
KRIS HAUSER

CONTACT INFORMATION

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AFFILIATIONS

Head of Robotic Intelligence
Samsung Research America

Professor

Siebel School for Computing and Data Science
Department of Electrical and Computer Engineering
Department of Mechanical Science & Engineering
University of Illinois at Urbana-Champaign

EDUCATION

- 9/03 – 6/08 **Stanford University**
Ph.D., Computer Science
Thesis: Motion Planning for Legged and Humanoid Robots
- 9/99 – 5/03 **University of California at Berkeley**
B.A., Computer Science
B.A., Mathematics

JOURNAL PUBLICATIONS

1. A.D. Smith, A. Naik, S. Pappu, P.M. Arnold, and **K. Hauser**. A Low-Cost Articulated Arm Navigation System for External Ventricular Drain Placement. *IEEE Transactions on Medical Robotics and Bionics*, 2025. Print ISSN: 2576-3202. Online ISSN: 2576-3202. doi: 10.1109/TMRB.2025.3573390
2. M. Zhang, D. Jha, A. Raghunathan, **K. Hauser**. Simultaneous Trajectory Optimization and Contact Selection for Contact-rich Manipulation with High-Fidelity Geometry. *IEEE Transactions on Robotics*, 2025. Print ISSN: 1552-3098. Online ISSN: 1941-0468. doi: 10.1109/TRO.2025.3554380.
3. A. Stratton, **K. Hauser**, and C. Mavrogiannis. Characterizing the Complexity of Social Robot Navigation Scenarios. *IEEE Robotics and Automation Letters* 10(1):184-191, 2025. ISSN: 2377-3766. doi: 10.1109/LRA.2024.3502060. First published online November 20, 2024.
4. J. Xu, K. Yin, J. Gregory, **K. Hauser**, and L. Liu. Boundary-Aware Value Function Generation for Safe Stochastic Motion Planning. *International Journal of Robotics Research*, 43(12):1936-1958, 2024. doi:10.1177/02783649241238766
5. **K. Hauser**, E. Watson, J. Bae, J. Bankston, S. Behnke, B. Borgia, M. Catalano, S. Dafarra, J.B.F. van Erp, T. Ferris, J. Fishel, G. Hoffman, S. Ivaldi, F. Kanehiro, A. Kheddar, G. Lannuzel, J.F. Morie, P. Naughton, S. NGuyen, P. Oh, T. Padir, J. Pippine, J. Park, D. Pucci, J. Vaz, P. Whitney, P. Wu, and D Locke. Analysis and Perspectives on the ANA Avatar XPRIZE Competition. *International Journal of Social Robotics*, January 30, 2024. doi:10.1007/s12369-023-01095-w
6. N. Zhong and **K. Hauser**. Attentiveness Map Estimation for Haptic Teleoperation of Mobile Robot Obstacle Avoidance and Approach. *IEEE Robotics and Automation Letters*, 2024. First published online January 16, 2024. Print ISSN: 2377-3766, Online ISSN: 2377-3766, doi:10.1109/LRA.2024.3354613

