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研究方向：具身智能、强化学习、决策大模型

工作经历

2022.9 - Current	**上海人工智能实验室**（浦江国家实验室）　**青年研究员** 方向：具身智能、四足机器人 智能光电团队（李学龙 教授团队）

教育背景

2021.3 - 2022.3	**博士生联合培养**，加拿大，多伦多大学（**University of Toronto**） 导师：Prof. Animesh Garg　　国家留学基金委资助
2017.9 - 2022.7	**博士**, 哈尔滨工业大学，计算机科学与技术学院 模式识别与智能系统研究中心　导师：刘鹏 教授
2015.9 - 2017.7	**硕士**, 哈尔滨工业大学，计算机科学与技术学院 研究方向：计算机视觉、数据挖掘
2011.9 - 2015.7	**本科**, 哈尔滨工业大学，计算机科学与技术学院

项目/获奖

2024 年度	WAIC 世界人工智能大会优秀论文奖（第一作者）
2024 - 2026	国家自然科学基金青年项目（30 万，主持）
2023 年度	上海市青年科技英才“扬帆计划”（20 万，主持）
2024 - 2026	工信部揭榜挂帅“人形机器人”机器脑智能控制技术（参与）
2022 年度	哈尔滨工业大学优秀博士论文奖（学院年度共 2 人）

发表论文

第一/通信作者

[1] **Chenjia Bai**, Rushuai Yang, Qiaosheng Zhang, Kang Xu, Yi Chen, Xuelong Li. Constrained Ensemble Exploration for Unsupervised Skill Discovery. *International Conference on Machine Learning (**ICML**)*, 2024（**CCF-A 类、CAAI-A 类会议**）

[2] Junjie Zhang, **Chenjia Bai***, Haoran He, Zhigang Wang, Bin Zhao, Xiu Li, Xuelong Li. Parameter-Efficient Visual Foundation Model with Sequence Imitation for Embodied

Manipulation. *International Conference on Machine Learning (**ICML**),* 2024 （**CCF-A 类、CAAI-A 类会议**，通信作者）

[3] Xiaoyu Wen, **Chenjia Bai***, Kang Xu, Xudong Yu, Yang Zhang, Xuelong Li, Zhen Wang. Contrastive Representation for Data Filtering in Cross-Domain Offline Reinforcement Learning. *International Conference on Machine Learning (**ICML**),* 2024（**CCF-A 类、CAAI-A 类会议**，通信作者）

[4] **Chenjia Bai**, Lingxiao Wang, Jianye Hao, Zhuoran Yang, Bin Zhao, Zhen Wang*, and Xuelong Li*. Pessimistic Value Iteration for Multi-Task Data Sharing in Offline Reinforcement Learning. *Artificial Intelligence (**AIJ**)*, 2024 （**CCF-A 类、CAAI-A 类期刊**）

[5] Jiyuan Shi, **Chenjia Bai***, Haoran He, Lei Han, Dong Wang, Bin Zhao, Mingguo Zhao, Xiu Li, Xuelong Li. Robust Quadrupedal Locomotion via Risk-Averse Policy Learning. *IEEE International Conference on Robotics and Automation (**ICRA**)*. 2024（**CCF-B 类、CAAI-A 类期刊**，通信作者）

[6] Haoran He, **Chenjia Bai***, Kang Xu, Zhuoran Yang, Weinan Zhang, Dong Wang, Bin Zhao, Xuelong Li. Diffusion Model is an Effective Planner and Data Synthesizer for Multi-Task Reinforcement Learning. *Neural Information Processing Systems (**NeurIPS**)*, 2023 （**CCF-A 类、CAAI-A 类会议**，通信作者）

[7] Kang Xu, **Chenjia Bai***, Xiaoteng Ma, Dong Wang, Bin Zhao, Zhen Wang, Xuelong Li, Wei Li. Cross-Domain Policy Adaptation via Value-Guided Data Filtering. *Neural Information Processing Systems (**NeurIPS**)*, 2023 （**CCF-A 类、CAAI-A 类会议**，通信作者）

