JIAYU CHEN (陈佳玉)

✉ jiayuc@hku.hk · ☎ (+852)66588189 · ⌨ LucasCJYSDL · ⚲ Jiayu Chen

Professional Experience

The University of Hong Kong, Hong Kong, China   June 2025 – Present
Assistant Professor in Department of Data and Systems Engineering
Researcher in The University of Hong Kong Shenzhen Institute of Research and Innovation

INFIFORCE, Hangzhou, China   November 2025 – Present
Principal Research Scientist

Carnegie Mellon University, Pittsburgh, Pennsylvania, U.S.A   May 2024 – May 2025
Postdoctoral Fellow in School of Computer Science

Education Background

Purdue University, West Lafayette, Indiana, U.S.A   2020 – 2024
Ph.D. in Industrial Engineering and Operations Research

Peking University, Beijing, China   2016 – 2020
B.E. from College of Engineering, Minor in Computer Science

Research Areas

Reinforcement Learning, Monte Carlo Tree Search, Optimal Control, Embodiment Intelligence

In-Submission Works

1. Yiheng Zhang, Yiming Wang, Kaiyan Zhao, Zhenglin Wan, **Jiayu Chen**, and Leong Hou U, "ANO: A Unified Framework for Robust Policy Optimization", "Continual Policy Distillation From Distributed Reinforcement Learning Teachers", submitted to International Conference on Machine Learning (ICML), 2026.

2. Yuxuan Li, Qijun He, Mingqi Yuan, Wentse Chen, Jeff Schneider, and **Jiayu Chen**, "Continual Policy Distillation From Distributed Reinforcement Learning Teachers", submitted to International Conference on Machine Learning (ICML), 2026.

3. Xudong Wu, Pangpang Liu, Vaneet Aggarwal, and **Jiayu Chen**, "SAIL-TRPO: A Trust-Region Online RLHF Algorithm with Guaranteed Fast Convergence", submitted to International Conference on Machine Learning (ICML), 2026.

4. Wentse Chen, **Jiayu Chen**, Hao Zhu, Fahim Tajwar, Ruslan Salakhutdinov, and Jeff Schneider, "Verlog: An Efficient Synchronized Multi-turn RL Framework for LLM Agents", submitted to International Conference on Machine Learning (ICML), 2026.

5. **Jiayu Chen**, Le Xu, Aravind Venugopal, and Jeff Schneider, "Policy-Driven World Model Adaptation for Robust Offline Model-based Reinforcement Learning", submitted to International Conference on Machine Learning (ICML), 2026.

6. Chongyu Zhu, Mithun Vanniasinghe, **Jiayu Chen**, and Chi-Guhn Lee, "Offline Discovery of Interpretable Skills from Multi-Task Trajectories", submitted to IEEE International Conference on Robotics & Automation (ICRA), 2026.

Conference Publications

1. Aravind Venugopal, **Jiayu Chen**, Xudong Wu, Chongyi Zheng, Benjamin Eysenbach, and Jeff Schneider, "Occupancy Reward Shaping: Improving Credit Assignment for Offline Goal-Conditioned Reinforcement Learning", accepted in International Conference on Learning Representations (ICLR), 2026.

2. **Jiayu Chen**, Le Xu, Wentse Chen, and Jeff Schneider, "Bayes Adaptive Monte Carlo Tree Search for Offline Model-based Reinforcement Learning", accepted in International Conference on Learning Representations (ICLR), 2026.

3. Rohit Sonker, Hiro Josep Farre Kaga, **Jiayu Chen**, Andrew Rothstein, Ian Char, Ricardo Shousha, Egemen Kolemen, and Jeff Schneider, "Offline Reinforcement Learning for Rotation Profile Control in Tokamaks", accepted in Annual Learning for Dynamics and Control Conference (L4DC), 2026.

4. Wentse Chen, Yuxuan Li, Shiyu Huang, **Jiayu Chen**, and Jeff Schneider, "ME-IGM: Individual-Global-Max in Maximum Entropy Multi-Agent Reinforcement Learning", accepted in International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2026 (**Oral presentation**).

5. Yiming Wang, Kaiyan Zhao, Ming Yang, Yan Li, Furui Liu, **Jiayu Chen**, and Leong Hou U, "DSAP: Enhancing Generalization in Goal-Conditioned Reinforcement Learning", accepted in Annual AAAI Conference on Artificial Intelligence (AAAI), 2026.