7. J. M. C. Marques, P. Naughton, J.-C. Peng, Y. Zhu, J. S. Nam, Q. Kong, X. Zhang, A. Penmetcha; R. Ji, N. Fu, V. Ravibaskar, R. Yan, N. Malhotra, and **K. Hauser**. Immersive Commodity Telepresence with the TRINA Robot Avatar. *International Journal of Social Robotics*, January 14, 2024. doi:10.1007/s12369-023-01090-1. First published online January 14, 2024.
8. W.D. Null, W. Edwards, D. Jeong, T. Tchalakov, J. Menezes, **K. Hauser**, Y Z. Automatically-Tuned Model Predictive Control for an Underwater Soft Robot. *IEEE Robotics and Automation Letters*, 9(1):571-587, 2024. doi:10.1109/LRA.2023.3333662. First published online November 16, 2023.
9. Z. Pan, A. Zheng, Y. Li, J. Yu, and **K. Hauser**. Algorithms and Systems for Manipulating Multiple Objects. *IEEE Transactions on Robotics*, 39(1):2-20, 2023. doi:10.1109/TRO.2022.3197013. First published online September 15, 2022.
10. Y. Tian, M. Draelos, R. P. McNabb, **K. Hauser**, A.N. Kuo, and J.A. Izatt. Optical Coherence Tomography Refraction and Optical Path Length Correction for Image-Guided Corneal Surgery. *Biomedical Optics Express*, 13(9):5035-5049, September 2022. doi:10.1364/BOE.464762
11. Y. Zhou and **K. Hauser**. CPI: Conservativeness, Permissiveness and Intervention Metrics for Shared Control Evaluation. *IEEE Robotics and Automation Letters*, 7(3): 6367-6374 July 2022. doi:10.1109/LRA.2022.3169581
12. Y. Zhu, A.D. Smith, and **K. Hauser**. Automated Heart and Lung Auscultation in Robotic Physical Examinations. *IEEE Robotics and Automation Letters*, 7(2): 4204-4211, April 2022. doi: 10.1109/LRA.2022.3149576
13. P. Naughton and **K. Hauser**. Structured Action Prediction for Teleoperation in Open Worlds. *IEEE Robotics and Automation Letters*, 7(2): 3099-3105, April 2022. doi: 10.1109/LRA.2022.3145953
14. W. Edwards, G. Tang, Y. Tian, M. Draelos, J. Izatt, A. Kuo, and **K. Hauser**. Data-Driven Modelling and Control for Robot Needle Insertion in Deep Anterior Lamellar Keratoplasty. *IEEE Robotics and Automation Letters*, 7(2):1526-1533, April 2022. doi: 10.1109/LRA.2022.3140458
15. F. Wang and **K. Hauser**. Dense Robotic Packing of Irregular and Novel 3D Objects. *IEEE Transactions on Robotics*, 38(2):1160-1173, April 2022. doi:10.1109/TRO.2021.3097261. First published online in 2021.
16. W. Sun. G. Tang, and **K. Hauser**. Fast UAV Trajectory Optimization using Bilevel Optimization with Analytical Gradients. *IEEE Transactions on Robotics*, 37(6):2010-2024, Dec, 2021. doi:10.1109/TRO.2021.3076454
17. F. Wang and **K. Hauser**. Robot Packing with Known Items and Nondeterministic Arrival Order. *IEEE Transactions on Automation Science and Engineering*, 18(4):1901-1915, Oct. 2021. doi:10.1109/TASE.2020.3024291
18. M. Draelos, P. Ortiz, R. Qian, B. Keller, **K. Hauser**, A. Kuo, and J. Izatt. Robotic Optical Coherence Tomography Scanner for Contactless Autonomous Eye Imaging of Freestanding Subjects. *Nature Transactions on Biomedical Engineering*, 5(7), 726-736, 2021. doi:10.1038/s41551-021-00753-6
19. **K. Hauser**. Semi-Infinite Programming for Trajectory Optimization with Nonconvex Obstacles. *International Journal of Robotics Research*, Jan. 10, 40(10-11), 2021. doi:10.1177/0278364920983353.
20. B. Keller, M. Draelos, K. Zhou, R. Kuan, A. Kuo, G. Konidaris, **K. Hauser**, J. A. Izatt. Optical Coherence Tomography Guided Robotic Ophthalmic Microsurgery via Reinforcement Learning from Demonstration. *IEEE Transactions on Robotics*, 36(4): 1207-1218, 2020. doi:10.1109/TRO.2020.2980158
21. M. Draelos, G. Tang, B. Keller, A. Kuo, **K. Hauser**, J. A. Izatt. Optical Coherence Tomography Guided Robotic Needle Insertion for Deep Anterior Lamellar Keratoplasty. *IEEE Transactions on Biomedical Engineering*, 67(7): 2073-2083, 2019. doi:10.1109/TBME.2019.2954505
22. G. Tang and **K. Hauser**. A Data-Driven Indirect Method for Nonlinear Optimal Control. *Astrodynamics*, 3(4):345-359, 2019.
23. **K. Hauser**. Bayesian Tactile Exploration for Compliant Docking with Uncertain Shapes. *IEEE Transactions on Robotics*, 35(5): 1084-1096, 2019. doi: 10.1109/TRO.2019.2921144
24. B. Keller, M. Draelos, G. Tang, S. Farsiu, A. N. Kuo, **K. Hauser**, and J. A. Izatt. Real-time Corneal Segmentation and 3D Needle Tracking in Intrasurgical OCT. *Biomedical Optics Express*, 9(6):2716-2732, 2018.

