

Chenning Yu

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EDUCATION

University of California, San Diego

- Ph.D. in Computer Science, Advisor: Prof. [Sicun Gao](#)

Sept. 2021 - Jun. 2025 (Expected)

University of California, San Diego

- M.S. in Computer Science

Sept. 2019 - Jun. 2021

WORK EXPERIENCE

Deep Learning Intern @ Autonomous Vehicles, NVIDIA

Jun. 2024 - Sept. 2024

Improving Neural Network Architecture for Trajectory Planning

Planning and Control Team

- Redesigned a Transformer-based trajectory planner by changing from rasterized to vector-based lane representation.
- Implemented VectorNet-inspired encoder architecture changes and simplified existing backbone using self-attention layers.
- Reduced lane hugging events by 80% through validated car tests, significantly improving lane-keeping-related behaviors.

PUBLICATION

7. [ICRA 24] Mingxin Yu, [Chenning Yu](#), Mohammad Mahdi Naddaf Shargh, Devesh Upadhyay, Sicun Gao, Chuchu Fan. “Efficient Motion Planning for Manipulators with Barrier-Induced Neural Controller.” *IEEE International Conference on Robotics and Automation*, 2024.
6. [NeurIPS 23] Milan Ganai, Zheng Gong, [Chenning Yu](#), Sylvia Herbert, Sicun Gao. “Iterative Reachability Estimation for Safe Reinforcement Learning.” *The Conference on Neural Information Processing Systems*, 2023.
5. [ICRA 23] [Chenning Yu*](#), Qingbiao Li*, Sicun Gao, Amanda Prorok. “Accelerating Multi-Agent Planning Using Graph Transformers with Bounded Suboptimality.” *IEEE International Conference on Robotics and Automation*, 2023.
4. [IROS 23] Hongzhan Yu, Chiaki Hirayama, [Chenning Yu](#), Sylvia Herbert, Sicun Gao. “Sequential Neural Barriers for Scalable Dynamic Obstacle Avoidance.” *IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2023. *Best Robocup Paper Award*.
3. [CoRL 22] [Chenning Yu](#), Hongzhan Yu, Sicun Gao. “Learning Control Admissibility Models with Graph Neural Networks for Multi-Agent Navigation.” *The Conference on Robot Learning*, 2022.
2. [NeurIPS 22] Ruipeng Zhang, [Chenning Yu](#), Jingkai Chen, Chuchu Fan, Sicun Gao. “Learning-based Motion Planning in Dynamic Environments Using GNNs and Temporal Encoding.” *The Conference on Neural Information Processing Systems*, 2022.
1. [NeurIPS 21] [Chenning Yu](#), Sicun Gao. “Reducing Collision Checking for Sampling-Based Motion Planning Using Graph Neural Networks.” *The Conference on Neural Information Processing Systems*, 2021.

ACADEMIC EXPERIENCE

Research Intern @ Reliable Autonomous Systems Lab, MIT

Jun. 2022 - Oct. 2022

Designing Generalizable Reinforcement Learning Agents with Highly Safe Performances

Advisor: Prof. [Chuchu Fan](#)

- Designed a set-theoretic formulation of RL policies to guarantee the forward invariance for safety-critical constraints.
- Generalized the RL agents to out-of-distribution tasks using the compositionality, and attaining highly safe performances.
- Tested the approach in a safety-critical MuJoCo robot environment with a performance of over 90% per-state safeness.

Research Intern @ Prorok Lab, University of Cambridge (Remote)

Jun. 2022 - Sept. 2022

Accelerating Multi-Agent Planning using Graph Transformers and Contrastive Learning

Advisor: Prof. [Amanda Prorok](#)

- Incorporated the Graph Transformers into a provably near-optimal planning framework for computation acceleration.
- Analyzed the approach in continuous clustered environments up to 30 agents, which are infeasible for traditional planners.
- Increased the success rates of the multi-agent planners by over 25% on average, with near-optimal performances.

TECHNICAL SKILLS

Programming

Python, Bash, C++

Development & Tools

PyTorch, Distributed Data Parallel, Hydra, JAX, Numpy, Scipy, Linux, Git, Jupyter Notebook

PROFESSIONAL ACTIVITIES

Conference Reviewer

AAAI 2023, ICLR 2024/2025, ICML 2024, ICRA 2023/2024, L4DC 2023, NeurIPS 2023