Tianying Ji (嵇天颖)

Email: jity20@mails.tsinghua.edu.cn
Home Page: https://jity16.github.io/

EDUCATION

Tsinghua University
Bachelor of Engineering, Computer Science and Technology

Beijing, China
Sept. 2016 - June 2020

Tsinghua University
Ph.D. Candidate, Computer Science and Technology
Supervisor: Professor Fuchun Sun
The State Key Laboratory of Intelligent Technology and Systems

Beijing, China
Sept. 2020 - Present

Research Interest: Reinforcement Learning, Robotics.
Relevant Courses: Computer Control Theory and Applications (A); Foundations of Artificial Intelligence (A); Robotic Cognitive Computation (A); Computational Intelligence and Robotics (A); Methods of Optimization (A); etc.
Teaching Assistant: Foundations of Artificial Intelligence (2021, 2022, 2023); System Analysis and Control (2020); Cognitive Robotics (2021).

RESEARCH GRANTS & ACADEMIC POSITIONS

- **Intelligent Control of Complex Systems, Robotic Cognitive Systems, and Information Processing** (复杂系统智能控制、机器人认知系统及信息处理)
  Key Project - "Zhichuang" Fund (重大专项-智创基金, 201-CXCY-A01-08-02-03)
  Project Leader. Secured funding and led my team to exceed all research targets. (2020.01 - 2022.12)

- **Program Committee or Reviewer**: NeurIPS (2023, 2024), ICML (2024), ICLR (2024, 2025), IJCAI (2024), ICRA (2025), AAAI (2025), AISTATS (2025).

SELECTED PUBLICATIONS

- ACE: Off-Policy Actor-Critic with Causality-Aware Entropy Regularization.
  Tianying Ji*, Yongyuan Liang*, Yan Zeng, Yu Luo, Guowei Xu, Jiawei Guo, Ruijie Zheng, Furong Huang, Fuchun Sun, Huazhe Xu.
  ICML, 2024 (Oral - top 2%).

- When to Update Your Model: Constrained Model-based Reinforcement Learning.
  Tianying Ji, Yu Luo, Fuchun Sun, Mingxuan Jing, Fengxiang He, Wenbing Huang.
  NeurIPS, 2022 (Spotlight - top5%).

- Seizing Serendipity: Exploiting the Value of Past Success in Off-Policy Actor-Critic.
  Tianying Ji, Yu Luo, Fuchun Sun, Xianyuan Zhan, Jianwei Zhang, Huazhe Xu.
  ICML, 2024.

- OMPO: A Unified Framework for RL under Policy and Dynamics Shifts.
  Yu Luo, **Tianying Ji**, Fuchun Sun, Jianwei Zhang, Huazhe Xu, Xianyuan Zhan.
  ICML, 2024 (Oral - top 2%).

- DrM: Mastering Visual Reinforcement Learning through Dormant Ratio Minimization.
  Guowei Xu, Ruijie Zheng, Yongyuan Liang, Xiyao Wang, Zhecheng Yuan, **Tianying Ji**, Yu Luo, Xiaoyu Liu, Jiaxin Yuan, Pu Hua, Shuzhen Li, Yanjie Ze, Hal Daumé III, Furong Huang, Huazhe Xu.
  ICLR, 2024 (Spotlight - top5%).

- H2O+: An Improved Framework for Hybrid Offline-and-Online RL with Dynamics Gaps.
  Haoyi Niu*, **Tianying Ji***, Bingqi Liu, Haocheng Zhao, Xiangyu Zhu, Jianying Zheng, Pengfei Huang, Guyue Zhou, Jianming Hu, Xianyuan Zhan.
  ICLR (DMLR Workshop), 2024.

- RoboGolf: Mastering Real-World Minigolf with a Reflective Multi-Modality Vision-Language Model.
  Hantao Zhou*, **Tianying Ji***, Jianwei Zhang, Fuchun Sun, Huazhe Xu.
  ICML (MFM@EAI Workshop), 2024.

- Offline-Boosted Actor-Critic: Adaptively Blending Optimal Historical Behaviors in Deep Off-Policy RL.
  Yu Luo, **Tianying Ji**, Fuchun Sun, Jianwei Zhang, Huazhe Xu, Xianyuan Zhan.
  ICML, 2024.

- Goal-Conditioned Hierarchical Reinforcement Learning With High-Level Model Approximation.
  Yu Luo, **Tianying Ji**, Fuchun Sun, Huaping Liu, Jianwei Zhang, Mingxuan Jing, Wenbing Huang.
  IEEE Transactions on Neural Networks and Learning Systems (TNNLS), 2024.