6. Yiming Wang, Kaiyan Zhao, Xu Li, Yan Li, **Jiayu Chen**, Steven Morad, and Leong Hou U, "Explore to Learn: Latent Exploration through Disentangled Synergy Patterns for Reinforcement Learning in Over-actuated Control", accepted in Annual AAAI Conference on Artificial Intelligence (AAAI), 2026 (**Oral presentation**).

7. Le Xu and **Jiayu Chen**, "Enhancing Robustness of Offline Reinforcement Learning Under Data Corruption via Sharpness-Aware Minimization", accepted in AAAI Student Abstract and Poster Program, 2026 (**Oral presentation**).

8. Sizhe Tang, **Jiayu Chen**, and Tian Lan, "MALinZero: Efficient Low-Dimensional Search for Mastering Complex Multi-Agent Planning", accepted in Conference on Neural Information Processing Systems (NeurIPS), 2025.

9. Wentse Chen, **Jiayu Chen**, Fahim Tajwar, Hao Zhu, Xintong Duan, Russ Salakhutdinov, and Jeff Schneider, "Retrospective In-Context Learning for Temporal Credit Assignment with Large Language Models", accepted in NeurIPS Adaptive Foundation Models Workshop, Oct 2024 (**Oral presentation**), Conference on Neural Information Processing Systems (NeurIPS), 2025.

10. Wenyan Xu, **Jiayu Chen**, Chen Li, Yonghong Hu, and Zhonghua Lu, "Mining Intraday Risk Factor Collections via Hierarchical Reinforcement Learning based on Transferred Options", submitted to ECML PKDD, 2025 (**Oral presentation** in AAAI 2025 Workshop on AI for Social Impact).

11. Swetha Ganesh, **Jiayu Chen**, Washim Uddin Mondal, and Vaneet Aggarwal, "Order-Optimal Global Convergence for Average Reward Actor-Critic with General Policy and Neural Critic Parametrization", submitted to Uncertainty in Artificial Intelligence (UAI), 2025.

12. **Jiayu Chen**, Tian Lan, and Vaneet Aggarwal, "Variational Offline Multi-agent Skill Discovery", accepted in International Joint Conferences on Artificial Intelligence (IJCAI), 2025.

13. Chang-Lin Chen, **Jiayu Chen**, Tian Lan, Elaine Zhao, Hongbo Dong, and Vaneet Aggarwal, "Rack Position Optimization in Large-Scale Heterogeneous Data Centers", accepted in International Conference on Automated Planning and Scheduling (ICAPS), 2025 (**Archival and Oral Presentation**).

14. **Jiayu Chen**, Vaneet Aggarwal, and Tian Lan, "A Unified Algorithm Framework for Unsupervised Discovery of Skills based on Determinantal Point Process", accepted in Conference on Neural Information Processing Systems (NeurIPS), Dec 2023.

15. **Jiayu Chen**, Dipesh Tamboli, Tian Lan, and Vaneet Aggarwal, "Multi-task Hierarchical Adversarial Inverse Reinforcement Learning", accepted in International Conference on Machine Learning (ICML), Jul 2023.

16. **Jiayu Chen**, Tian Lan, and Vaneet Aggarwal, "Option-Aware Adversarial Inverse Reinforcement Learning for Robotic Control", accepted in IEEE International Conference on Robotics and Automation (ICRA), Jun 2023.

17. **Jiayu Chen**, Jingdi Chen, Tian Lan, and Vaneet Aggarwal, "Scalable Multi-agent Covering Option Discovery based on Kronecker Graphs", accepted in Conference on Neural Information Processing Systems

(NeurIPS), Dec 2022.

18. **Jiayu Chen**, Marina Wagdy Wadea Haliem, Tian Lan, and Vaneet Aggarwal, "Multi-agent Deep Covering Option Discovery", accepted in ICML Reinforcement Learning for Real Life Workshop, Jul 2021.

19. **Jiayu Chen**, Abhishek K. Umrawal, Tian Lan, and Vaneet Aggarwal, "DeepFreight: A Model-free Deep-reinforcement-learning-based Algorithm for Multi-transfer Freight Delivery", accepted in International Conference on Automated Planning and Scheduling (ICAPS), Aug 2021.

