG SU

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EDUCATION

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

- **3D photography using context-aware layered depth inpainting**
*Meng-Li Shih, **Shih-Yang Su**, Johannes Kopf, Jia-Bin Huang*
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2020 [pdf][project page]
- **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

Research Intern - Borealis AI

Mentor: Dr. Hossein Hajimirsadeghi, Prof. Greg Mori

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

May 2019 - Aug 2019

Research Assistant - Virginia Tech

Advisor: Prof. Jia-Bin Huang

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

Fall 2018

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**Conference Reviewer:** NeurIPS 2019**Student Volunteer:** NeurIPS 2018

TEACHING**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**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**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

Large-scale Machine Learning
Linear System Theory
Statistical Inference
Parallel Programming

Computer Vision
Information Theory
Software Engineering
Calculus & Linear Algebra