25. **K. Hauser**, S. Wang, and M. Cutkosky. Efficient Equilibrium Testing under Adhesion and Anisotropy using Empirical Contact Force Models. *IEEE Transactions on Robotics*, 34(5):1157-1169, 2018. doi: 10.1109/TRO.2018.2831722
26. **K. Hauser** and S. Emmons. Global Redundancy Resolution via Continuous Pseudoinversion of the Forward Kinematic Map. *IEEE Transactions on Automation Science and Engineering*, 15(3): 932 – 944, 2018. doi: 10.1109/TASE.2018.2805878
27. J. Luo and **K. Hauser**. Robust Trajectory Optimization Under Frictional Contact with Iterative Learning. *Autonomous Robots*, 41(6): 1447-1461, 2017. doi:10.1007/s10514-017-9629-x (Impact factor 2.066)
28. **K. Hauser**. Learning the Problem-Optimum Map: Analysis and Application to Global Optimization in Robotics. *IEEE Transaction on Robotics*, 33(1):141-152, 2017. (Impact factor 2.432)
29. **K. Hauser** and Y. Zhou. Asymptotically Optimal Planning by Feasible Kinodynamic Planning in State-Cost Space. *IEEE Transactions on Robotics*, 32(6): 1431-1443, 2016. (Impact factor 2.432)
30. N. Correll, K.E. Bekris, D. Berenson, O. Brock, A. Causo, **K. Hauser**, K. Okada, A. Rodriguez, J. M. Romano, and P. R. Wurman. Analysis and Observations from the First Amazon Picking Challenge. *IEEE Transactions on Automation Science and Engineering*, PP(99):1-17, 2016. doi: 10.1109/TASE.2016.2600527 (Impact factor 2.696)
31. D. Simshaw, A. Proia, **K. Hauser**, and M. Cummings. Regulating Healthcare Robots: Maximizing Opportunities While Minimizing Risks. *Richmond Journal of Law and Technology*, 22(3), 2016. SSRN preprint at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2739462
32. A. Proia, D. Simshaw, and **K. Hauser**. Consumer Cloud Robotics and the Fair Information Practice Principles: Recognizing the Challenges and Opportunities Ahead. *Minnesota Journal of Law, Science & Technology*, 16(1), Winter, 2015. SSRN preprint at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2466723
33. **K. Hauser**. Fast Interpolation and Time-Optimization with Contact. *International Journal of Robotics Research (IJRR)*, 33(9):1231-1250, August, 2014. doi: 10.1177/0278364914527855 (Impact factor 2.863)
34. **K. Hauser**. The Minimum Constraint Removal Problem with Three Robotics Applications. *International Journal of Robotics Research (IJRR)*, 33(1):5-17, January, 2014. doi: 10.1177/0278364913507795 (Impact factor: 2.863)
35. Y. Zhang and **K. Hauser**. Unbiased, scalable sampling of protein loop conformations from probabilistic priors. *BMC Structural Biology*, 13(Supplement 1):S9, November 8, 2013. doi:10.1186/1472-6807-13-S1-S9 (Impact factor: 2.10)
36. **K. Hauser**. Recognition, Prediction, and Planning for Assisted Teleoperation with Freeform Tasks. *Autonomous Robots*, 35(4): 241-254, August, 2013. doi:10.1007/s10514-013-9350-3. (Impact factor:1.908)
37. C. Bennett and **K. Hauser**. Artificial Intelligence Framework for Simulating Clinical Decision-Making: A Markov Decision Process Approach. *Artificial Intelligence in Medicine*, 57(1):9-19, January 2013. doi: 10.1016/j.artmed.2012.12.003. (Impact factor: 1.345)
38. **K. Hauser**. On Responsiveness, Safety, and Completeness in Real-Time Motion Planning. *Autonomous Robots*, 32(1):35-48, 2012. (Impact factor: 2.011)
39. **K. Hauser** and V. Ng-Thow-Hing. Randomized Multi-Modal Motion Planning for a Humanoid Manipulation Task. *International Journal of Robotics Research (IJRR)*, 30(6):678-698, 2011. (Impact factor: 4.095)
40. **K. Hauser** and J.-C. Latombe. Multi-Modal Motion Planning in Non-Expansive Spaces. *International Journal of Robotics Research (IJRR)*, 29(7):897-915, 2010. (Impact factor: 4.095)
41. R. B. Rusu, A. Sundaresan, B. Morisset, **K. Hauser**, M. Agrawal, J.-C. Latombe, M. Beetz. Leaving Flatland: Efficient real-time three-dimensional perception and motion planning. *International Journal of Field Robotics (IJFR)*, 26(10):841-862, 2009. (Impact factor: 3.580)
42. **K. Hauser**, T. Bretl, J.-C Latombe, K. Harada, and B. Wilcox, Motion Planning for Legged Robots in Varied Terrain. *International Journal of Robotics Research (IJRR)*, Vol. 27(11-12), pp. 1325-1349, 2008. (Impact factor: 4.095)

CONFERENCE PUBLICATIONS

1. P. Li, **K. Hauser**, and R. Nagi. Cutaway View Learning for Visually-Guided Assembly with Crane. *IEEE Conference on Automation Science and Engineering (CASE)*, August 2025. (to appear)

