# Tianyu Qiu

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## EDUCATION

**Ph.D. Student in Aerospace Engineering** — Aug 2023 -- Dec 2027 (Expected)
The University of Texas at Austin — Austin, TX
Advisor: Prof. David Fridovich-Keil

**Master of Engineering in Control Engineering** — Mar 2023
Shanghai Jiao Tong University — Shanghai, China

**Bachelor of Engineering in Electrical and Computer Engineering** — Aug 2020
Shanghai Jiao Tong University — Shanghai, China
Minor in Data Science

## RESEARCH INTERESTS

**Multi-Robot Planning, Game Theory, and Robot Navigation**

## HONORS AND AWARDS

- **Bob E. Schutz, Ph.D. Endowed Presidential Fellowship in Aerospace Engineering** — 2025 -- 2026
- **NSF Travel Award and Texas Robotics Conference Funding, L4DC** — 2025
- **Professional Development Awards, UT Austin Graduate School** — Spring and Summer 2025; Fall 2026
- **Graduate Outstanding Scholarship** — 2020 -- 2023
- **John Wu and Jane Sun Elite Undergraduate Scholarship** — 2016 -- 2020

## PUBLICATIONS

### Game-Theoretic Planning for Multi-Robot Systems

**Linear-Quadratic Gaussian Games with Distributed Sparse Estimation**
**Tianyu Qiu**, F. Fotiadis, X. Liu, C. Ellis, J. Milzman, W. Suttle, U. Topcu, and D. Fridovich-Keil.
*IEEE Control Systems Letters (L-CSS); to be presented at CDC 2026.*

**Efficiently Solving Mixed-Hierarchy Games with Quasi-Policy Approximations**
H. Khan, D. H. Lee, J. Li, **Tianyu Qiu**, C. Ellis, J. Milzman, W. Suttle, and D. Fridovich-Keil.
*17th World Symposium on the Algorithmic Foundations of Robotics (WAFR 2026).*

**A Player Selection Network for Scalable Game-Theoretic Prediction and Planning**
**Tianyu Qiu**, E. Ouano, F. Palafox, C. Ellis, and D. Fridovich-Keil.
*Transactions on Machine Learning Research (TMLR).*

**Inferring Occluded Agent Behavior in Dynamic Games with Noise-Corrupted Observations**
**Tianyu Qiu** and D. Fridovich-Keil.
*IEEE Robotics and Automation Letters (RA-L).*

**Nash Pursuit Strategy for Nonzero-sum MPC Game via Inverse Optimal Control**
**Tianyu Qiu**, H. Zhang, and J. Wang.
*13th Asian Control Conference.*

### Robot Learning

**Inner Product Regularization for Imitation Learning**
B. A. Christie, **Tianyu Qiu**, A. H. Choi, D. Fridovich-Keil, and D. P. Losey.
*The International Journal of Robotics Research (IJRR), under submission.*

**Dense Dynamics-Aware Reward Synthesis: Integrating Prior Experience with Demonstrations**
C. Koprulu*, P.-H. Li*, **Tianyu Qiu***, T. Westenbroek, R. Zhao, D. Fridovich-Keil, S. Chinchali, and U. Topcu.
*7th Annual Learning for Dynamics & Control Conference (L4DC 2025).*

## RESEARCH EXPERIENCE

**CLeAR Lab, The University of Texas at Austin** — Austin, TX
**Graduate Research Assistant** | Advisor: Prof. David Fridovich-Keil — Aug 2023 -- Present
**Research Intern (Remote)** — Dec 2021 -- Jul 2023

- Conduct research on game-theoretic planning, inference, and learning for multi-agent robotic systems.

**Autonomous Robot Lab, Shanghai Jiao Tong University** — Shanghai, China
**Graduate Research Assistant** | Advisor: Prof. Jingchuan Wang — Sep 2020 -- Mar 2023

- Developed game-theoretic prediction and control methods for mobile robot navigation.

## TEACHING AND MENTORING

**The University of Texas at Austin** Austin, TX

**Teaching Assistant and Ph.D. Mentor**

- Scientific Computation (undergraduate) Aug 2023 -- Dec 2023
- UT REACT REU Program, Ph.D. Mentor Jul 2024 -- Aug 2024

**Shanghai Jiao Tong University** Shanghai, China

**Teaching Assistant**

- Scientific Writing, Integrity and Ethics (graduate) Sep 2021 -- Dec 2021
- Science and Technology Innovation (Part 4-E) (undergraduate) Feb 2021 -- Jun 2021
- Discrete Maths (undergraduate) May -- Aug 2019; May -- Aug 2020
- Intro to Engineering (undergraduate) Sep -- Dec 2018; Sep -- Dec 2019

## TECHNICAL SKILLS

- **Programming Languages:** Python, Julia, MATLAB, C/C++
- **Robotics-related Software:** ROS / ROS 2, Gazebo, robosuite, Vicon, MuJoCo, Isaac Sim
- **Robot Platforms:** Clearpath Jackal, Clearpath Husky, Unitree Go2, TurtleBot Burger, Smart Wheelchairs
- **Libraries and Tools:** PyTorch, JAX, CVXPY, YALMIP, Clarabel, SCS, Git