YUNFEI LI

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EDUCATION

Institute for Interdisciplinary Information Sciences, Tsinghua University Sep 2020 - Jul 2025 (Expected)
PhD Student in Computer Science and Technology Advisor: Yi Wu
Department of Electronic Engineering, Tsinghua University Aug 2016 - Jul 2020
Bachelor of Engineering GPA: 3.89/4.0, Ranking: 4/287
English Tests
TOEFL: 102 (R28, L27, S23, W24) GRE: 331

RESEARCH EXPERIENCES

Institute for Interdisciplinary Information Science, Tsinghua University Sep 2019 - Present
Advisor: Assistant Prof. Yi Wu, IIIS, Tsinghua University
Research field: Reinforcement learning, Robotics
Developing generalizable RL agents towards complex robotic manipulation tasks. Series of papers on solving compositional tasks via task reduction are accepted to ICLR 2021 and ICML 2022. One paper on design and construct bridges without blueprints accepted to IROS 2021, and one is accepted to ICRA 2022.

Summer Internship, CSAIL, Massachusetts Institute of Technology Jul 2019 - Sep 2019
Advisor: Associate Prof. Wojciech Matusik, Dept. of EECS, CSAIL, MIT
Research field: Physical Simulation
Building a differentiable simulation environment for benchmarking different learning and optimization algorithms, including variants of reinforcement learning and gradient descent methods. Propose a hybrid learning algorithm that incorporates gradients from differentiable simulator into model-free reinforcement learning.

3D Image Lab, Dept. of EE, Tsinghua University Jul 2018 - Jul 2019
Advisor: Associate Prof. Huimin Ma, Dept. of EE, Director of 3D Image Lab, Vice Chair & Secretary-General of China Society of Image and Graphics
Research field: Reinforcement Learning
Learning from expert demonstrations. Proposed a theoretically motivated method of introducing imperfect demonstrations without reward signals to model-free RL.

Students Research Training, Inst. of Microelectronics, Tsinghua University Jul 2017 - Jul 2018
Advisor: Associate Prof. Xiang Xie, Inst. of Microelectronics; Associate Prof. Guolin Li, Dept. of EE
Research field: Biomedical Image Processing
Lung nodule segmentation from CT images. One paper *Lung Nodule Segmentation Using Pleural Wall Shape* accepted to IEEE BioCAS 2018 conference.

PUBLICATIONS

Yunfei Li*, Chaoyi Pan*, Huazhe Xu, Xiaolong Wang, Yi Wu, "Efficient Bimanual Handover and Rearrangement via Symmetry-Aware Actor-Critic Learning", ICRA 2023. **[project]**

Chao Yu, Xinyi Yang, Jiaxuan Gao, Jiayu Chen, **Yunfei Li**, Jijia Liu, Yunfei Xiang, Ruixin Huang, Huazhong Yang, Yi Wu, Yu Wang, "Asynchronous Multi-Agent Reinforcement Learning for Efficient Real-Time Multi-Robot Cooperative Exploration", AAMAS 2023.

Shusheng Xu, Yancheng Liang, **Yunfei Li**, Simon Shaolei Du, Yi Wu. "Beyond Information Gain: An Empirical Benchmark for Low-Switching-Cost Reinforcement Learning", TMLR.

Yunfei Li*, Tian Gao*, Jiaqi Yang, Huazhe Xu, Yi Wu, "Phasic Self-Imitative Reduction for Sparse-Reward Goal-Conditioned Reinforcement Learning", ICML 2022. **[project][code]**

Yunfei Li, Tao Kong, Lei Li, Yi Wu, "Learning Design and Construction with Varying-Sized Materials via Prioritized Memory Resets", ICRA 2022. **[project][code]**

Yunfei Li, Tao Kong, Lei Li, Yifeng Li, Yi Wu, "Learning to Design and Construct Bridge without Blueprint", CoRR abs/2108.02439 (2021), IROS 2021.

Yunfei Li, Yilin Wu, Huazhe Xu, Xiaolong Wang, Yi Wu, "Solving Compositional Reinforcement Learning Problems via Task Reduction", ICLR 2021. **[project][code]**

Xiaoqin Zhang, **Yunfei Li**, Huimin Ma and Xiong Luo, "Pretrain Soft Q-learning with Imperfect Demonstrations," CoRR abs/1905.03501 (2019).

Yunfei Li, Xiang Xie, Guolin Li and Zhihua Wang, "Lung Nodule Segmentation Using Pleural Wall Shape," BioCAS 2018: 1-4.

HONORS AND AWARDS

Outstanding Graduate of Tsinghua University	June 2020
Member of Spark Innovative Talent Cultivation Program	May 2018
National Scholarship for Outstanding Academic Performance	Oct 2017
Freshman Scholarship (Grade 1)	Oct 2016

TEACHING

TA of Deep Learning	Spring 2021
TA of Introduction to Artificial Intelligence (Top 5% outstanding TAs)	Autumn 2020

TECHNICAL STRENGTHS

Advanced	Python, TensorFlow, PyTorch
Intermediate	Git, LaTeX, Linux, MATLAB
Basic	C, C++