2. K. Zhang, B. Li, **K. Hauser**, and Y. Li. Particle-Grid Neural Dynamics for Learning Deformable Object Models from Depth Images. *Robotics: Science and Systems (RSS)*, June 2025.
3. J.M.C. Marques, N. Dengler, T. Zaenker, J. Mücke, S. Wang, M. Bennewitz, K. Hauser. Map Space Belief Prediction for Manipulation-Enhanced Mapping. *Robotics: Science and Systems (RSS)*, June 2025.
4. J. Han, S. Yao, and **K. Hauser**. Estimating High-Resolution Neural Stiffness Fields using Visuotactile Sensors. *IEEE International Conference on Robotics and Automation (ICRA)*, May 2025.
5. N. Franceschini, P. Thangeda, M. Ornik, and **K. Hauser**. Autonomous Excavation of Challenging Terrain using Oscillatory Primitives and Adaptive Impedance Control. *IEEE International Conference on Robotics and Automation (ICRA)*, May 2025.
6. S. Yao, S. Pan, M. Bennewitz, and **K. Hauser**. Safe Leaf Manipulation for Accurate Shape and Pose Estimation of Occluded Fruits. *IEEE International Conference on Robotics and Automation (ICRA)*, May 2025.
7. A.D. Smith, W. Ding, Y. Feng, and **K. Hauser**. EYESIGHT: Eye Examination System with Intelligent Guidance and Human Tracking. *IEEE International Symposium on Medical Robotics (ISMR)*, May 2025.
Award Nominee
8. S. Yao and **K. Hauser**. Structured Bayesian Meta-Learning for Data-Efficient Visual-Tactile Model Estimation. *Conference on Robot Learning (CoRL)*, November, 2024.
9. K.-Y. Tseng, M. Zhang, **K. Hauser**, and G.E. Dullerud. Adaptive Trajectory Database Learning for Nonlinear Control with Hybrid Gradient Optimization. *IEEE/RSJ Int'l Conf on Intelligent Robots and Systems (IROS)*, October 2024.
10. R. Qiu, Y. Wang, and **K. Hauser**. AlignDiff: Aligning Diffusion Models for General Few-Shot Segmentation. *European Conference on Computer Vision (ECCV)*, September 2024.
11. K. Zhang, B. Li, **K. Hauser**, and Y. Li. AdaptiGraph: Material-Adaptive Graph-Based Neural Dynamics for Robotic Manipulation. *Robotics: Science and Systems (RSS)*, July 2024.
12. R. Moan, C. McBeth, M. Morales, N. Amato, and **K. Hauser**. Experience-Based Multi-Agent Path Finding with Narrow Corridors. *Robotics: Science and Systems (RSS)*, July 2024.
13. J.-C. Peng, S. Yao, and **K. Hauser**. 3D Force and Contact Estimation for a Soft-Bubble Visuotactile Sensor. *IEEE International Conference on Robotics and Automation (ICRA)*, May 2024.
14. P. Naughton, J. S. Nam, A. Stratton, and **K. Hauser**. Integrating Open-World Shared Control in Immersive Avatars. *IEEE International Conference on Robotics and Automation (ICRA)*, May 2024.
15. J. M. C. Marques, A. Zhai, S. Wang, and **K. Hauser**. On the Overconfidence Problem in Semantic 3D Mapping. *IEEE International Conference on Robotics and Automation (ICRA)*, May 2024.
16. Y. Zhu, P. Thangeda, M. Ornik, and **K. Hauser**. Few-shot Adaptation for Manipulating Granular Materials Under Domain Shift. *Robotics: Science and Systems (RSS)*, July 2023. <https://arxiv.org/abs/2303.02893>
17. M. Zhang, D. Jha, A. Raghunathan, and **K. Hauser**. Simultaneous Trajectory Optimization and Contact Selection for Multi-Modal Manipulation Planning. *Robotics: Science and Systems (RSS)*, July 2023.
18. S. Yao and **K. Hauser**. Estimating Tactile Models of Heterogeneous Deformable Objects in Real Time. *IEEE International Conference on Robotics and Automation (ICRA)*, May 2023.
19. R. Qiu, Y. Sun, J. M. C. Marques, and **K. Hauser**. Real-time Semantic 3D Reconstruction for High-Touch Surface Recognition for Robotic Disinfection. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, October 2022.
20. A. Partap, S. Grayson, M. Huzaifa, S. Adve, B. Godfrey, S. Gupta, **K. Hauser**, R. Mittal. On-Device CPU Scheduling for Robot Systems. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, October 2022.
21. M. Zhang and **K. Hauser**. Non-Penetration Iterative Closest Points for Single-View Multi-Object 6D Pose Estimation. *IEEE International Conference on Robotics and Automation (ICRA)*, May 2022.
22. Y. Ding, M. Zhang, C. Li, H.-W. Park, and **K. Hauser**. Hybrid Sampling/Optimization-based Planning for Agile Jumping Robots on Challenging Terrains. *IEEE International Conference on Robotics and Automation (ICRA)*, May 2021.
23. W. Edwards, G. Tang, G. Mamakoukas, T. Murphey, and **K. Hauser**. Automatic Tuning for Data-driven Model Predictive Control. *IEEE International Conference on Robotics and Automation (ICRA)*, May 2021.

