

# Shih-Yang Su

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## EDUCATION

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- 2018.8 - **Ph.D. in Electrical and Computer Engineering**  
*Dept. of Electrical and Computer Engineering, Virginia Tech, Blacksburg, VA*
- Visual Representation Learning
    - Common Sense Reasoning
  - Embodied Vision Learning
- Advisor: Prof. Jia-Bin Huang*
- 2013.9 - 2017.6 **B.S. in Computer Science**  
*Dept. of Computer Science, National Tsing Hua University, Hsinchu, Taiwan*
- Rank: 3<sup>rd</sup>/120 (top 2.5%)
  - GPA: 4.16/4.30 (overall), 4.25/4.30 (major)

## PUBLICATIONS

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- **Anonymous submission**  
IEEE conference on Computer Vision and Pattern Recognition (CVPR), 2019
- **Diversity-driven exploration strategy for deep reinforcement learning**  
*Z.-W. Hong, T.-Y. Shann, S.-Y. Su, Y.-H. Chang, C.-Y. Lee*  
Neural Information Processing Systems (NeurIPS), 2018 [[pdf](#)]
- **Virtual-to-real: Learning to control in visual semantic segmentation**  
*Z.-W. Hong, Y.-M. Chen, S.-Y. Su, T.-Y. Shann, Y.-H. Chang, H.-K. Yang, B. Ho, C.-C Tu, Y.-C. Chang, T.-C. Hsiao, H.-W. Hsiao, S.-P. Lai, C.-Y. Lee*  
International Joint Conference on Artificial Intelligence (IJCAI), 2018 [[video](#)][[pdf](#)]
- **A deep policy inference Q-network for multi-agent systems**  
*S.-Y. Su\**, *Z.-W. Hong\**, *Y.-S. Chang\**, *T.-Y. Shann\**, and *C.-Y. Lee\**  
(\* indicates 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**  
*S.-Y. Su, C.-K. Chiu, L. Su, and Y.-H. Yang*  
International Conference on Acoustics, Speech and Signal Processing (ICASSP), pp. 411-415. Mar. 2017 [[ieee](#)][[pdf](#)]

## EXPERIENCES

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- 2017 - 2018 **Research Assistant**  
*Dept. of Computer Science, National Tsing Hua University, Taiwan*
- Developed algorithm for multi-agent collaborative/competitive scenarios [[pdf](#)]
  - Worked on methods to improve exploration for RL agent [[pdf](#)]
  - Worked on virtual-to-real learning for vision-based robot navigation [[pdf](#)]
- Advisor: Prof. Chun-Yi Lee*

Fall 2016 **Teaching Assistant** - Hardware Laboratory., Fall 2016  
*Dept. of Computer Science, National Tsing Hua University, Hsinchu, Taiwan*  
*Advisor: Prof. Chun-Yi Lee*

**Research Assistant**

*Dept. of Computer Science, National Tsing Hua University, Hsinchu, Taiwan*  
• Deployed algorithms on embedded system for real-time object detection  
*Advisor: Prof. Shang-Hong Lai*

Summer 2016 **Research Assistant**  
*Academia Sinica, Research Center for Information Technology Innovation, Taiwan*  
• Developed algorithms for converting pop music into 8-bit  
*Advisor: Prof. Yi-Hsuan Yang, Prof. Li Su*

Summer 2015 **Internship** - Quality Assurance Team  
*Broadcom Corporation, Hsinchu, Taiwan*  
• Captured a bug in hardware driver

**AWARDS**

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- **NIPS 2018 Student Volunteer**
- **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*
- **Best Project Award**  
*In course Introduction to Multimedia*
- **Best Poster Presentation Award**  
*In course Social Computing Application Design*

**SELECTED PROJECTS**

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1. **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.*
2. **Keras Image Captioning Model** [[github](#)]  
S. Y. Su, Y. R. Lin, S. D. Yang, *NTHU CS565500 project, CIDErD score: 0.765, Rank 1<sup>st</sup> in course.*
3. **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 environment through inferring opponents'/collaborators' policies.*