

# Chih-Yuan Chiu

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ACADEMIC EMPLOYMENT	<b>Georgia Institute of Technology</b> <i>Research Engineer II, School of Electrical and Computer Engineering. Supervisor: Professor Justin Romberg</i>	Aug 2024 - now
EDUCATION	<b>University of California, Berkeley</b> <i>Ph.D., Department of Electrical Engineering and Computer Sciences Advisor: Professor Shankar Sastry</i> <b>National Taiwan University</b> <i>B.S., Department of Electrical Engineering</i>	Sept 2018 - Dec 2023  Sept 2014 - June 2018
CONTACT INFORMATION	<i>Emails:</i> cyc@gatech.edu, chihyuanfrankchiu@gmail.com. <i>Website:</i> <a href="https://chihyuanchiu.github.io/">https://chihyuanchiu.github.io/</a> <i>Google Scholar:</i> <a href="https://scholar.google.com/citations?hl=en&amp;user=cl9ModoAAAAJ">https://scholar.google.com/citations?hl=en&amp;user=cl9ModoAAAAJ</a>	
PREPRINTS	Dan BW Choe, Sundhar Vinodh Sangeetha, Steven Emanuel, <b>Chih-Yuan Chiu</b> , Samuel Coogan, Shreyas Kousik. “Ask, Reason, Assist: Decentralized Robot Collaboration via Language and Logic,” ArXiv preprint 2509.23506, September 2025. URL: <a href="https://arxiv.org/pdf/2509.23506">https://arxiv.org/pdf/2509.23506</a> . (Submitted to: <i>IEEE Robotics and Automation Letters (RA-L)</i> )  Shuyu Zhan*, <b>Chih-Yuan Chiu</b> *, Antoine Leeman, Glen Chou. “Robustly Constrained Dynamic Games for Uncertain Nonlinear Dynamics,” ArXiv preprint 2509.16826, September 2025. URL: <a href="https://arxiv.org/abs/2509.16826">https://arxiv.org/abs/2509.16826</a> . (Submitted to <i>2026 IEEE International Conference on Robotics and Automation (ICRA)</i> )  Sundhar Vinodh Sangeetha, <b>Chih-Yuan Chiu</b> , Sarah H.Q. Li, Shreyas Kousik “Language Conditioning Improves Accuracy of Aircraft Goal Prediction in Untowered Airspace,” ArXiv preprint 2509.14063, September 2025. URL: <a href="https://arxiv.org/abs/2509.14063">https://arxiv.org/abs/2509.14063</a> . (Submitted to <i>2026 IEEE International Conference on Robotics and Automation (ICRA)</i> )  <b>Chih-Yuan Chiu</b> *, Zhouyu Zhang*, Glen Chou. “Learning Constraints from Stochastic Partially-Observed Closed-Loop Demonstrations,” ArXiv preprint 2509.15109, September 2025. URL: <a href="https://arxiv.org/abs/2509.15109">https://arxiv.org/abs/2509.15109</a> . (Submitted to: <i>IEEE Control Systems Letters (L-CSS)</i> )  Zhouyu Zhang* <sup>1</sup> , <b>Chih-Yuan Chiu</b> *, Glen Chou. “Constraint Learning in Multi-Agent Dynamic Games from Demonstrations of Local Nash Interactions,” ArXiv preprint 2508.19945, August 2025. URL: <a href="https://arxiv.org/abs/2508.19945">https://arxiv.org/abs/2508.19945</a> . (Submitted to: <i>IEEE Robotics and Automation Letters (RA-L)</i> )	
JOURNAL PUBLICATIONS	<b>Chih-Yuan Chiu</b> , Bryce Ferguson. “Robustness of Incentive Mechanisms Against System Misspecification in Congestion Games,” in <i>IEEE Control Systems Letters</i> , vol. 9, pp. 276-281, May 2025.  <b>Chih-Yuan Chiu</b> *, Jingqi Li*, Maulik Bhatt, Negar Mehr. “To What Extent Do Open-Loop and Feedback Nash Equilibria Diverge in General-Sum Linear Quadratic Dynamic Games?” <i>IEEE Control Systems Letters (L-CSS)</i> , vol. 8, pp. 2583-2588, November 2024.  Lasse Peters, Andrea Bajcsy, <b>Chih-Yuan Chiu</b> , David Fridovich-Keil, Forrest Laine, Laura Ferranti, Javier Alonso-Mora. “Contingency Games for Multi-Agent Interaction,” <i>IEEE Robotics and Automation Letters (RA-L)</i> , vol. 9, pp. 2208-2215, January 2024.	

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<sup>1</sup>\*indicates qual contribution.

Forrest Laine, David Fridovich-Keil, **Chih-Yuan Chiu**, and Claire Tomlin. “The Computation of Approximate Generalized Feedback Nash Equilibria”, *SIAM Journal on Optimization*, vol. 33, no. 1, pp. 294-318, 2023.

