

# SHIH-YANG SU

<https://lemonatsu.github.io/>

## 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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- **A-NeRF: Surface-free human 3D pose refinement via neural rendering**  
*Shih-Yang Su, Frank Yu, Michael Zollhöfer, Helge Rhodin*  
Neural Information Processing Systems (**NeurIPS**), 2021 (to appear)
- **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

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**PROFESSIONAL ACTIVITIES****Conference Reviewer:** NeurIPS (2019, 2020), ICLR (2021)**Student Volunteer:** NeurIPS (2018, 2019)

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**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

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**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*

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**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.*