SHIH-YANG SU

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EDUCATION

Master of Science, Computer Engineering *Aug 2018 - Present*
Virginia Tech, Blacksburg VA, United States GPA: 3.92/4.00
Advisor: Prof. Jia-Bin Huang
- Visual Representation Learning, Embodied Vision Learning

Bachelor of Science, 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

- **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 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

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