Druv Pai, Michael Psenka, **Chih-Yuan Chiu**, Manxi Wu, Edgar Dobriban, Yi Ma. “Pursuit of a Discriminative Representation for Multiple Subspaces via Sequential Games”, vol. 360, no. 6, *Journal of the Franklin Institute*, pp. 4135-4171, April 2023.

Amay Saxena\*, **Chih-Yuan Chiu\***, Ritika Shrivastava, Joseph Menke, Shankar Sastry. “Simultaneous Localization and Mapping: Through the Lens of Nonlinear Optimization,” vol. 7, no. 3, *IEEE Robotics and Automation Letters (RA-L)*, July 2022.

**Chih-Yuan Chiu**. “Approximately Optimal Toll Design for Efficiency and Equity in Arc-Based Traffic Assignment Models,” *60th Annual Allerton Conference on Communication, Control, and Computing*, September 2025.

**Chih-Yuan Chiu**, Devansh Jalota, Marco Pavone. “Credit vs. Discount-Based Congestion Pricing: A Comparison Study,” in *IEEE Conference on Decision and Control (CDC)*, pp. 2331-2336, December 2024.

**Chih-Yuan Chiu**, Shankar Sastry. “Parameter Estimation in Optimal Tolling for Traffic Networks Under the Markovian Traffic Equilibrium,” in *American Control Conference (ACC)*, pp. 1461-1467, July 2024.

**Chih-Yuan Chiu**, Chinmay Maheshwari, Pan-Yang Su, Shankar Sastry. “Dynamic Tolling in Arc-based Traffic Assignment Models,” in *59th Annual Allerton Conference on Communication, Control, and Computing*, pp. 1-8, September 2023.

**Chih-Yuan Chiu\***, Chinmay Maheshwari\*, Pan-Yang Su, Shankar Sastry. “Arc-based Traffic Assignment: Equilibrium Characterization and Learning,” in *IEEE Conference on Decision and Control (CDC)*, pp. 7751-7758, December 2023.

Jingqi Li, **Chih-Yuan Chiu**, Lasse Peters, Fernando Palafox, Mustafa Karabag, Javier Alonso-Mora, Somayeh Sojoudi, Claire Tomlin, David Fridovich-Keil. “Scenario-Game ADMM: A Parallelized Scenario-Based Solver for Stochastic Noncooperative Games,” in *IEEE Conference on Decision and Control (CDC)*, pp. 8093-8099, December 2023.

**Chih-Yuan Chiu**. “SLAM Backends with Objects in Motion: A Unifying Framework and Tutorial,” in *American Control Conference (ACC)*, pp. 1635-1642, May 2023.

Jingqi Li, **Chih-Yuan Chiu**, Lasse Peters, Somayeh Sojoudi, Claire Tomlin, David Fridovich-Keil. “Cost Inference for Feedback Dynamic Games from Noisy Partial State Observations and Incomplete Trajectories,” in *International Conference on Autonomous Agents and Multiagent Systems*, pp. 1062-1070, June 2023.

**Chih-Yuan Chiu**, David Fridovich-Keil. “GTP-SLAM: Game-Theoretic Priors for Simultaneous Localization and Mapping in Multi-Agent Scenarios,” in *IEEE Conference on Decision and Control (CDC)*, pp. 247-252, December 2022.

Chinmay Maheshwari\*, **Chih-Yuan Chiu\***, Eric Mazumdar, Shankar Sastry and Lillian J. Ratliff. “Zeroth-Order Methods for Convex-Concave Minmax Problems: Applications to Decision-Dependent Risk Minimization”, in *25th International Conference on Artificial Intelligence and Statistics (AISTATS)*, vol. 51, pp. 6702-6734, 2022.

**Chih-Yuan Chiu\***, David Fridovich-Keil\*, and Claire Tomlin. “Encoding Defensive Driving as a Dynamic Nash Game,” in *IEEE International Conference on Robotics and Automation (ICRA)*, pp. 10749-10756, 2021.

Forrest Laine, David Fridovich-Keil, **Chih-Yuan Chiu**, and Claire Tomlin. “Multi-Hypothesis Interactions in Game-Theoretic Motion Planning”, in *IEEE International Conference on Robotics and Automation (ICRA)*, pp. 8016-8023, June 2021.

Forrest Laine, **Chih-Yuan Chiu**, Claire Tomlin, “Eyes-Closed Safety Kernels: Safety for Autonomous Systems Under Loss of Observability”, in *Robotics: Science and Systems (RSS)*, July 2020.

#### THESES

(*Ph.D. Thesis*) **Chih-Yuan Chiu**. “Algorithm Design for Safe and Efficient Societal-Scale Navigation,” 2023. (<https://www2.eecs.berkeley.edu/Pubs/TechRpts/2023/EECS-2023-267.pdf>).

