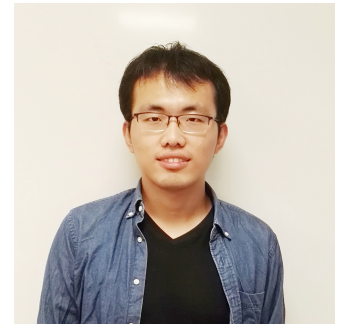


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**Education**

PhD, Nanyang Technological University, Singapore, 2020
 Bachelor of Science, Dalian University of Technology, Singapore, 2015

Academic Appointments

Assistant Professor of Computer Science, School of Computing and Information Systems, SMU, Jul 2024 - Present

RESEARCH**Publications**Journal Articles [Refereed]

PRUDEX-Compass: Towards systematic evaluation of reinforcement learning in financial markets, by SUN, Shuo; QIN, Molei; WANG, Xinrun; AN, Bo. (2023). *Transactions on Machine Learning Research*, 1-30. <https://openreview.net/pdf?id=JjbsIYOUni> (Published)

Conference Proceedings

MacroHFT : Memory augmented context-aware reinforcement learning on high frequency trading, by ZONG, Chuqiao; WANG, Chaojie; QIN, Molei; FENG, Lei; WANG, Xinrun; AN, Bo . (2024.0). *Proceedings of the 30th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2024) : Barcelona, Spain, August 25-29*, (pp. 4712-4721) New York: Association for Computing Machinery. <https://doi.org/10.1145/3637528.3672064> (Published)

A multimodal foundation agent for financial trading : Tool-augmented, diversified, and generalist, by ZHANG, Wentao; ZHAO, Lingxuan; XIA, Haochong; SUN, Shuo; SUN, Jiase; QIN, Molei; LI, Xinyi; ZHAO, Yuqing; ZHAO, Yilei; CAI, Xinyu; ZHENG, Longtao; WANG, Xinrun; AN, Bo. (2024.0). *Proceedings of the 30th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2024) : Barcelona, Spain, August 25-29*, (pp. 4314-4325) New York: Association for Computing Machinery. <https://doi.org/10.1145/3637528.3671801> (Published)

Self-adaptive PSRO : Towards an automatic population-based game solver, by LI, Pengdeng; LI, Shuxin; YANG, Chang; WANG, Xinrun; HUANG, Xiao; CHAN, Hau; AN, Bo. (2024.0). *Proceedings of the 33rd International Joint Conference on Artificial Intelligence (IJCAI 2024) : Jeju, South Korea, August 3-9*, (pp. 139-147) Jeju, South Korea: IJCAI. <https://doi.org/10.24963/ijcai.2024/16> (Published)

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HUANG, Xiao; CHAN, Hau; AN, Bo. (2024.0). *Proceedings of the Thirty-Third International Joint Conference on Artificial Intelligence (IJCAI-24)*, (pp. 265-273) Jeju, South Korea: IJCAI. <http://doi.org/10.24963/ijcai.2024/30> (Published)

Configurable mirror descent : Towards a unification of decision making, by LI, Pengdeng; LI, Shuxin; YANG, Chang; WANG, Xinrun; HU, Shuyue; HUANG, Xiao; CHAN, Hau; AN, Bo. *Proceedings of the 41st International Conference on Machine Learning (ICML 2024) : Vienna, Austria, July 21-27*, (pp. 28164-28203) Cambridge: PMLR. (Published)

Reinforcement learning with maskable stock representation for portfolio management in customizable stock pools, by ZHANG, Wentao; ZHAO, Yilei; SUN, Shuo; YING, Jie; XIE, Yonggang; SONG, Zitao; WANG, Xinrun; AN, Bo. (2024.0). *WWW '24: Proceedings of the ACM Web Conference, Singapore, May 13-17*, (pp. 187-198) New York: ACM. <https://doi.org/10.1145/3589334.3645615> (Published)

Grasper: A generalist pursuer for pursuit-evasion problems, by LI, Pengdeng; LI, Shuxin; WANG, Xinrun; CERNY, Jakub; ZHANG, Youzhi; McAleer, Stephen; CHAN, Hau; AN, Bo. (2024.0). *Proceedings of the 23rd International Conference on Autonomous Agents and Multiagent Systems, AAMAS 2024: Auckland, May 6-10*, (pp. 1147-1155) San Diego: IFAAMAS. (Published)

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Market-GAN: Adding control to financial market data generation with semantic context, by XIA, Haochong; SUN, Shuo; WANG, Xinrun; AN, Bo. (2024.0). *Proceedings of the 38th AAAI Conference on Artificial Intelligence (AAAI) 2024: Vancouver, February 20-27*

