GLEN CHOU

gchou@mit.edu

EDUCATION

University of Michigan September 2017 - August 2022
PhD, Electrical and Computer Engineering

University of Michigan September 2017 - May 2019
MS, Electrical and Computer Engineering

University of California, Berkeley August 2013 - May 2017
BS, Dual Major in Electrical Engineering and Computer Science, Mechanical Engineering, high honors

EXPERIENCE

Postdoctoral associate, Massachusetts Institute of Technology. September 2022 -
Advised by Prof. Russ Tedrake.

Graduate student researcher, University of Michigan. September 2017 - August 2022
Co-advised by Profs. Dmitry Berenson and Necmiye Ozay.

Undergraduate student researcher, University of California, Berkeley. February 2016 - August 2017
Advised by Prof. Claire Tomlin.

PUBLICATIONS

19. 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.

18. 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.

17. 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.

16. 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.

15. 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.

14. 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.

13. 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.

12. 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.
11. 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.
10. 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.
9. 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.**
8. 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.
7. 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.
6. 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.
5. 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.**
4. 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). *Equal contribution.
3. 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.
2. G. Chou, N. Ozay, and D. Berenson, **Incremental Segmentation of ARX Models**, Proc. 18th IFAC Symposium on System Identification (SYSID), Stockholm, Sweden, July 2018.
1. 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.

TECHNICAL REPORTS

1. 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.

INVITED TALKS

- **UIUC Robotics Seminar, 2023**. March 2023
- **UIUC Coordinated Science Laboratory Student Conference, 2022**.
  Student keynote talk. February 2022

ORGANIZED WORKSHOPS

- **ACC Workshop on Safe and Robust Learning for Perception-Based Planning and Control, 2023**. *Workshop organizer*. May 2023
- **ICRA Workshop on Safe and Reliable Robot Autonomy under Uncertainty, 2022**. *Lead workshop organizer*. May 2022

HONORS AND AWARDS

- **Robotics: Science and Systems (R:SS) Pioneer** June 2022
- **National Defense Science and Engineering Graduate (NDSEG) Fellowship** Apr 2019
- **National Science Foundation Graduate Fellowship (NSF GRFP)** Apr 2019
- **Social Impact Award, University of Michigan Engineering Graduate Symposium** Oct 2018
  One award given out of 44 submissions.
- **Semester Dean's List** Fall 2014 - Spring 2017
- **Semester Honors** Fall 2013 - Spring 2017
- **UC Berkeley EECS Honors Program** Spring 2016 - Spring 2017
- **Eta Kappa Nu (HKN), EECS Honor Society** Spring 2015 - Spring 2017

TEACHING

- **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.
- **EE 221A, Linear Systems Theory (UC Berkeley)** Fall 2016
  One-on-one tutor.

MENTORED STUDENTS

- **Craig Knuth** *(MS in Robotics, UMich)* Jan. 2019 - Aug. 2020
  Currently: Roboticist at Johns Hopkins University Applied Physics Laboratory
- **Adarsh Karnati** *(MS in Robotics, UMich)* Aug. 2020 - May 2021
  Currently: Engineer at Embark Trucks
- **Hao Wang** *(Undergraduate in CS/ME, UMich)* Jan. 2021 -
  Currently: PhD student at USC
- **Yating Lin** *(MS student in Robotics, UMich)* Jan. 2022 -
- **Jiayi Pan** *(Undergraduate in CSE, UMich)* Jun. 2022 - Sep. 2022

PRESENTATIONS

- **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-'21), CCTA ('19), ICCPS ('19-'21), ACC ('19-'20), CoRL ('19-'22), RA-L ('19,'21-'23), ICRA ('20-'23), IROS ('21), CASE ('20), WAFR ('20,'22), L4DC ('20,'22,'23), T-RO, RSS ('22,'23), AAAI ('23)
- **MEZ (Michigan Engineering Zone)** Fall 2018 - Spring 2019
  Serving as a FIRST robotics competition mentor for underprivileged high school students in Detroit, MI.
- **BEAM (Berkeley Engineers and Mentors)** Spring 2017
  Led elementary school students in Oakland, CA. through weekly science experiments.