Glen Chou

Assistant Professor, Georgia Institute of Technology
School of Cybersecurity and Privacy
School of Aerospace Engineering
School of Electrical and Computer Engineering (adjunct)
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Machine Learning Center

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RESEARCH INTERESTS

Topics: *Robotics; safe & resilient autonomy; adversarial robustness; control; machine learning & AI; optimization; perception; motion planning; human-robot interaction.*

Overview: I am broadly interested in building principled algorithms that can enable general-purpose autonomous robots to operate capably and safely around humans, while remaining resilient to real-world failures and adversarial attacks. To unify the flexibility of machine learning with the reliability of model-based control, I am building strong model-based tools for perception-based control that can accommodate humans in the loop and be safely powered with data. Beyond designing these algorithms and proving their properties, I also believe strongly in demonstrating their validity on real hardware platforms.

ACADEMIC APPOINTMENTS

Assistant Professor, Georgia Institute of Technology. Nov. 2024 -
Schools of Cybersecurity & Privacy and Aerospace Engineering (joint affiliation).
School of Electrical and Computer Engineering (adjunct).

Postdoctoral Associate, Massachusetts Institute of Technology. Sep. 2022 - Sep. 2024
Computer Science and Artificial Intelligence Lab (CSAIL), advised by Prof. Russ Tedrake.

EDUCATION

University of Michigan, Ann Arbor Sep. 2017 - Aug. 2022
PhD, Electrical and Computer Engineering
Co-advised by Profs. Dmitry Berenson and Necmiye Ozay.

University of Michigan, Ann Arbor Sep. 2017 - May 2019
MS, Electrical and Computer Engineering

University of California, Berkeley Aug. 2013 - May 2017
BS, Dual Major in Electrical Engineering and Computer Science, Mechanical Engineering, high honors
Advised by Prof. Claire Tomlin.

REPRESENTATIVE PUBLICATIONS

[R1] G. Chou, N. Ozay, and D. Berenson, **"Learning Temporal Logic Formulas from Suboptimal Demonstrations: Theory and Experiments"**, Autonomous Robots (AuRo), vol. 46, no. 1, pp. 149-174, January 2022.

[R2] C. Knuth*, G. Chou*, N. Ozay, and D. Berenson, **"Planning with Learned Dynamics: Probabilistic Guarantees on Safety and Reachability via Lipschitz Constants"**, IEEE Robotics and Automation Letters (with presentation at ICRA 2021), vol. 6, no. 3, pp. 5129 - 5136, July 2021. *Equal contribution.

[R3] G. Chou, N. Ozay, and D. Berenson, **Safe Output Feedback Motion Planning from Images via Learned Perception Modules and Contraction Theory**, Proc. 15th International Workshop on the Algorithmic Foundations of Robotics (WAFR), College Park, MD, USA, June 2022.

[R4] G. Chou*, Y. E. Sahin*, L. Yang*, K. J. Rutledge, P. Nilsson, and N. Ozay, **Using control synthesis to generate corner cases: A case study on autonomous driving**, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (ESWEEK-TCAD special issue), vol. 37, no. 11, pp. 2906-2917, October 2018. *Equal contribution.

[R5] G. Chou, D. Berenson, and N. Ozay, **"Learning Constraints from Demonstrations with Grid and Parametric Representations"**, International Journal of Robotics Research (IJRR), vol. 40, no. 10-11, pp. 1255-1283, Sep. 2021.

JOURNAL PUBLICATIONS

[J8] Z. Zhang*, C.Y. Chiu*, G. Chou, **Constraint Learning in Multi-Agent Dynamic Games from Demonstrations of Local Nash Interactions**, IEEE Robotics and Automation Letters (RA-L), with presentation at IROS 2026, March 2026. *Equal contribution.

[J7] C. Chiu*, Z. Zhang*, G. Chou, **Learning Constraints from Stochastic Partially-Observed Closed-Loop Demonstrations**, IEEE Control Systems Letters (L-CSS), with presentation at ACC 2026, December 2025. *Equal contribution.