(*Master’s Thesis*) **Chih-Yuan Chiu**. “Simultaneous Localization and Mapping: A Rapprochement of Filtering and Optimization-Based Approaches,” 2021. (<https://www2.eecs.berkeley.edu/Pubs/TechRpts/2021/EECS-2021-76.pdf>).

#### INVITED ORAL PRESENTATIONS

**Georgia Tech DCL Symposium Spotlight Talk** Apr 2025  
*“Credit-based vs. Discount-based Congestion Pricing: A Study of Tolling and Toll Relief Mechanisms for Traffic Management.”*

**UC Berkeley ME ICON Research Group Seminar** Dec 2024  
*“Discussion of the Publication, A Survey of Opponent Modeling in Adversarial Domains, by and Dr. Samer Nashed and Dr. Shlomo Zilberstein.”*

**Georgia Tech ECE Decision and Control Laboratory Student Seminar** Oct 2024  
*“Interaction-aware Multi-Agent Control: The Role of Information.”*

**UC Berkeley EECS C106B/206B Guest Lecture** Apr 2022  
*“Simultaneous Localization and Mapping: A Unifying Optimization-Based Framework.” (with Ritika Srivastava)*

**UC Berkeley Semiautonomous Seminar** Feb 2022  
*“Towards a Rapprochement of Estimation, Prediction, and Planning for Autonomous Navigation.”*

**UC Berkeley EE 221A Guest Lecture** Dec 2021  
*“Simultaneous Localization and Mapping: Filtering and Optimization Approaches.” (with Amay Saxena)*

**UC Berkeley Semiautonomous Seminar** Sep 2021  
*“Gradient Free Optimistic Gradient Descent Ascent: Applications to Decision Dependent Risk Minimization.” (with Chinmay Maheshwari)*

**UC Berkeley Semiautonomous Seminar** Jun 2021  
*“Factor Graphs: A Tool for Optimization-Based Inference in Robotics.”*

**UC Berkeley EECS C106B/206B Guest Lecture** Feb 2021  
*“Simultaneous Localization and Mapping: A Unifying Optimization-Based Framework.” (with Amay Saxena)*

**UC Berkeley Semiautonomous Seminar** Jun 2020

*“Adversarial-to-Cooperative Games.”*

TEACHING  
EXPERIENCE

<b>EE 127 (Optimization Models in Engineering)</b> <i>20-hour Graduate Student Instructor for a 16-week semester-long course</i>	Aug 2023 - Dec 2023
<b>EE 221A (Linear Systems Theory)</b> <i>20-hour Graduate Student Instructor for a 16-week semester-long course</i>	Aug 2021 - Dec 2021
<b>EE 16B (Designing Information Devices and Systems II)</b> <i>25-hour Graduate Student Instructor for an 8-week summer course</i>	Jul 2020 - Aug 2020

JOURNAL AND  
CONFERENCE  
REVIEWING

**Journals**

- IEEE Transactions on Networked Control Systems, 2025.
- IEEE Transactions on Automatic Control, 2024.
- IEEE Control Systems Letters, 2024.
- IEEE Robotics and Automation Letters (RA-L), 2024.
- Journal of Machine Learning Research (JMLR), 2023.

**Conferences**

- IEEE International Conference on Intelligent Transportation Systems, 2024.
- IEEE Conference on Decision and Control (CDC), 2024.
- IFAC American Control Conference (ACC), 2024.
- IEEE International Conference on Robotics and Automation (ICRA), 2022.
- IEEE International Symposium on Multi-Robot and Multi-Agent Systems (MRS), 2021.
- IEEE International Conference on Robotics and Automation (ICRA), 2021.
- IEEE Conference on Decision and Control (CDC), 2020.

SOFTWARE SKILLS Python, Matlab, C++, L<sup>A</sup>T<sub>E</sub>X

ORGANIZATIONS  
AND ACTIVITIES

<b>ACC 2025: Workshop on Mixed-Autonomy Traffic, Co-Organizers</b> <i>Workshop on Emerging Challenges and Opportunities in Mixed Autonomy Transportation Systems</i> ( <a href="https://sites.google.com/view/acc2025workshoponmixedautonomy/home?authuser=0">https://sites.google.com/view/acc2025workshoponmixedautonomy/home?authuser=0</a> )	July 2024
<b>Decision and Control Laboratory Student Seminar Co-Organizer</b> <i>Monthly seminar on emerging challenges in the control of robotic and cyber-physical systems, at Georgia Tech ECE</i>	Sep 2024 - now
<b>DREAM Seminar Co-Organizer</b> <i>Weekly seminar on control theory, robotics, optimization, computer vision, and machine learning, at UC Berkeley EECS.</i>	Sep 2022 - Dec 2023
<b>Semiautonomous Seminar Co-Organizer</b> <i>Weekly seminar on control theory, robotics, optimization, computer vision, and machine learning, at UC Berkeley EECS.</i>	Jan 2020 - Dec 2021