Zhihong Deng

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Homepage: familyld.github.io

My current research interests center on what, why, and how causal knowledge can be incorporated into reinforcement learning (RL). Many open problems in RL are related to causality, e.g., sample efficiency, generalization, and spurious correlation. Agents equipped with causal knowledge can effectively address these problems and unlock the full potential of RL algorithms. I am also actively looking for opportunities to apply these algorithms to solve real-world problems, e.g., robotics and personalized recommendation.

EDUCATION

University of Technology Sydney, Sydney, Australia —— PhD student
Faculty of Engineering and Information Technology   Mar. 2021 – Now
Awards: International Research Training Program Scholarship
Advisors: Jing Jiang and Chengqi Zhang

Southern University of Science and Technology, Shenzhen, China —— Visiting Scholar
Department of Computer Science and Engineering   Sep. 2020 – Feb. 2021

Sun Yat-sen University, Guangzhou, China —— M.Sc
School of Data and Computer Science   Sep. 2018 – Jun. 2020
Awards: First-class Scholarship + National Scholarship
Advisor: Chang-Dong Wang

Sun Yat-sen University, Guangzhou, China —— B.Sc
School of Data and Computer Science   Sep. 2013 – Jun. 2017
Advisor: Chang-Dong Wang

PUBLICATION

1. SCORE: Spurious COrrelation REduction for Offline Reinforcement Learning
[paper]

Zhihong Deng; Zuyue Fu; Lingxiao Wang; Zhuoran Yang; Chenjia Bai; Zhaoran Wang; Jing Jiang

Submitted to ICML, 2022. (CORE A*, Top conference with highest impact in Machine Learning)

2. Pessimistic Bootstrapping for Uncertainty-Driven Offline Reinforcement Learning [paper][code]

Chenjia Bai, Lingxiao Wang, Zhuoran Yang, **Zhihong Deng**, Animesh Garg, Peng Liu, Zhaoran Wang

ICLR, 2022. Spotlight   (CORE A*, Top conference with highest impact in Deep Learning)

3. G³ SR: Global Graph Guided Session-Based Recommendation [paper][code]

Zhi-Hong Deng; Chang-Dong Wang; Ling Huang; Jian-Huang Lai; Philip S. Yu

IEEE Transactions on Neural Networks and Learning Systems (TNNLS), CORE A*   Mar, 2022

4. DeepCF: A Unified Framework of Representation Learning and Matching Function Learning in Recommender System. [paper][code]

Zhi-Hong Deng; Ling Huang; Chang-Dong Wang; Jian-Huang Lai; Philip S. Yu.

AAAI, 2019. Oral (CORE A*, Top conference in AI)

5. Serendipitous recommendation in e-commerce using innovator-based collaborative filtering. [paper]

Chang-Dong Wang; **Zhi-Hong Deng**; Jian-Huang Lai; Philip S. Yu.

IEEE Transactions on Cybernetics (TCYB), CORE A, 2018, 49(7): 2678-2692.