[J6] G. Chou*, H. Wang*, D. Berenson, **Gaussian Process Constraint Learning for Scalable Chance-Constrained Motion Planning from Demonstrations**, IEEE Robotics and Automation Letters (with presentation at ICRA 2022), vol. 7, no. 2, pp. 3827-3834, April 2022. *Equal contribution.

[J5] G. Chou, N. Ozay, and D. Berenson, **Learning Temporal Logic Formulas from Suboptimal Demonstrations: Theory and Experiments**, Autonomous Robots (AuRo), vol. 46, no. 1, pp. 149-174, January 2022.

[J4] G. Chou, D. Berenson, and N. Ozay, **Learning Constraints from Demonstrations with Grid and Parametric Representations**, International Journal of Robotics Research (IJRR), vol. 40, no. 10-11, pp. 1255-1283, September 2021.

[J3] C. Knuth*, G. Chou*, N. Ozay, and D. Berenson, **Planning with Learned Dynamics: Probabilistic Guarantees on Safety and Reachability via Lipschitz Constants**, IEEE Robotics and Automation Letters (with presentation at ICRA 2021), vol. 6, no. 3, pp. 5129 - 5136, July 2021. *Equal contribution.

[J2] G. Chou, N. Ozay, and D. Berenson, **Learning Constraints from Locally-Optimal Demonstrations under Cost Function Uncertainty**, IEEE Robotics and Automation Letters (with presentation at ICRA 2020), vol. 5, no. 2, pp. 3682-3690, April 2020.

[J1] G. Chou*, Y. E. Sahin*, L. Yang*, K. J. Rutledge, P. Nilsson, and N. Ozay, **Using control synthesis to generate corner cases: A case study on autonomous driving**, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (ESWEEK-TCAD special issue), vol. 37, no. 11, pp. 2906-2917, October 2018. *Equal contribution.

CONFERENCE PUBLICATIONS

[C27] A. Brown, G. Chou, **Design and Trajectory Optimization of a Shape-Morphing Aeroshell for Skip-Entry Orbital Inclination Change**, Proc. 27th AIAA International Hypersonics Conference, Naples, Italy, July 2026.

[C26] D. Nath*, H. Yin*, G. Chou. **Scalable Data-Driven Reachability Analysis and Control via Koopman Operators with Conformal Coverage Guarantees**, Proc. 8th Annual Learning for Dynamics & Control Conference (L4DC), Los Angeles, CA, USA, June 2026. **Oral presentation.**

[C25] Z. Qiu, C.Y. Chiu, G. Chou, **Active Constraint Learning in High Dimensions from Demonstrations**, Proc. 8th Annual Learning for Dynamics & Control Conference (L4DC), Los Angeles, CA, USA, June 2026.

[C24] A. Srinivasan, G. Chou, **Safety Beyond the Training Data: Robust Out-of-Distribution MPC via Conformalized System Level Synthesis**, Proc. 8th Annual Learning for Dynamics & Control Conference (L4DC), Los Angeles, CA, USA, June 2026.

[C23] C. Huang*, M. Zhang*, R. Azarcon, G. Chou, Z. Kira. **MAPS: Preserving Vision-Language Representations via Module-Wise Proximity Scheduling for Better Vision-Language-Action Generalization**, Proc. IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), Denver, CO, USA, June 2026.

[C22] W. Li, G. Chou, **A Convex Formulation of Compliant Contact between Filaments and Rigid Bodies**, Proc. 43rd IEEE International Conference on Robotics and Automation (ICRA), Vienna, Austria, June 2026.

[C21] K. Muenprasitivej, Y. Zhao, G. Chou, **Probabilistically-Safe Bipedal Navigation over Uncertain Terrain via Conformal Prediction and Contraction Analysis**, Proc. 43rd IEEE International Conference on Robotics and Automation (ICRA), Vienna, Austria, June 2026.

[C20] S. Zhan*, C.Y. Chiu*, A. Leeman, G. Chou. **Robustly Constrained Dynamic Games via System Level Synthesis**, Proc. 43rd IEEE International Conference on Robotics and Automation (ICRA), Vienna, Austria, June 2026.