, (pp. 15996-16004) Washington, DC: AAAI Press. <https://doi.org/10.1609/aaai.v38i14.29531> (Published)

Transition-informed reinforcement learning for large-scale Stackelberg mean-field games., by LI, Pengdeng; YU, Runsheng; WANG, Xinrun; AN, Bo. (2024.0). *Proceedings of the 38th AAAI Conference on Artificial Intelligence (AAAI) 2024: Vancouver, May 6-10*, (pp. 17469-17476) Washington, DC: AAAI Press. <https://doi.org/10.1609/aaai.v38i16.29696> (Published)

EarnHFT: Efficient hierarchical reinforcement learning for high frequency trading, by QIN, Molei; SUN, Shuo; ZHANG, Wentao; XIA, Haochong; WANG, Xinrun; AN, Bo. (2024.0). *Proceedings of the 38th AAAI Conference on Artificial Intelligence, AAAI 2024: Vancouver, May 6-10*, (pp. 14669-14676) Washington, DC: AAAI Press. (Published)

Controlling type confounding in ad hoc teamwork with instance-wise teammate feedback rectification, by XING, Dong; GU, Pengjie; ZHENG, Qian; WANG, Xinrun; LIU, Shanqi; ZHENG, Longtao; AN, Bo; PAN, Gang. (2023.0). *Proceedings of Machine Learning Research: ICML 2023, Honolulu, July 23-29*, (pp. 38272-38285) Cambridge: ML Research Press. <https://proceedings.mlr.press/v202/xing23a/xing23a.pdf> (Published)

Offline RL with discrete proxy representations for generalizability in POMDPs, by GU, Pengjie; CAI, Xinyu; XING, Dong; WANG, Xinrun; ZHAO, Mengchen; AN, Bo. (2023.0). *Proceedings of the 37th Conference on Neural Information Processing Systems, NeurIPS 2023, New Orleans, December 10-16*, (pp. 1-13) San Diego: Neural Information Processing Systems Foundation. (Published)

Mastering stock markets with efficient mixture of diversified trading experts, by SUN, Shuo; WANG, Xinrun; XUE, Wanqi; LOU, Xiaoxuan; AN, Bo. (2023.0). *KDD '23: Proceedings of the ACM SIGKDD Conference on Knowledge Discovery and Data Mining, Long Beach, CA, August 6-10*, (pp. 2109-2119) New York: ACM. <https://doi.org/10.1145/3580305.3599424> (Published)

Solving large-scale pursuit-evasion games using pre-trained strategies, by LI, Shuxin; WANG, Xinrun; ZHANG, Youzhi; XUE, Wanqi; CERNY, Jakub; AN, Bo. (2023.0). *Proceedings of the 37th AAAI Conference on Artificial Intelligence (AAAI), 2023: Washington, DC, February 7-14*, (pp. 11586-11594) Washington: AAAI Press. <https://doi.org/10.1609/aaai.v37i10.26369> (Published)

DO-GAN: A double oracle framework for generative adversarial networks, by AUNG, Aye Phyu Phye; WANG, Xinrun; YU, Runsheng; AN, Bo; JAYAVELU, Senthilnath; LI, Xiaoli. (2022.0). *2022 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR): New Orleans, June 18-24: Proceedings*, (pp. 11265-11274) Los Alamitos, CA: IEEE Computer Society. <https://doi.org/10.1109/CVPR52688.2022.01099> (Published)

