Jiahui Zhang

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Education

University of Southern California *Los Angeles, US*

Master of Science *Jan 2020 - Dec 2021*

Ming Hsieh Department of Electrical and Computer Engineering

Beijing University of Technology *Beijing, China*

Bachelor of Engineering *Sept 2015 - Jul 2019*

Fan Gongxiu Honors College

Publication

1. Jesse Zhang, Karl Pertsch, **Jiahui Zhang**, Taewook Nam, Sung Ju Hwang, Xiang Ren, and Joseph J Lim. SPRINT: Scalable semantic policy pre-training via language instruction relabeling. In *Submitted to The Eleventh International Conference on Learning Representations (ICLR)*, 2023. under review **[Workshop Link]**
2. Xiaoqing Zhu, Dengyu Ran, Chentong Xiang, **Jiahui Zhang**, Ge Li, Zhicheng Chen, and Yuwen Fang. Design, analysis and experiments of bionic hexapod robot with multilayer c-shape legs for unstructured terrain. In *2018 13th World Congress on Intelligent Control and Automation (WCICA)*, pages 438–443, 2018 **[Link]**

Research Experience

Cognitive Learning for Vision and Robotics Lab *Los Angeles, US*

Advisor: *Prof.* Joseph J. Lim *Aug 2021 - Current*

- Working on Language-guided offline reinforcement pre-training for long-horizon skills.
- Proposed a new composition behavior learning paradigm by generating language-conditioned priors to guide the agent policy.
- Built an interface to enable humans to collect Minecraft demonstrations.

USC Media Communications Lab *Los Angeles, US*

Advisor: *Prof.* C.-C. Jay Kuo *Jan 2021 - May 2021*

- Applied image multi-layer spectrum decomposition for image denoising by coarse-to-fine layer-wise batch filtering in each spectrum range.
- Achieved comparable performance with state-of-art deep learning methods with minimum computation resources.

Fan Gongxiu Honors College Capstone Project *Beijing, China*

Advisor: *Prof.* Luheng Jia *Jul 2018 - May 2019*

- Built a video rate controller by detecting inter-frame salient regions via motion cues and intra-frame salient regions via visual cues.
- Using detected saliency to control the quantization parameters of HEVC encoder.

Beijing University of Technology Artificial Intelligence and Robotics Research Center *Beijing, China*

Advisor: *Prof.* Xiaoqing Zhu *Dec 2016 - Mar 2018*

- Design, assembly, control a bionic hexapod real robot to adapt to different terrains.
- Work accepted at World Congress on Intelligent Control and Automation (WCICA).

Course Project

Policy Adaption on Human Language Generated Environment *Los Angeles, US*

Advisor: *Prof.* Stefanos Nikolaidis *Feb 2021 - May 2021*

- Enabled a well-trained policy to adapt to any human language-described environment.
- Narrow the gap between the training environment and human described environment.
- Our method required fewer environment steps than training from scratch to solve tasks in the new environment.

Super Resolution GAN *Los Angeles, US*

Advisor: *Dr.* Jiali Duan *Mar 2020 - May 2020*

- We formulated super resolution for image generation via GAN network.
- We purposed a novel loss function to improve image perceptual quality.
- Our method preserved the image texture, reducing MSE loss on average by 20+ compared with the SRCNN baseline on the BSD100 dataset.

Award and Scholarship

2018 **Principle's scholarship,** Beijing University of Technology *Beijing, China*

2017 **Outstanding Research Achievement Award,** Beijing University of Technology, Fan Gongxiu Honors College *Beijing, China*