[C19] D. Nath*, H. Yin*, G. Chou, **Formal Safety Verification and Refinement for Generative Motion Planners via Certified Local Stabilization**, Proc. 43rd IEEE International Conference on Robotics and Automation (ICRA), Vienna, Austria, June 2026.

[C18] B. He, A. H. Shahidzadeh, Y. Chen, J. Wu, T. Guan, G. Chen, D. Manocha, H. Choset, G. Chou, C. Fermuller, Y. Aloimonos, **NAVMOE: Hybrid Model- and Learning-based Traversability Estimation for Local Navigation via Mixture of Experts**, Proc. 43rd IEEE International Conference on Robotics and Automation (ICRA), Vienna, Austria, June 2026.

[C17] M. M. Zhang, G. Chou†, S. Mukhopadhyay†, **Towards Streaming LiDAR Object Detection with Point Clouds as Egocentric Sequences**, Proc. IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), Tucson, AZ, USA, March 2026. †Equal advising.

[C16] Y. Lin, G. Chou, D. Berenson, **Improving Out-of-Distribution Generalization of Learned Dynamics by Learning Pseudometrics and Constraint Manifolds**, Proc. 41st IEEE International Conference on Robotics and Automation (ICRA), Yokohama, Japan, May 2024.

[C15] G. Chou and R. Tedrake, **Synthesizing Stable Reduced-Order Visuomotor Policies for Nonlinear Systems via Sums-of-Squares Optimization**, Proc. 62nd IEEE Annual Conference on Decision and Control (CDC), Singapore, December 2023.

[C14] H.J. Suh, G. Chou*, H. Dai*, L. Yang*, A. Gupta, and R. Tedrake, **Fighting Uncertainty with Gradients: Offline Reinforcement Learning via Diffusion Score Matching**, Proc. 7th Conference on Robot Learning (CoRL), Atlanta, GA, USA, November 2023. *Equal contribution.

[C13] C. Knuth, G. Chou, J. Reese, and J. Moore, **Statistical Safety and Robustness Guarantees for Feedback Motion Planning of Unknown Underactuated Stochastic Systems**, Proc. 40th IEEE International Conference on Robotics and Automation (ICRA), London, UK, May 2023.

[C12] J. Pan, G. Chou, and D. Berenson, **Data-Efficient Learning of Natural Language to Linear Temporal Logic Translators for Robot Task Specification**, Proc. 40th IEEE International Conference on Robotics and Automation (ICRA), London, UK, May 2023.

[C11] G. Chou, N. Ozay, and D. Berenson, **Safe Output Feedback Motion Planning from Images via Learned Perception Modules and Contraction Theory**, Proc. 15th International Workshop on the Algorithmic Foundations of Robotics (WAFR), College Park, MD, USA, June 2022.

[C10] G. Chou, N. Ozay, and D. Berenson, **Model Error Propagation via Learned Contraction Metrics for Safe Feedback Motion Planning of Unknown Systems**, Proc. 60th IEEE Conference on Decision and Control (CDC), Austin, TX, USA. December 2021.

[C9] K. Rutledge*, G. Chou*, and N. Ozay, **Compositional Safety Rules for Inter-Triggering Hybrid Automata**, Proc. 24th International Conference on Hybrid Systems: Computation and Control (HSCC), Nashville, TN, USA, May 2021. *Equal contribution.

[C8] G. Chou, N. Ozay, and D. Berenson, **Uncertainty-Aware Constraint Learning for Adaptive Safe Motion Planning from Demonstrations**, Proc. 4th Conference on Robot Learning (CoRL), Cambridge, MA, USA, November 2020.

[C7] G. Chou, N. Ozay, and D. Berenson, **Explaining Multi-stage Tasks by Learning Temporal Logic Formulas from Suboptimal Demonstrations**, Proc. Robotics: Science and Systems XVI (R:SS), Corvallis, Oregon, July 2020. **Invited to AuRo special issue.**

[C6] C. Knuth, G. Chou, N. Ozay, and D. Berenson, **Inferring Obstacles and Path Validity from Visibility-Constrained Demonstrations**, Proc. 14th International Workshop on the Algorithmic Foundations of Robotics (WAFR), Oulu, Finland, June 2020.