- BDAC: A Behavior-aware Dynamic Adaptive Configuration on DHCP in Wireless LANs.
  Congcong Miao, Jilong Wang, **Tianying Ji**, Hui Wang, Chao Xu, Fenghua Li, Fengyuan Ren.
  International Conference on Network Protocols (ICNP), 2019.
- Smooth Computation without Input Delay: Robust Tube-Based Model Predictive Control for Robot Manipulator Planning.
  Qie Sima*, Yu Luo*, **Tianying Ji**, Fuchun Sun, Huaping Liu, Jianwei Zhang.
  IEEE International Conference on Robotics and Automation (ICRA), 2024.
- Motion Planning Integrated with Vehicle-Terrain Interactions for Off-Road Autonomous Ground Vehicles.
  Jianhua Yin, Xianyuan Zhan, **Tianying Ji**, Bingrong Xu, Yi He, Daqing Zhang, Lingxi Li.
  IEEE International Conference on Intelligent Transportation Systems (ITSC), 2024.
- Robot Cognitive Learning by Considering Physical Properties.
  Fuchun Sun, Wenbing Huang, Yu Luo, **Tianying Ji**, Huaping Liu, He Liu, Jianwei Zhang.
  Engineering, 2024.
- Robust tube-based MPC with smooth computation for dexterous robot manipulation.
  Yu Luo, **Tianying Ji**, Fuchun Sun, Qie Sima, Huaping Liu, Mingxuan Jing, Jianwei Zhang.
  Science China, Information Sciences, 2024.
- Bidirectional-Reachable Hierarchical Reinforcement Learning with Mutually Responsive Policies.
  Yu Luo, Fuchun Sun, **Tianying Ji**, Xianyuan Zhan.
  Reinforcement Learning Conference (RLC), 2024.
- RGB-D Object Segmentation for Multi-Step Pick-and-Place in Open Cloud Robot Table.
  Chao Yang, Chengliang Zhong, Mingxuan Jing, Yu Luo, **Tianying Ji**, Wenbing Huang, Xiaodong Mu, Fuchun Sun.
  IEEE International Conference on Robotics and Automation (ICRA) (Cloud-Based Competitions and Benchmarks for Robotic Manipulation and Grasping Workshop), 2021.

MONOGRAPH & INVITED TALKS

- **Embodied Artificial Intelligence: Theories and Applications** (具身智能：理论与应用).
  Fuchun Sun, **Tianying Ji**, Huaping Liu, Runfa Chen, Yu Luo.
  Tsinghua University Press (清华大学出版社) (Forthcoming).
- **Invited talk:** Research Development and Thinking on Embodied Intelligence.
  Northwestern Polytechnical University (西北工业大学), 20 Sept. 2024.
- **Invited talk:** When to Update Your Model Constrained Model-based Reinforcement Learning.
  The Heart of The Machine (机器之心), 27 Oct. 2022.

PATENTS

- Fuchun Sun, **Tianying Ji**, Yu Luo, Yan Zeng. A model training and policy optimization system based on an event-triggering mechanism (一种基于事件触发机制的模型训练与策略优化方法及系统). CN117763974A, 26 Mar. 2024.
- Fuchun Sun, Yu Luo, **Tianying Ji**, Yan Zeng. Agent hierarchical reinforcement learning method and system based on dynamic high-level planner (基于动态高层规划器的智能体层次化强化学习方法及系统). CN117872758A, 12 Apr. 2024.
- Xianyuan Zhan, **Tianying Ji**, Yu Luo. Method and device for realizing reinforcement learning of intelligent body by searching and utilizing balance (一种实现探索与利用平衡的智能体强化学习方法和装置). CN116663653A, 29 Aug. 2023.
- Xianyuan Zhan, Yu Luo, Xiangyu Zhu, Wenjia Zhang, **Tianying Ji**, Ce Zhang, Huiwen Zheng, Chenhui Liu, Hui Li, Shukun Yang, Tao Yang. Hierarchical reinforcement learning for intelligent cold source temperature control and energy optimization. (冷源温控和能量优化的智能体离线层次化强化学习方法). CN118642354A, 27 Feb. 2024.

SELECTED RESEARCH PROJECTS

- Contributed to National Science and Technology Major Projects of China (2018AAA0102903,2021ZD0113804).
- Contributed to "Cognitive learning and decision-making control of unmanned platforms in dynamic adversarial environment", "Dexterous operation learning of autonomous agents with typical scenario validation", "Cognitive decision-making of general intelligent agents for unmanned equipment with adversarial scenario validation".

INTERNSHIPS & OVERSEAS EXPERIENCES

- **HAOMO.AI Autonomous Driving Research Cooperation Project** — Beijing, China
  Research Project Internship; Institute for AI Industry Research, Tsinghua University — *Sept. 2022 - Nov. 2023*
- **SFB/TRR169-Multimodal Learning Sino-German Cooperation Project** — Hamburg, Germany
  Visiting Scholar; University of Hamburg — *Nov. 2023 - Feb. 2024*

HONORS & AWARDS

- OCRTOC: Open Cloud Robot Table Organization Challenge @ IROS 2020, Simulation Track: Team Champion, Real Robot Track: Team 3rd place, 2020.
- Tsinghua University, Tsinghua 1st-class scholarship for overall excellence (清华大学校设综合一等奖学金), 2023.
- Tsinghua University, "Love Reading" Scholarship (清华大学"好读书"奖学金), 2017&2019.