24. Y. Kim, Z. Pan, and **K. Hauser**. MO-BBO: Multi-Objective Bilevel Bayesian Optimization for Robot and Behavior Co-Design. IEEE International Conference on Robotics and Automation (ICRA), May 2021.
25. J. M. C. Marques, R. Ramalingam, Z. Pan, and **K. Hauser**. Optimized Coverage Planning for UV Surface Disinfection. IEEE International Conference on Robotics and Automation (ICRA), May 2021.
26. Z. Pan and **K. Hauser**. Decision Making in Joint Push-Grasp Action Space for Large-Scale Object Sorting. IEEE International Conference on Robotics and Automation (ICRA), May 2021.
27. Z. Pan and **K. Hauser**. Implicit Integration for Articulated Bodies with Contact via the Nonconvex Maximal Dissipation Principle. IEEE International Conference on Robotics and Automation (ICRA), May 2021.
28. M. Zhang and **K. Hauser**. Semi-Infinite Programming with Complementarity Constraints for Pose Optimization with Pervasive Contact. IEEE International Conference on Robotics and Automation (ICRA), May 2021.
29. Y. Zhu, Z. Pan, and **K. Hauser**. Contact-Implicit Trajectory Optimization with Learned Deformable Contacts Using Bilevel Optimization. IEEE International Conference on Robotics and Automation (ICRA), May 2021.
30. W. Sun, G. Tang, and **K. Hauser**. Fast UAV Trajectory Optimization using Bilevel Optimization with Analytical Gradients. 2020 American Control Conference (ACC), July 2020. (67% acceptance rate)
31. G. Tang, W. Sun, and **K. Hauser**. Enhancing Bilevel Optimization for UAV Time-Optimal Trajectory using a Duality Gap Approach. IEEE International Conference on Robotics and Automation (ICRA), June 2020. (42% acceptance rate)
32. Y. Tian, M. Draelos, G. Tang, R. Qian, A. Kuo, J. A. Izatt, and **K. Hauser**. Toward Autonomous Robotic Micro-Suturing using Optical Coherence Tomography Calibration and Path Planning. IEEE International Conference on Robotics and Automation (ICRA), June 2020. (42% acceptance rate)
33. Y. Zhu, K. Lu, and **K. Hauser**. Semi-Empirical Simulation of Learned Force Response Models for Heterogeneous Elastic Objects. IEEE International Conference on Robotics and Automation (ICRA), June 2020. (42% acceptance rate)
34. G. Tang, W. Sun, and **K. Hauser**. Time-Optimal Trajectory Generation for Dynamic Vehicles: A Bilevel Optimization Approach. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), October, 2019. (45% acceptance rate)
35. F. Wang and **K. Hauser**. Robot Packing with Known Items and Nondeterministic Arrival Order. Robotics: Science and Systems (RSS), June 2019. (31% acceptance rate) **Best paper award nominee**.
36. M. Draelos, P. Ortiz, R. Qian, B. Keller, **K. Hauser**, A. Kuo, and J. Izatt. Automatic Optical Coherence Tomography Imaging of Stationary and Moving Eyes with a Robotically-Aligned Scanner. IEEE International Conference on Robotics and Automation (ICRA), May, 2019. (44% acceptance rate)
37. G. Tang and **K. Hauser**. Discontinuity-Sensitive Optimal Control Learning by Mixture of Experts. IEEE International Conference on Robotics and Automation (ICRA), May, 2019. (44% acceptance rate)
38. F. Wang and **K. Hauser**. In-hand Object Scanning via RGB-D Video Segmentation. IEEE International Conference on Robotics and Automation (ICRA), May, 2019. (44% acceptance rate)
39. F. Wang and **K. Hauser**. Stable Bin Packing of Non-convex 3D Objects with a Robot Manipulator. IEEE International Conference on Robotics and Automation (ICRA), May, 2019. (44% acceptance rate)
40. Y. Zhu, L. Abdulmajeid, and **K. Hauser**. Data-driven Approach for Fast Simulation of Robot Locomotion on Granular Media. IEEE International Conference on Robotics and Automation (ICRA), May, 2019. (44% acceptance rate)
41. **K. Hauser**. Semi-Infinite Programming for Trajectory Optimization with Nonconvex Obstacles. Workshop on Algorithmic Foundations of Robotics (WAFR), December, 2018. (57% acceptance rate)
42. S. Wang and **K. Hauser**. Unified Multi-Contact Fall Mitigation Planning for Humanoids via Contact Transition Tree Optimization. IEEE Int'l. Conf. on Humanoid Robots (Humanoids), November, 2018. (oral presentation, 19.5% acceptance rate) **Best paper award nominee**.
43. G. Tang, W. Sun, and **K. Hauser**. Learning Trajectories for Real-Time Optimal Control of Quadrotors. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), October, 2018. (47% acceptance rate)