[C5] G. Chou, N. Ozay, and D. Berenson, **Learning Parametric Constraints in High Dimensions from Demonstrations**, Proc. 3rd Conference on Robot Learning (CoRL), Osaka, Japan, October 2019.

[C4] G. Chou, D. Berenson, and N. Ozay, **Learning Constraints from Demonstrations**, Proc. 13th International Workshop on the Algorithmic Foundations of Robotics (WAFR), Mérida, Mexico, December 2018. **Invited to IJRR special issue.**

[C3] G. Chou*, Y. E. Sahin*, L. Yang*, K. J. Rutledge, P. Nilsson, and N. Ozay, **Using control synthesis to generate corner cases: A case study on autonomous driving**, ACM SIGBED International Conference on Embedded Software (EMSOFT), Torino, Italy, October 2018. *Equal contribution.

[C2] G. Chou, N. Ozay, and D. Berenson, **Incremental Segmentation of ARX Models**, Proc. 18th IFAC Symposium on System Identification (SYSID), Stockholm, Sweden, July 2018.

[C1] A. Dhinakaran*, M. Chen*, G. Chou, J. C. Shih, C. J. Tomlin, **A Hybrid Framework for Multi-Vehicle Collision Avoidance**, Proc. 57th IEEE Conference on Decision and Control (CDC), Melbourne, Australia, December 2017. *Equal contribution.

UNDER REVIEW

[U9] S. Bagchi, H. Kim, T. Abdelzaher, H. Alemzadeh, S. Chaterji, G. Chou, Y. Duan, F. Kong, M. Lemmon, Y. Li, M. Liu, W. Luo, M. Ma, S. Mohan, A. Mukhopadhyay, M. Ornik, D. Panagou, K. Rozier, I. Ruchkin, H. Shao, S.Z. Yong, M. Zamani, X. Zhou. **Digital Guardians: The Past and The Future of Cyber-Physical Resilience**, Apr 2026.

[U8] J. Fang*, K. Shen*, A. Srinivasan, G. Chou. **GPU-Parallel Linearization Error Bounds for Real-Time Robust Optimal Control of Nonlinear and Neural Network Dynamics**, Mar 2026.

[U7] B. Gould*, C.Y. Chiu*, A. Leeman, K. Vamvoudakis, S. Coogan, G. Chou. **Over-Approximating Minimizer Sets of Constrained Convex Programs with Parametric Uncertainty via Reachability Analysis**, Mar 2026.

[U6] J. Fang, G. Chou. **Provably Safe Large-Scale Robust Nonlinear MPC in Milliseconds via System Level Synthesis on the GPU**, Jan 2026.

[U5] K. Shen, G. Chou. **Parallel Differentiable Reachability for Learning and Planning with Certified Neural Dynamics and Controllers**, Jan 2026.

[U4] W. Li, G. Chou. **Certified Gradient-Based Contact-Rich Manipulation via Smoothing-Error Reachable Tubes**, Jan 2026.

[U3] A. Leeman*, S. Zhan*, M. Zeilinger, G. Chou. **Seeing is Believing: Certified Perception-Based Control from Learned Visual Representations via System Level Synthesis**, Jan 2026.

[U2] J. Skifstad, X. Yang, G. Chou. **Local Linearity of LLMs Enables Activation Steering via Model-Based Linear Optimal Control**, Jan 2026.

[U1] J. Hong, C.Y. Chiu, S. Fridovich-Keil, G. Chou. **PolyMerge: Compressing 3D Gaussian Splats with Polytope Coverings for Provably Safe Resource-Constrained Navigation**, Jan 2026.

TECHNICAL REPORTS

[T1] F. Jiang*, G. Chou*, M. Chen, C. J. Tomlin, **Using neural networks to compute approximate and guaranteed feasible Hamilton-Jacobi-Bellman PDE solutions**, Pre-print. *Equal contribution.