[8] Rushuai Yang, **Chenjia Bai***, Hongyi Guo, Siyuan Li, Bin Zhao, Zhen Wang, Peng Liu, and Xuelong Li. Behavior Contrastive Learning for Unsupervised Skill Discovery. *International Conference on Machine Learning (**ICML**)*, 2023 （**CCF-A 类、CAAI-A 类会议**，通信作者）

[9] Rui Yang*, **Chenjia Bai***, Xiaoteng Ma, Zhaoran Wang, Chongjie Zhang, Lei Han. RORL: Robust Offline Reinforcement Learning via Conservative Smoothing. *Neural Information Processing Systems (**NeurIPS**)*, 2022 (Spotlight) （**CCF-A 类、CAAI-A 类会议**，共同一作）

[10] **Chenjia Bai**, Lingxiao Wang, Zhuoran Yang, Zhihong Deng, Animesh Garg, Peng Liu, and Zhaoran Wang. Pessimistic Bootstrapping for Uncertainty-Driven Offline Reinforcement Learning. *International Conference on Learning Representations (**ICLR**)*, 2022 (Spotlight) （**CAAI-A 类会议**）

[11] Shuang Qiu, Lingxiao Wang*, **Chenjia Bai***, Zhuoran Yang, and Zhaoran Wang. Contrastive UCB: Provably Efficient Contrastive Self-Supervised Learning in Online Reinforcement Learning. *International Conference on Machine Learning (**ICML**)*, 2022 (Spotlight) （**CCF-A 类、CAAI-A 类会议**，通信作者）

[12] **Chenjia Bai**, Lingxiao Wang, Lei Han, Animesh Garg, Jianye Hao, Peng Liu, and Zhaoran Wang. Dynamic Bottleneck for Robust Self-Supervised Exploration. *Neural Information Processing Systems (**NeurIPS**)*, 2021 （**CCF-A 类、CAAI-A 类会议**）

[13] **Chenjia Bai**, Lingxiao Wang, Lei Han, Jianye Hao, Animesh Garg, Peng Liu, and Zhaoran Wang. Principled Exploration via Optimistic Bootstrapping and Backward Induction. *International Conference on Machine Learning **(ICML)***, 2021 (Spotlight) （**CCF-A 类、CAAI-A 类会议**）

[14] **Chenjia Bai**, Lingxiao Wang, Yixin Wang, Zhaoran Wang, Rui Zhao, Chenyao Bai and Peng Liu. Addressing Hindsight Bias in Multi-Goal Reinforcement Learning. *IEEE Transactions on Cybernetics **(TCYB)***, 2023 （**CCF-B 类、CAAI-A 类期刊**）

[15] **Chenjia Bai**, Ting Xiao, Zhoufan Zhu, Lingxiao Wang, Fan Zhou, Peng Liu, and Zhaoran Wang. Monotonic Quantile Network for Worst-Case Offline Reinforcement Learning. *IEEE Transactions on Neural Networks and Learning Systems **(TNNLS)***, 2023 （**CCF-B 类、CAAI-A 类期刊**）

[16] **Chenjia Bai**, Peng Liu, Kaiyu Liu, Lingxiao Wang, Yingnan Zhao, Lei Han, and Zhaoran Wang. Variational Dynamic for Self-Supervised Exploration in Deep Reinforcement Learning. *IEEE Transactions on Neural Networks and Learning Systems **(TNNLS)***, 2023 （**CCF-B 类、CAAI-A 类期刊**）

[17] Xudong Yu, **Chenjia Bai***, Hongyi Guo, Changhong Wang*, and Zhen Wang. Diverse Randomized Value Functions: A Provably Pessimistic Approach for Offline Reinforcement Learning. *Information Sciences*, 2023 （CCF-B 类、CAAI-B 类期刊，通信作者）