44. M. Aubert, H. Bader, and **K. Hauser**. Designing Multimodal Intent Communication Strategies for Conflict Avoidance in Industrial Human-Robot Teams. IEEE International Conference on Robot and Human Interactive Communication (RO-MAN), August 2018.
45. **K. Hauser**. Bayesian Tactile Exploration for Compliant Docking with Uncertain Shapes. Robotics: Science and Systems (RSS), June 2018. (31% acceptance rate)
46. M. Draelos, B. Keller, G. Tang, A. Kuo, **K. Hauser**, J. Izatt. Real-Time Image-Guided Cooperative Robotic Assist Device for Deep Anterior Lamellar Keratoplasty. IEEE Int'l. Conf. on Robotics and Automation (ICRA), May 2018. (41% acceptance rate)
47. F. Wang, G. Chen, and **K. Hauser**. Robot Button Pressing in Human Environments. IEEE Int'l. Conf. on Robotics and Automation (ICRA), May 2018. (41% acceptance rate)
48. S. Wang and **K. Hauser**. Realization of a Real-time Optimal Control Strategy to Stabilize a Falling Humanoid Robot with Hand Contact. IEEE Int'l. Conf. on Robotics and Automation (ICRA), May 2018. (41% acceptance rate)
49. W. Zhang and **K. Hauser**. Single-Image Footstep Prediction for Versatile Legged Locomotion. IEEE Int'l. Conf. on Robotics and Automation (ICRA), May 2018. (41% acceptance rate)
50. S. Wang and **K. Hauser**. Real-time Stabilization of a Falling Humanoid Robot using Hand Contact: An Optimal Control Approach. IEEE-RAS Int'l Conference on Humanoid Robots, November, 2017. (54% acceptance rate)
51. G. Tang and **K. Hauser**. A Data-driven Indirect Method for Nonlinear Optimal Control. IEEE/RSJ Intl. Conference on Intelligent Robots and Systems (IROS), September 2017. (45% acceptance rate)
52. M. Draelos, B. Keller, C. Toth, A. Kuo, **K. Hauser**, and J. Izatt. Teleoperating Robots from Arbitrary Viewpoints in Surgical Contexts. IEEE/RSJ Intl. Conference on Intelligent Robots and Systems (IROS), September 2017. (45% acceptance rate)
53. **K. Hauser**, S. Wang, and M. Cutkosky. Efficient Equilibrium Testing under Adhesion and Anisotropy using Empirical Contact Force Models. Robotics: Science and Systems (RSS), July 2017. (40% acceptance rate)
54. Z. Li, P. Moran, C. Dong, R. Shaw, and **K. Hauser**. Development of a Tele-Nursing Mobile Manipulator for Remote Care-giving in Quarantine Areas. IEEE Int'l. Conf. on Robotics and Automation (ICRA), May 2017. (41% acceptance rate)
55. Z. Li and **K. Hauser**. A Study of Bidirectionally Telepresent Tele-action During Robot-Mediated Handover. IEEE Int'l. Conf. on Robotics and Automation (ICRA), May 2017. (41% acceptance rate)
56. Z. Xie, K. Liu, and **K. Hauser**. Differential Dynamic Programming with Nonlinear Constraints. IEEE Int'l. Conf. on Robotics and Automation (ICRA), May 2017. (41% acceptance rate)
57. Y. Zhou and **K. Hauser**. Incorporating Side-Channel Information into Convolutional Neural Networks for Robotic Tasks. IEEE Int'l. Conf. on Robotics and Automation (ICRA), May 2017.
58. **K. Hauser**. Continuous Pseudoinversion of a Multivariate Function: Application to Global Redundancy Resolution. Workshop on the Algorithmic Foundations of Robotics (WAFR), 2016. (25% acceptance rate) **Best Paper Award nominee.**
59. A. Rocchi and **K. Hauser**. A Generic Simulator for Underactuated Compliant Hands. IEEE Int'l Conf. on Simulation, Modeling, and Programming for Autonomous Robots (SIMPAN), 2016.
60. A. Rocchi, B. Ames, J. Li, and **K. Hauser**. Stable Simulation of Underactuated Compliant Hands. IEEE Int'l. Conf. on Robotics and Automation (ICRA), 2016. (35% acceptance rate)
61. O. Ramos and **K. Hauser**. Generalizations of the Capture Point to Nonlinear Center of Mass Paths and Uneven Terrain. IEEE-RAS Int'l Conference on Humanoid Robots, November, 2015. (oral presentation, 15% acceptance rate) **Best Paper Award.**
62. Z. Li, **K. Hauser**, J. R. Roldan, D. Milutinović, and J. Rosen. A Novel Method for Quantifying Arm Motion Similarity. IEEE Engineering in Medicine and Biology Conference (EMBC), August, 2015.
63. J. Luo and **K. Hauser**. Robust Trajectory Optimization Under Frictional Contact with Iterative Learning. Robotics: Science and Systems (RSS), July 2015. (26% acceptance rate)
64. **K. Hauser**. Lazy Collision Checking in Asymptotically-Optimal Motion Planning. IEEE Int'l. Conf. on Robotics and Automation (ICRA), May 2015.

