Zhi WANG

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RESEARCH INTERESTS

My research interests include reinforcement learning (RL) algorithms and their applications in robotics, operations research, and financial technology.

Specifically, I work on how learning algorithms can scale RL agents to dynamic environments (or "open" environments), allowing them to autonomously adapt to the non-stationary task distributions in real-world domains. This includes a wide range of topics such as incremental learning, lifelong learning, transfer learning, and meta-learning.

EXPERIENCE

2022.11–Now	Associate Research Fellow, *Nanjing University* Department of Control Science and Intelligence Engineering
2019.11–2022.10	Assistant Research Fellow, *Nanjing University* Department of Control Science and Intelligence Engineering
2022	Visiting Scholar, *Institute of Automation, Chinese Academy of Sciences* Visiting tutors: Professor *Yuanheng Zhu, Dongbin Zhao*
2019	Visiting Scholar, *University of New South Wales* Visiting tutor: Professor *Daoyi Dong*

EDUCATION

2015.09–2019.10	Ph.D. *City University of Hong Kong* Machine Learning, Department of Systems Engineering and Engineering Management Supervisor: Professor *Han-Xiong Li*
2011.09–2015.08	B.E. *Nanjing University* Automation, Department of Control and Systems Engineering

SELECTED PUBLICATIONS

2023 Hongyu Ding, Yuanze Tang, Qing Wu, Bo Wang, Chunlin Chen, **Zhi Wang***, "Magnetic field-base reward shaping for goal-conditioned reinforcement learning," *IEEE-CAA Journal of Automatica Sinica*

2023 Junyi Wang, **Zhi Wang***, Huaxiong Li, and Chunlin Chen, "Adaptive noise-based evolutionary reinforcement learning with maximum entropy," *Acta Automatica Sinica*

2022 Donghan Xie, **Zhi Wang***, Chunlin Chen, Daoyi Dong, "Depthwise convolution for multi-agent communication with enhanced mean-field approximation," *IEEE Transactions on Neural Networks and Learning Systems*

2022 **Zhi Wang**, Chunlin Chen, and Daoyi Dong, "Lifelong incremental reinforcement learning with online Bayesian inference," *IEEE Transactions on Neural Networks and Learning Systems*

2022 **Zhi Wang**, Chunlin Chen, and Daoyi Dong, "Instance weighted incremental evolution strategies for reinforcement learning in dynamic environments," *IEEE Transactions on Neural Networks and Learning Systems*

2022 Yuanyang Zhu, **Zhi Wang***, Chunlin Chen, and Daoyi Dong, "Rule-based reinforcement learning for efficient robot navigation with space reduction," *IEEE-ASME Transactions on Mechatronics*

2021 **Zhi Wang** and Han-Xiong Li, "Dissimilarity analysis-based multimode modeling for complex distributed parameter systems," *IEEE Transactions on Systems, Man, and Cybernetics: Systems*

2020 **Zhi Wang**, Han-Xiong Li, and Chunlin Chen, "Incremental reinforcement learning in continuous spaces with policy relaxation and importance weighting," *IEEE Transactions on Neural Networks and Learning Systems*

2020 **Zhi Wang**, Han-Xiong Li, and Chunlin Chen, "Reinforcement learning-based optimal sensor placement for spatiotemporal modeling," *IEEE Transactions on Cybernetics*

2019 **Zhi Wang**, Chunlin Chen, Han-Xiong Li, Daoyi Dong, and Tzyh-Jong Tarn, "Incremental reinforcement learning with prioritized sweeping for dynamic environments," *IEEE-ASME Transactions on Mechatronics*

2019 **Zhi Wang** and Han-Xiong Li, "Incremental spatiotemporal learning for online modeling of distributed parameter systems," *IEEE Transactions on Systems, Man, and Cybernetics: Systems*

2019 **Zhi Wang**, Wei Bi, Yan Wang, and Xiaojiang Liu, "Better fine-tuning via instance weighting for text classification," *AAAI Conference on Artificial Intelligence*

Note: *indicates the corresponding author

TEACHING

- <Deep Reinforcement Learning>, mainly for postgraduates, 2019–Now
- <Introduction to Automation>, for undergraduates, 2019–2022
- <Digital Circuits>, for undergraduates, 2022–Now

SOCIAL SERVICES

- *Reviewer* for leading journals and top conferences
  - IEEE Transactions on Neural Networks and Learning Systems
  - IEEE Transactions on Cybernetics
  - IEEE/ASME Transactions on Mechatronics
  - IEEE Transactions on Systems, Man, and Cybernetics: Systems
  - IEEE-CAA Journal of Automatica Sinica
  - AAAI Conference on Artificial Intelligence
- *Program Chair* and *Associate Editor* for special sessions of international conferences
  - IEEE Conference on Systems, Man, and Cybernetics, 2023, 2022, 2021
  - IEEE International Conference on Networking, Sensing, and Control, 2020

INVITED TALKS

- Lifelong reinforcement learning for dynamic environments
  - 2022.12, The 4th Distributed Artificial Intelligence (DAI) Conference Inviter: Professor *Yan Zheng*
  - 2022.12, Institute of Automation, Chinese Academy of Sciences Inviter: Professor *Yuanheng Zhu*
  - 2022.12, Tongji University Inviter: Professor *Peng Yi*
- Incremental reinforcement learning for dynamic environments
  - 2020.12, University of Electronic Science and Technology of China Inviter: Professor *Xiaoting Wang*
  - 2020.12, University of Science and Technology of China Inviter: Professor *Lindong Liu*
  - 2019.04, University of New South Wales Inviter: Professor *Daoyi Dong*
- *Instructor* of summer course “Deep Reinforcement Learning"
  - 2022.07, University of Science and Technology of China Inviter: Professor *Lindong Liu*

HONORS AND AWARDS

- Doctor of Innovation and Entrepreneurship in Jiangsu Province, 2020–2022
- Outstanding Academic Performance Award, City University of Hong Kong, 2018
- Research Tuition Scholarship, City University of Hong Kong, 2018