[18] Peng Liu, **Chenjia Bai**, et al. Generating Attentive Goals for Prioritized Hindsight Reinforcement Learning. Knowledge-based Systems. 2020 （CCF-C 类、CAAI-B 类期刊，导师一作）

[19] **Chenjia Bai**, Peng Liu, Wei Zhao, et al. Guided Goal Generation for Hindsight Multi-Goal Reinforcement Learning. Neurocomputing. 2019, 359: 353-367.（中科院二区 Top 期刊，CCF-C 类、CAAI-B 类期刊）

[20] **Chenjia Bai,** Peng Liu, Wei Zhao, Xianglong Tang. 基于 TD-error 自适应校正的深度 Q 学习主动采样方法. 计算机研究与发展. 2019 (中文一级学报期刊)

合作论文

[21] Jiafei Lyu, **Chenjia Bai**, Jing-Wen Yang, Xiu Li, Zongqing Lu. Cross-Domain Policy Adaptation by Capturing Representation Mismatch. *International Conference on Machine Learning (**ICML**),* 2024 （**CCF-A 类、CAAI-A 类会议**）

[22] Sirui Zheng, **Chenjia Bai,** Zhuoran Yang, Zhaoran Wang. How Does Goal Relabeling Improve Sample Efficiency? *International Conference on Machine Learning (**ICML**),* 2024 （**CCF-A 类、CAAI-A 类会议**）

[23] Zhihong Deng, Zuyue Fu, Lingxiao Wang, Zhuoran Yang, **Chenjia Bai**, Tianyi Zhou, Zhaoran Wang, and Jing Jiang. False Correlation Reduction for Offline Reinforcement Learning. *IEEE Transactions on Pattern Analysis and Machine Intelligence **(TPAMI)***, 2023（**CCF-A 类、CAAI-**

A 类期刊）

[24] Jinyi Liu, Zhi Wang, Yan Zheng, Jianye Hao, **Chenjia Bai**, Junjie Ye, Zhen Wang, et al. OVD-Explorer: Optimism should not be the Sole Pursuit of Exploration in Noisy Environments. *AAAI Conference on Artificial Intelligence **(AAAI)***, 2024 （**CCF-A 类、CAAI-A 类会议**）

[25] Changhong Wang, Xudong Yu, **Chenjia Bai**, Zhen Wang*. Ensemble Successor Representations for Task Generalization in Offline-to-Online Reinforcement Learning. *SCIENCE CHINA Information Sciences **(SCIS)***, 2023 （**CCF-A 类、CAAI-A 类期刊**）

[26] Xudong Yu, **Chenjia Bai**, Changhong Wang, Dengxiu Yu, C. L. Philip Chen, Zhen Wang*. Self-Supervised Imitation for Offline Reinforcement Learning with Hindsight Relabeling. *IEEE Transactions on Systems, Man, and Cybernetics: Systems **(TSMC)***. 2022（**CCF-B 类期刊、CAAI-A 类期刊**）

[27] Jianye Hao, Tianpei Yang, Hongyao Tang, **Chenjia Bai**, Jinyi Liu, Zhaopeng Meng, Peng Liu, and Zhen Wang. Exploration in Deep Reinforcement Learning: From Single-Agent to Multiagent Domain. *IEEE Transactions on Neural Networks and Learning Systems **(TNNLS)***, 2022 （**CCF-B 类、CAAI-A 类期刊**）

在审论文

[28] Xiaoyu Wen, Xudong Yu, Rui Yang, **Chenjia Bai***, Zhen Wang. Towards Robust Offline-to-Online Reinforcement Learning via Uncertainty and Smoothness. *Journal of Artificial Intelligence Research (**JAIR**),* 2023 (under review，通信作者)

[29] Kang Xu, **Chenjia Bai***, Shuang Qiu, Haoran He, Bin Zhao, Zhen Wang, Wei Li, Xuelong Li. On the Value of Myopic Behavior in Policy Reuse. *IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**).* 2023 (under review，通信作者)