65. D. Coroian and **K. Hauser**. Learning Stroke Treatment Progression Models for an MDP Clinical Decision Support System. SIAM Intl. Conf. on Data Mining, April, 2015. (41% acceptance rate)
66. D. Simshaw, **K. Hauser**, N. Terry, and M. Cummings. Regulating Healthcare Robots in the Hospital and the Home: Considerations for Maximizing Opportunities and Minimizing Risks. We Robot 2015, April 2015.
67. S. Yang, T. Khot, K. Kersting, G. Kunapuli, **K. Hauser**, and S. Natarajan. Learning from Imbalanced Data in Relational Domains: A Soft Margin Approach. IEEE Intl. Conference on Data Mining (ICDM), December 2014. (9.8% acceptance rate)
68. A. Eilering, G. Franchi, and **K. Hauser**. RoboPuppet: Low-Cost, 3D Printed Miniatures for Teleoperating Full-Size Robots. IEEE/RSJ Intl. Conference on Intelligent Robots and Systems (IROS), September 2014. (46% acceptance rate)
69. J. Luo and **K. Hauser**. An Empirical Study of Optimal Motion Planning. IEEE/RSJ Intl. Conference on Intelligent Robots and Systems (IROS), September 2014. (46% acceptance rate)
70. A. Eilering, V. Yap, J. Johnson, and **K. Hauser**. Identifying Support Surfaces of Climbable Structures from 3D Point Clouds. IEEE Int'l. Conf. on Robotics and Automation, May 2014. (48% acceptance rate)
71. **K. Hauser**. Fast Dynamic Optimization of Robot Paths under Actuator Limits and Frictional Contact. IEEE Int'l. Conf. on Robotics and Automation (ICRA), May 2014. (48% acceptance rate)
72. J. Luo, Y. Zhang, **K. Hauser**, H.A. Park, M. Paldhe, C.S.G. Lee, M. Grey, M. Stilman, J.H. Oh, J. Lee, I. Kim, and P. Oh. Robust Ladder-Climbing with a Humanoid Robot with Application to the DARPA Robotics Challenge. IEEE Int'l. Conf. on Robotics and Automation (ICRA), May 2014. (48% acceptance rate)
73. A. Proia, D. Simshaw, and **K. Hauser**. Consumer Cloud Robotics and the Fair Information Practice Principles: The Policy Risks and Opportunities Ahead. We Robot 2014, April 2014. (25% acceptance rate)
74. **K. Hauser**. Robust Contact Generation for Robot Simulation with Unstructured Meshes. In proceedings of Int'l. Symposium on Robotics Research (ISRR), December 2013. (Also in Robotics Research, Springer Tracts in Advanced Robotics (STAR), pp 357—373, Springer, 2016.)
75. **K. Hauser**. Minimum Constraint Displacement Motion Planning. In proceedings of Robotics: Science and Systems (RSS), June 2013. (30% acceptance rate)
76. **K. Hauser**. Fast Interpolation and Time-Optimization on Implicit Contact Submanifolds. In proceedings of Robotics: Science and Systems, June 2013. (30% acceptance rate)
77. J. Johnson and **K. Hauser**. Optimal Longitudinal Control Planning with Moving Obstacles. IEEE Int'l Intelligent Vehicles Symposium, May 2013. (oral presentation, 8% acceptance rate)
78. Y. Zhang, **K. Hauser**, and J. Luo. Unbiased, Scalable Sampling of Closed Kinematic Chains. In proceedings of IEEE Int'l Conference on Robotics and Automation (ICRA), May 2013. (39% acceptance rate)
79. Y. Zhang, J. Luo, **K. Hauser**, R. Ellenberg, P. Oh, H.A. Park, M. Paldhe, and C.S.G. Lee. Motion Planning of Ladder Climbing for Humanoid Robots. In proceedings of IEEE Conf. on Technologies for Practical Robot Applications (TePRA), April 2013.
80. J. Johnson, Y. Zhang, and **K. Hauser**. Minimizing Driver Interference Under a Probabilistic Safety Constraint in Emergency Collision Avoidance Systems. In proceedings of IEEE Intelligent Transportation Systems Conference, September 2012. (73% acceptance rate)
81. **K. Hauser**. Recognition, Prediction, and Planning for Assisted Teleoperation with Freeform Tasks. In proceedings of Robotics: Science and Systems (RSS), July 2012. (32.9% acceptance rate)
82. **K. Hauser**. The Minimum Constraint Removal Problem with Three Robotics Applications. In proceedings of Workshop on the Algorithmic Foundations of Robotics, June 2012. (Also in Algorithmic Foundations of Robotics X, Springer Tracts in Advanced Robotics (STAR), Springer Berlin / Heidelberg, 2013)
83. Y. Zhang, J. Luo, and **K. Hauser**. Sampling-based Motion Planning with Dynamic Intermediate State Objectives: Application to Throwing. In proceedings of IEEE Int'l Conference on Robotics and Automation (ICRA), May 2012. (40% acceptance rate)
84. J. Luo and **K. Hauser**. Interactive Generation of Dynamically Feasible Robot Trajectories from Sketches Using Temporal Mimicking. In proceedings of IEEE Int'l Conference on Robotics and Automation (ICRA), May 2012. (40% acceptance rate)

