

# SHIH-YANG SU

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## EDUCATION

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### Ph.D., Computer Science

Fall 2020 - Present

The University of British Columbia, Vancouver BC, Canada

Advisor: Prof. Helge Rhodin

- Human Motion Learning, Character Control and Animation

### M.Sc., Computer Engineering

Aug 2018 - May 2020

Virginia Tech, Blacksburg VA, United States

GPA: 3.95/4.00

Advisor: Prof. Jia-Bin Huang

- Visual Representation Learning, Embodied Vision Learning

### B.Sc., Computer Science

Sep 2013 - Jun 2017

National Tsing Hua University, Hsinchu, Taiwan

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

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

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

## PUBLICATIONS

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- **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

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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, 2020), ICLR (2021)  
**Student Volunteer:** NeurIPS (2018, 2019)

## 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.*