20. Pin Wang, Dapeng Liu, **Jiayu Chen**, Hanhan Li, and Ching-Yao Chan, "Decision Making for Autonomous Driving via Augmented Adversarial Inverse Reinforcement Learning", accepted in IEEE International Conference on Robotics and Automation (ICRA), Jun 2021.

21. Jilin Mei, **Jiayu Chen**, Wen Yao, Xijun Zhao, and Huijing Zhao, "Supervised Learning for Semantic Segmentation of 3D LiDAR Data", accepted in IEEE Intelligent Vehicles Symposium (IV), Jun 2019.

Journal Publications

1. Mingqi Yuan, Tao Yu, Wenqi Ge, Xiuyong Yao, Dapeng Li, Huijiang Wang, **Jiayu Chen**, Xin Jin, Bo Li, Hua Chen, Wei Zhang, and Wenjun Zeng, "Behavior Foundation Model: Towards Next-Generation Whole-Body Control System of Humanoid Robots", accepted in IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2025.

2. Hyunsoo Choi, **Jiayu Chen**, Vaneet Aggarwal, and Zubin Jacob, "TURBO-RL: Turbulence Mitigation Using Reinforcement Learning for Severe Optical Aberrations", accepted in Optical Society of America A, 2025.

3. Swetha Ganesh, **Jiayu Chen**, Gugan Thoppe, and Vaneet Aggarwal, "Global Convergence Guarantees for Federated Policy Gradient Methods with Adversaries", accepted in Transactions on Machine Learning Research (TMLR), Oct 2024.

4. Chang-Lin Chen, Hanhan Zhou, **Jiayu Chen**, Mohammad Pedramfar, Vaneet Aggarwal, Tian Lan, Zheqing Zhu, Chi Zhou, Pol Mauri Ruiz, Neeraj Kumar, and Hongbo Dong, "Learning-based Two-tiered Online Optimization of Region-wide Datacenter Resource Allocation", accepted in IEEE Transactions on Network and Service Management (TNSM), Oct 2024.

5. **Jiayu Chen**, Bhargav Ganguly, Yang Xu, Yongsheng Mei, Tian Lan, and Vaneet Aggarwal, "Deep Generative Models for Offline Policy Learning: Tutorial, Survey, and Perspectives on Future Directions", accepted in Transactions on Machine Learning Research (with a **Survey Certification**), Aug 2024.

6. Dipesh Tamboli, **Jiayu Chen**, Kiran Pranesh Jotheeswaran, Denny Yu, and Vaneet Aggarwal, "Reinforced Sequential Decision-Making for Sepsis Treatment: The PosNegDM Framework with Mortality Classifier and Transformer", accepted in IEEE Journal of Biomedical and Health Informatics (JBHI), Mar 2024.

7. **Jiayu Chen**, Vaneet Aggarwal, and Tian Lan, "Hierarchical Adversarial Inverse Reinforcement Learning", accepted in IEEE Transactions on Neural Networks and Learning Systems (TNNLS), Aug 2023.

8. **Jiayu Chen**, Jingdi Chen, Tian Lan, and Vaneet Aggarwal, "Learning Multi-agent Options for Tabular Reinforcement Learning using Factor Graphs", accepted to IEEE Transactions on Artificial Intelligence (TAI), Jul 2022.

Teaching Experience

Edwardson School of IE, Purdue University, West Lafayette, Indiana, U.S.A   07/2021 – 05/2024
Teaching Assistant   IE 23000 - Probability And Statistics, IE 53800 - Nonlinear Optimization

Department of DASE, The University of Hong Kong, Hong Kong   01/2026 – 05/2026
Assistant Professor   DASE 3156 - Computer Vision and Applications

Research Experience

School of CS, Carnegie Mellon University, Pittsburgh, Pennsylvania, U.S.A   05/2024 – 05/2025
Postdoctoral Fellow   **Instructor: Prof. Jeff Schneider**

My research primarily explores the application of reinforcement learning and deep search in plasma control. This collaborative endeavor involves Princeton University, Princeton Plasma Physics Laboratory, and General Atomics, and focuses on advancing controllable nuclear fusion. The project is supported by a grant from the United States Department of Energy. The specific research topics are as follows:

- Modeling the dynamics of plasma within the Tokamak device, specifically DIII-D, by supervised learning;
- Quantifying the uncertainty of dynamic predictions using deep ensemble methods.
- Developing control policies based on Bayes-adaptive RL and Monte Carlo Tree Search.
- Enhancing the generalization and robustness of offline model-based RL via causal discovery.