- RMIX: Learning risk-sensitive policies for cooperative reinforcement learning agents, by QIU, Wei; WANG, Xinrun; YU, Runsheng; HE, Xu; WANG, Rundong; AN, Bo; OBRAZTSOVA, Svetlana; RABINOVICH, Zinovi. (2021.0). *Proceedings of the 35th Annual Conference on Neural Information Processing Systems (NeurIPS): Virtual, December 6-14*, (pp. 23049-23062) Washington, DC: NIPS Foundation. (Published)
- Solving large-scale extensive-form network security games via neural fictitious self-play, by XUE, Wanqi; ZHANG, Youzhi; LI, Shuxin; WANG, Xinrun; AN, Bo; YEO, Chai Kiat. (2021.0). *Proceedings of the 30th International Joint Conference on Artificial Intelligence (IJCAI-21): Montreal, August 19-26*, (pp. 3713-3720) Montreal: IJCAI. <https://doi.org/10.24963/ijcai.2021/511> (Published)
- CFR-MIX: Solving imperfect information extensive-form games with combinatorial action space, by LI, Shuxin; ZHANG, Youzhi; WANG, Xinrun; XUE, Wanqi; AN, Bo. (2021.0). *Proceedings of the 30th International Joint Conference on Artificial Intelligence (IJCAI-21): Montreal, August 19-26*, (pp. 3663-3669) Montreal: IJCAI. <https://doi.org/10.24963/ijcai.2021/504> (Published)
- Neural regret-matching for distributed constraint optimization problems, by DENG, Yanchen; YU, Runshen; WANG, Xinrun; AN, Bo. (2021.0). *Proceedings of the Thirtieth International Joint Conference on Artificial Intelligence (IJCAI-21): Montreal, August 19-26*, (pp. 146-153) Montreal: IJCAI. <https://doi.org/10.24963/ijcai.2021/21> (Published)
- We mind your well-being: Preventing depression in uncertain social networks by sequential interventions, by AUNG, Aye Phye Phye; WANG, Xinrun; AN, Bo; LI, Xiaoli. (2020.0). *Proceedings of the 30th International Conference on Automated Planning and Scheduling ICAPS 2020: Nancy, October 26-30*, (pp. 499-507) Palo Alto: AAAI Press. <https://doi.org/10.1609/icaps.v30i1.6745> (Published)
- Learning to collaborate in multi-module recommendation via multi-agent reinforcement learning without communication, by HE, Xu; AN Bo; LI, Yanghua; CHEN, Haikai; WANG, Rundong; WANG, Xinrun; YU, Runsheng; LI, Xin; WANG, Zhirong. (2020.0). *RecSys '20: Proceedings of the 14th ACM Conference on Recommender Systems: Virtual, September 22-26*, (pp. 210-219) New York: ACM. <https://doi.org/10.1145/3383313.3412233> (Published)
- User detection of threats with different security measures, by YAAKOV, Yoav Ben; MEYER, Joachim; WANG, Xinrun; AN, Bo. (2020.0). *2020 IEEE International Conference on Human-Machine Systems, ICHMS: Rome, September 7-9: Proceedings*, Piscataway, NJ: IEEE. <https://doi.org/10.1109/ICHMS49158.2020.9209426> (Published)
- Learning expensive coordination: An event-based deep RL approach, by YU, Runsheng; WANG, Xinrun; WANG, Rundong; ZHANG, Youzhi; AN, Bo; SHI, Zhen Yu; LAI, Hanjiang. (2020.0). *ICLR 2020: Proceedings of the 8th International Conference on Learning Representations, Virtual, April 26 - May 1*, (pp. 1-26) Appleton, WI: ICLR. (Published)
- Choosing protection: User investments in security measures for cyber risk management, by YAAKOV, Yoav Ben; WANG, Xinrun; MEYER, Joachim; AN, Bo. (2019.0). *Decision and Game Theory for Security: 10th International Conference, GameSec 2019, Stockholm, October 30 - November 1: Proceedings*, (pp. 33-44) Cham: Springer. https://doi.org/10.1007/978-3-030-32430-8_3 (Published)
- When players affect target values: Modeling and solving dynamic partially observable security games, by WANG, Xinrun; TAMBE, Milind; BOSANKY, Branislav; AN, Bo. (2019.0). *Decision and Game Theory for Security. GameSec 2019: Stockholm, October 30 - November 1: Proceedings*, Cham: Springer. https://doi.org/10.1007/978-3-030-32430-8_32 (Published)
- Who should pay the cost: A game-theoretic model for government subsidized investments to improve national cybersecurity, by WANG, Xinrun; AN, Bo; CHAN, Hau. (2019.0). *Proceedings of the 28th International Joint Conference on Artificial Intelligence (IJCAI) 2019: Macao, August 10-16*, (pp. 6020-6027) Macao: IJCAI. <https://doi.org/10.24963/ijcai.2019/834> (Published)
- Catching Captain Jack: Efficient time and space dependent patrols to combat oil-siphoning in international waters, by WANG, Xinrun; AN, Bo; STROBEL, Martin; KONG, Fookwai. (2018.0). *Proceedings of the 32nd AAAI Conference on Artificial Intelligence, AAAI 2018: New Orleans, February 2-7*, (pp. 208-215) Palo Alto, CA: AAAI Press. <https://doi.org/10.1609/aaai.v32i1.11291> (Published)
- Stop nuclear smuggling through efficient container inspection, by WANG, Xinrun; GUO, Qingyu; AN, Bo. (2017.0). *Proceedings of the 16th International Conference on Autonomous Agents and Multiagent Systems, AAMAS 2017: Sao Paulo, May 8-12*, (pp. 669-677) San Diego: IFAAMAS. (Published)

Research Grants

Singapore Management University

Towards the Foundation Model for Decision Making, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): WANG Xinrun, 2024, S\$119,772

TEACHING

Courses Taught

Singapore Management University

Undergraduate Programmes :

Design and Analysis of Algorithms