[30] Haoran He, **Chenjia Bai,** Hang Lai, Lingxiao Wang, Weinan Zhang*. Privileged Knowledge Distillation for Sim-to-Real Policy Generalization. *IEEE Transactions on Neural Networks and Learning Systems **(TNNLS)***, 2024 (under review)

[31] Xudong Yu, **Chenjia Bai***, Haoran He, Changhong Wang, Xuelong Li. Regularized Conditional Diffusion Model for Multi-Task Preference Alignment. *Neural Information Processing Systems (**NeurIPS**),* 2024 (under review，通信作者, arxiv 2404.04920)

[32] Haoran He, **Chenjia Bai***, Ling Pan, Weinan Zhang, Bin Zhao, Xuelong Li. Large-Scale Actionless Video Pre-Training via Discrete Diffusion for Efficient Policy Learning. *Neural Information Processing Systems (**NeurIPS**),* 2024 (under review，通信作者, arXiv:2402.14407)

[33] Yang Zhang, Shixin Yang, **Chenjia Bai***, Fei Wu, Xiu, Li, Zhen Wang, Xuelong Li. Towards Efficient LLM Grounding for Embodied Multi-Agent Collaboration. *Neural Information Processing Systems (**NeurIPS**),* 2024 (under review，通信作者, arxiv 2405.14314)

[34] **白辰甲**，许华哲，李学龙. 大模型驱动的具身智能：发展与挑战. 中国科学. 2024

专著

[1] **白辰甲**，赵英男，郝建业，刘鹏，王震.**《强化学习：前沿算法与应用》**.机械工业出版社（2023 年出版约 1 年以来，累计销售 6000 余册，受到机器之心, RLChina 等媒体报道）

研究经历

强化学习

- 强化学习的在线学习中高效探索与利用学习方法和目标驱动的探索学习方法
- 强化学习的离线策略学习方法：分布偏移和校正、跨域迁移、鲁棒性等
- 强化学习的技能发现方法，策略重用和下游任务快速泛化

具身智能和决策大模型

- 四足机器人复杂地形运动，鲁棒控制策略和高效的仿真-真实迁移
- 预训练视觉语言模型和扩散模型驱动动作规划和轨迹预测，用于通用多任务机械臂操作
- 大模型驱动的多智能体规划和高效反馈协作框架
- 大模型驱动的偏好学习进行策略反馈调整

学生指导

- 浦江实验室实习生 4 人，来自上海交大、复旦大学、清华深圳研究生院
- 浦江实验室—中国科学技术大学联合培养博士生 2 人，本科分别为山东大学和同济大学

学术报告

- 上海自主智能无人系统科学中心: 智能决策学术报告. 同济大学 2023.
- 决策智能峰会: 决策大模型论坛. DataFun 2023.
- 多智能体强化学习讲习班: 离线强化学习和大模型. 自动化学会 2023.
- GAITC 全球人工智能技术大会: 人工智能原理专题论坛. 中国科协 2023.
- 高级人工智能公开课: 强化学习. 天津大学 2023.
- 从统计学到人工智能研讨会: 强化学习的不确定性估计. 上海财经大学 2022.

学术服务

- Senior Program Committee Members (SPC) of AAMAS (2024)
- Program Committee Members (PC) / Conference Reviewer of NeurIPS (2021 - 2024)
- Program Committee Members (PC) / Conference Reviewer of ICLR (2021 - 2024)
- Program Committee Members (PC) / Conference Reviewer of ICML (2022 - 2024)
- Program Committee Members (PC) / Conference Reviewer of AAAI (2021 - 2024)
- Journal Reviewer: IEEE Trans. Cybernetics, IEEE Trans. TNNLS, IEEE Trans. TETCI, IEEE Trans. Intelligent Vehicles，中国科学