

MINGHUAN LIU

Email: minghuanliu AT sjtu.edu.cn

Website: <http://minghuanliu.com>

EDUCATION

Shanghai Jiaotong University (SJTU)

Sep. 2019 - Now

Ph.D. in Computer Science and Technology

Research Interest: Imitation Learning, Reinforcement Learning, Multi-Agent Systems

- Apex Data & Knowledge Management Lab
- Group leader of the ApexRL research group
- Advisor: Weinan Zhang

Southwest Jiaotong University (SWJTU)

Sep. 2015 - July. 2019

B.S. in Computer Science and Technology

- Overall GPA: 3.84/4.0 Ranking: 1/98
- Key Lab of Cloud Computing and Intelligent Technology
- Advisor: Tianrui Li

PUBLICATIONS / PREPRINTS

Learning to Build High-fidelity and Robust Environment Models.

Weinan Zhang, Zhengyu Yang, Jian Shen, **Minghuan Liu**, Yimin Huang, Xing Zhang, Ruiming Tang, Zhenguo Li.

The 20th European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases. **ECML-PKDD 2021**.

- We propose robust learning to simulate (RL2S), a new problem of RL which focuses on learning a high-fidelity environment simulator for serving diverse downstream tasks; we further transform RL2S as a novel robust imitation learning problem and propose efficient algorithms to solve it.

MapGo: Model-Assisted Policy Optimization for Goal-Oriented Tasks.

Menghui Zhu*, **Minghuan Liu***, Jian Shen, Zhicheng Zhang, Sheng Chen, Weinan Zhang, Deheng Ye, Yong Yu, Qiang Fu, Wei Yang. (*Equal Contribution)

The 30th International Joint Conference on Artificial Intelligence. **IJCAI 2021**.

- We propose MapGo, a model-based framework for goal-oriented RL which involves a novel relabeling strategy FGI and a model-based training module UMPO.

Energy-Based Imitation Learning.

Minghuan Liu, Tairan He, Minkai Xu, Weinan Zhang.

The 20th International Conference on Autonomous Agents and Multiagent Systems. **Oral. AAMAS 2021**.

- We propose EBIL, a two-step solution for imitation learning: first estimate the energy of expert's occupancy measure, and then take the energy to construct a surrogate reward function as a guidance for the agent to learn the desired policy.

Multi-Agent Interactions Modeling with Correlated Policies.

Minghuan Liu, Ming Zhou, Weinan Zhang, Yuzheng Zhuang, Jun Wang, Wulong Liu, Yong Yu.

The 8th International Conference on Learning Representations. **ICLR 2020**.

- We propose CoDAIL, which cast the multi-agent interactions modeling problem into a multi-agent imitation learning framework with explicit modeling of correlated policies by approximating opponents' policies.

Generative adversarial exploration for reinforcement learning.

Weijun Hong, Menghui Zhu, **Minghuan Liu**, Weinan Zhang, Ming Zhou, Yong Yu, Peng Sun.

Proceedings of the First International Conference on Distributed Artificial Intelligence. **DAI 2020**.

- We propose GAE, a method to encourage exploration in RL via introducing an intrinsic reward

output from a generative adversarial network, which can be seen as the confidence to judge a novel state.

Automatic Proofreading in Chinese: Detect and Correct Spelling Errors in Character-level with Deep Neural Networks.

Qiufeng Wang, **Minghuan Liu**, Weijia Zhang, Yuhang Guo and Tianrui Li.

The 8th CCF International Conference on Natural Language Processing and Chinese Computing. **NLPCC 2019.**

- We propose an LSTM based framework to solve the automatic proofreading in Chinese.

AWARDS & HONORS

TOP 6, Finalist of Sports Analytics Challenge (sponsored by PSG)	<i>2019</i>
TOP 10, SCADA Data Missing Repair Competition	<i>2019</i>
TOP 3, AI Challenger 2018 in Weather Forecasting	<i>2018</i>
National First Prize, China Undergraduate Mathematical Contest in Modeling	<i>2017</i>
Meritorious Winner, Mathematical Contest In Modeling	<i>2017</i>
China National Scholarship $\times 2$ (1%)	<i>2016 & 2017</i>
Tang Lixin Scholarship (1‰)	<i>2017</i>
IBM Scholarship (1‰)	<i>2017</i>
Special Grade Comprehensive Scholarship $\times 4$ (1%)	<i>2016 - 2018</i>

SKILLS

Machine Learning: Pytorch, Tensorflow, Scikit-Learn, lightGBM

Programming Languages: Python, MATLAB, C / C++, Java

Standard Tests: CET-6(574), CET4(616)

Hobbies and Interests: Swimming, Soccer