Edwardson School of IE, Purdue University, West Lafayette, Indiana, U.S.A   08/2021 – 05/2024
Research Assistant   **Instructor: Prof. Vaneet Aggarwal, Prof. Tian Lan**

- Reinforcement Learning Algorithm Design:
  - Unsupervised/Multi-agent/Offline Skill Discovery
  - Hierarchical Decision Making
  - Multi-task Hierarchical Imitation Learning
- Reinforcement Learning Applications:
  - Developed a scalable and robust scheduling algorithm that integrates Multi-agent Reinforcement Learning and Optimization for multi-transfer freight delivery.
  - Developed a large-scale Poker AI based on Multi-agent Reinforcement Learning and Heuristic Search.
  - Utilized Offline Reinforcement Learning (specifically Decision Transformer) to optimize healthcare decision-making for sepsis treatment, approaching the level of expert performance.

School of EECS, University of California, Berkeley, California, U.S.A   09/2019 – 01/2020
Research Assistant   **Instructor: Prof. Ching-Yao Chan**

- Developed a lane-changing simulator based on SUMO for efficient RL training and evaluation.
- Proposed a novel Meta Imitation Learning algorithm for diverse lane-changing behavior learning of autonomous vehicles.

School of EECS, Peking University, Beijing, China   09/2018 – 07/2020
Research Assistant   **Instructor: Prof. Huijing Zhao**

- Explored the optimal composition of data input from various sensor types for semantic segmentation of 3D LiDAR data, crucial for semantic understanding in autonomous driving.
- Worked on semi-supervised learning for semantic segmentation of 3D LiDAR data in dynamic scenes, achieving performance on par with fully supervised algorithms while utilizing just 50% labeled data.
- Constructed a simulator using CARLA to model interactions between autonomous vehicles and pedestrians, emulating crucial decision-making scenarios in autonomous driving, and employed (Inverse) RL techniques for driving behavior learning.

Honors and Awards

Benz Scholarship, Peking University	Dec 2017
Learning Excellence Award, Peking University	Dec 2017
JJ World Scholarship, Peking University	Dec 2018
Merit Student Award, Peking University	Dec 2018
Peking University Third Prize Scholarship, Peking University	Dec 2019
Merit Student Award, Peking University	Dec 2019
NeurIPS Scholar Award, NeurIPS	Oct 2022, Oct 2023
Oracle for Research Project Award, Oracle	Aug 2023
Graduate School Summer Research Grant, Purdue University	Mar 2024

INVITED TALKS

- **Temporal Abstractions in Multi-agent Learning.** Department of Systems Engineering, City University of Hong Kong, Online, October 9th, 2024.
- **Learning and Search in Sequential Decision Making.** Department of Data Science, City University of Hong Kong, Online, October 13rd, 2024.
- **Learning and Search in Sequential Decision Making.** Department of Data and Systems Engineering, The University of Hong Kong, Online, October 21st, 2024.

SERVICE

- Reviewer:
    - ICLR (**Notable Reviewer** in 2025), NeurIPS, ICML
    - L4DC 2024, AISTATS 2025, ICRA 2025, IROS 2025, CVPR 2026, UAI 2026, ECCV 2026
    - Journal of Artificial Intelligence Research
    - Machine Learning, Information Sciences, Engineering Applications of Artificial Intelligence
    - IEEE Transactions on Neural Networks and Learning Systems, IEEE Transactions on Games
    - IEEE Transactions on Artificial Intelligence, IEEE Transactions on Intelligent Transportation Systems
    - IEEE Transactions on Cybernetics, IEEE Transactions on Cognitive and Developmental Systems
    - Transactions on Machine Learning Research, ACM Transactions on Knowledge Discovery from Data
    - CMLH Fellowship Applications for Generative AI in Healthcare, CMU, 2024

- Program Committee:
    - IEEE International Conference on Data Science and Advance Analytics, 2023
    - AAAI 2025, 2026, SIAM SDM 2025

- Steering Committee
    - Reinforcement Learning Evolution Foundation