REFEREED WORKSHOP PAPERS

[W6] M. M. Zhang, S. Panse, A. Dhal, R. Sarkar, Z. Fan, G. Chou, **On the Adversarial Robustness of Temporal LiDAR Object Detectors**, CVPR Workshop on Security, Privacy, and Adversarial Robustness in 3D Generative Vision Models, June 2026.

[W5] A. Leeman, S. Zhan, M. Zeilinger†, **G. Chou†**, **Epistemically Aware Predictive Visuomotor Control**, EurIPS Workshop on Epistemic Intelligence in Machine Learning, December 2025. †Equal advising.

[W4] M. M. Zhang, **G. Chou**, **Polar Hierarchical Mamba: Towards Streaming LiDAR Object Detection with Point Clouds as Egocentric Sequences**, CVPR 4D Vision Workshop, June 2025.

[W3] G. Chou, **Safely Integrating Perception, Planning, and Control for Robust Learning-Based Robot Autonomy**, RSS Pioneers Workshop, June 2022.

[W2] H. Wang*, G. Chou*, D. Berenson, **Gaussian Process Constraint Learning for Scalable Safe Motion Planning from Demonstrations**, RSS Workshop on Integrating Planning and Learning, July 2021.

[W1] G. Chou, D. Berenson, N. Ozay. **Learning Parametric Constraints in High Dimensions from Demonstrations**, RSS Workshop on Robust Autonomy, June 2019.

HONORS AND AWARDS

- **Office of Naval Research (ONR) Summer Faculty Fellowship** — June 2026
- **Robotics: Science and Systems (R:SS) Pioneer** (34%) — June 2022
- **Dept. Nominee for Richard and Eleanor Towner Prize for Outstanding Ph.D. Research** — Nov 2021
- **National Defense Science and Engineering Graduate (NDSEG) Fellowship** (5%) — Apr 2019
- **National Science Foundation Graduate Fellowship (NSF GRFP)** (16%) — Apr 2019
- **Social Impact Award, University of Michigan Engineering Graduate Symposium** — Oct 2018
  One award given out of 44 submissions.

TEACHING

- **CS 3235, Introduction to Information Security (Georgia Tech)** — Fall 2025
  Course instructor.
- ***AE 3531, Control Systems Analysis and Design (Georgia Tech)*** — *Spring 2025*
  Course instructor.
- ***EECS 598, Motion Planning (University of Michigan)*** — *Winter 2021*
  Guest lecturer.
- ***EECS 563, Hybrid Systems and Control (University of Michigan)*** — Fall 2020
  Course grader.
- ***CS 188, Introduction to Artificial Intelligence (UC Berkeley)*** — Spring 2017
  Undergraduate student instructor. Led weekly discussion sections, held office hours, wrote exam problems.
- ***EE 221A, Linear Systems Theory (UC Berkeley)*** — Fall 2016
  One-on-one tutor.

MENTORED STUDENTS

- **Craig Knuth** *(MS in Robotics, UMich)*; coauthor on [[C6], [J3], [C13]]
  Currently: Robotics Research Scientist at Johns Hopkins University Applied Physics Laboratory
- ***Adarsh Karnati*** *(MS in Robotics, UMich)*
  Currently: Engineer at Tesla
- ***Hao Wang*** *(Undergraduate in CS/ME, UMich); coauthor on [[J6]]*
  Currently: PhD student at USC
- ***Yating Lin*** *(MS student in Robotics, UMich); coathor on [[C16]*
  Currently: PhD student at University of Michigan
- ***Jiayi Pan*** *(Undergraduate in CSE, UMich); coathor on [[C12]]*
  Currently: PhD student at UC Berkeley
- ***H.J. Terry Suh*** *(PhD student in EECS, MIT); coathor on [[C14]]*
- ***Lujie Yang*** *(PhD student in EECS, MIT); coathor on [[C14]]*
- ***Antoine Leeman*** *(Visiting PhD student from ETH Zurich)*

ORGANIZED WORKSHOPS AND TUTORIALS

- **ECC Tutorial on Safe-by-Design Control using Robust MPC: Quantifying, Predicting & Optimizing over Uncertainty, 2026**. July 2026
- **R:SS Workshop on Reliable Robotics: Safety and Security in the Face of GenAI, 2025**. June 2025
- **ACC Workshop on Safe and Robust Learning for Perception-Based Planning and Control, 2023**. *Lead workshop organizer.* May 2023
- **ICRA Workshop on Safe and Reliable Robot Autonomy under Uncertainty, 2022**. *Lead workshop organizer.* May 2022

INVITED TALKS

- **Kennesaw State University Distinguished Colloquium Seminar** Feb 2026
- **Georgia Tech Institute for Robotics and Intelligent Machines (IRIM) Seminar** Aug 2025
- **Toward End-to-End Reliable Robot Learning for Autonomy and Interaction**
  Johns Hopkins University; *Mechanical Engineering / Institute for Assured Autonomy* April 2024
  University of California, Irvine; *Electrical Engineering & Computer Science* April 2024
  University of Maryland, College Park; *Computer Science* April 2024
  Texas A&M University; *Electrical & Computer Engineering* April 2024
  University of Wisconsin – Madison; *Computer Sciences* April 2024
  Cornell Tech; *Electrical and Computer Engineering* March 2024
  University of Texas at Austin; *Mechanical Engineering* March 2024
  Columbia University; *Mechanical Engineering* March 2024
  University of Colorado Boulder; *Computer Science* March 2024
  Duke University; *Mechanical Engineering & Material Science* March 2024
  Georgia Institute of Technology; *School of Cybersecurity & Privacy* March 2024
  University of California, Santa Barbara; *Electrical & Computer Eng. / Mechanical Eng.* March 2024
  Georgia Institute of Technology; *Aerospace Engineering* March 2024
  Purdue University; *Electrical & Computer Engineering* February 2024
  University of Virginia; *Computer Science* February 2024
  University of Minnesota Twin Cities; *Aerospace Engineering & Mechanics* February 2024
  Rutgers University – New Brunswick; *Mechanical & Aerospace Engineering* February 2024
- **UIUC Robotics Seminar, 2023**. March 2023
- **UIUC Coordinated Science Laboratory Student Conference, 2022**. *Student keynote talk.* February 2022

PRESENTATIONS

- **RSS Pioneers Workshop, 2022**. Safely Integrating Perception, Planning, and Control for Robust Learning-Based Robot Autonomy. *Talk and poster.* June 2022
- **RSS Workshop on Integrating Planning and Learning, 2021**. Gaussian Process Constraint Learning for Scalable Safe Motion Planning from Demonstrations. *Poster presentation.* July 2021
- **RSS Workshop on Safe Autonomy, 2019**. Learning Parametric Constraints in High Dimensions from Demonstrations. *Selected for long talk.* June 2019
- **L4DC 2019**. Learning Constraints from Demonstrations. *Poster presentation.* May 2019
- **UM Robotics Graduate Colloquium**. Learning Constraints from Demonstrations. Dec 2018
- **UM Engineering Graduate Symposium**. Using control synthesis to generate corner cases: A case study on autonomous driving. *Poster presentation*, ***Won Social Impact Award***. Oct 2018

ACADEMIC SERVICE AND OUTREACH

- **Reviewer**: EMSOFT ('19-'21), CDC ('19-'23), CCTA ('19), ICCPS ('19-'21), ACC ('19-'20,'22), CoRL ('19-'23), RA-L ('19,'21-'23), ICRA ('20-'24), IROS ('21,'23), CASE ('20), WAFR ('20,'22), L4DC ('20,'22-'23), T-RO, RSS ('22-'23), AAAI ('23-'24), TAC, TMECH
- **Program Committee**: AAAI '24-'26, IPDPS'26, WAFR '26, RSS '26
- **Associate Editor**: IROS '25-'26
- **BuddEEs** 2020 - 2021
  One-on-one mentorship with first-year University of Michigan ECE PhD student.
- **MEZ (Michigan Engineering Zone)** 2018 - 2019
  Serving as a FIRST robotics competition mentor for underprivileged high school students in Detroit, MI.
- **BEAM (Berkeley Engineers and Mentors)** 2017
  Led elementary school students in Oakland, CA. through weekly science experiments.