85. J. Johnson and **K. Hauser**. Optimal Acceleration-Bounded Trajectory Planning in Dynamic Environments Along a Specified Path. In proceedings of IEEE Int'l Conference on Robotics and Automation (ICRA), May 2012. (40% acceptance rate)
86. E. You and **K. Hauser**. Assisted Teleoperation Strategies for Aggressively Controlling a Robot Arm with 2D Input. In proceedings of Robotics: Science and Systems (RSS), Los Angeles, USA, June 2011. (24.6% acceptance rate)
87. **K. Hauser**. Adaptive Time Stepping in Real-Time Motion Planning. In proceedings of Workshop on the Algorithmic Foundations of Robotics, Singapore, Dec. 2010. (40.3% acceptance rate) (Also published in Algorithmic Foundations of Robotics IX, Springer Tracts in Advanced Robotics (STAR), Springer Berlin / Heidelberg, vol 68, p215-230, 2010)
88. **K. Hauser**. Randomized Belief-Space Replanning in Partially-Observable Continuous Spaces. In proceedings of Workshop on the Algorithmic Foundations of Robotics, Singapore, Dec. 2010. (40.3% acceptance rate) (Also published in Algorithmic Foundations of Robotics IX, Springer Tracts in Advanced Robotics (STAR), Springer Berlin / Heidelberg, vol 68, p403-418, 2010)
89. **K. Hauser** and V. Ng-Thow-Hing. Fast Smoothing of Manipulator Trajectories using Optimal Bounded-Acceleration Shortcuts. In proceedings of IEEE Int'l Conference on Robotics and Automation (ICRA), 2010.
90. R. Jansen, **K. Hauser**, N. Chentanez, F. van der Stappen, and K. Goldberg. Surgical Retraction of Non-Uniform Deformable Layers of Tissue: 2D Robot Grasping and Path Planning. In proceedings of IEEE Intl. Conference on Intelligent Robots and Systems (IROS), 2009. (58% acceptance rate)
91. **K. Hauser**. A Decision-Theoretic Formalism for Belief-Optimal Reasoning. In proceedings of IEEE Performance Measurement for Intelligent Systems Workshop (PerMIS), Gaithersburg, MD, Sep. 2009.
92. N. Chentanez, R. Alterovitz, D. Richie, J. Cho, **K. Hauser**, K. Goldberg, J.R. Shewchuk, and J. O'Brien, Interactive Simulation of Surgical Needle Insertion and Steering. In proceedings of ACM SIGGRAPH, 2009. (18% acceptance rate)
93. **K. Hauser**, R. Alterovitz, N. Chentanez, A. Okamura, and K. Goldberg, Feedback Control for Steering Needles Through 3D Deformable Tissue Using Helical Paths. In proceedings of Robotics: Science and Systems (RSS), 2009. (26% acceptance rate)
94. B. Morisset, R.B. Rusu, A. Sundaresan, **K. Hauser**, M. Agrawal, J.-C. Latombe, and M. Beetz, Leaving Flatland. Toward Real-Time 3D Navigation. In proceedings of IEEE Intl. Conf. of Robotics and Automation (ICRA), 2009. (42.8% acceptance rate)
95. M. Torabi, **K. Hauser**, R. Alterovitz, V. Duindam, and K. Goldberg, Guiding Medical Needles Using Single-Point Tissue Manipulation. In proceedings of IEEE Intl. Conf. of Robotics and Automation (ICRA), 2009. (42.8% acceptance rate) **Best Medical Robotics Paper Finalist.**
96. **K. Hauser** and J.-C. Latombe, Multi-Modal Motion Planning for Non-Expansive Spaces. In the Workshop on the Algorithm Foundations of Robotics (WAFR), 2008. (Also published in Algorithmic Foundations of Robotics VIII, Springer Tracts in Advanced Robotics (STAR), Springer Berlin / Heidelberg, vol 57, p615-630, 2010)
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98. **K. Hauser**, V. Ng-Thow-Hing, H. Gonzalez-Baños, Multi-Modal Motion Planning for a Humanoid Robot Manipulation Task. In proceedings of International Symposium on Robotics Research (ISRR), 2007.
99. **K. Hauser**, T. Bretl, K. Harada, and J.-C Latombe, Using Motion Primitives in Probabilistic Sample-based Planning for Humanoid Robots. In proceedings of Workshop on the Algorithmic Foundations of Robotics (WAFR), 2006. (Also published in Algorithmic Foundations of Robotics VII, Springer Tracts in Advanced Robotics (STAR), Springer Berlin / Heidelberg, vol 47, p507-522, 2008)
100. **K. Hauser**, T. Bretl, J.-C Latombe, and B. Wilcox, Motion Planning for a Six-legged Lunar Robot. In proceedings of Workshop on the Algorithmic Foundations of Robotics (WAFR), 2006. (Also published in Algorithmic Foundations of Robotics VII, Springer Tracts in Advanced Robotics (STAR), Springer Berlin / Heidelberg, vol 47, p301-316, 2008)
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102. **K. Hauser**, T. Bretl, and J.-C Latombe, Non-Gaited Humanoid Locomotion Planning. In proceedings of IEEE Conference on Humanoid Robots, 2005.
103. **K. Hauser**, T. Bretl, and J.-C Latombe, Learning-Assisted Multi-Step Planning. In proceedings of IEEE Conference on Robotics and Automation (ICRA), 2005.
104. **K. Hauser**, C. Shen, and J.F. O'Brien, Interactive Deformation Using Modal Analysis With Constraints. In proceedings of Graphics Interface 2003, pp. 247-255.

BOOK CHAPTERS AND THESIS

1. A. Causo, J. Durham, **K. Hauser**, K. Okada, and A. Rodriguez (eds). Advances on Robotic Item Picking: Applications in Warehousing & E-Commerce Fulfillment. Springer, 2020. ISBN 978-3-030-35679-8.
2. **K. Hauser**. Path/Motion Planning. In M. H. Ang Jr., O. Khatib, and B. Siciliano (eds), Encyclopedia of Robotics, Springer, 2020. doi:10.1007/978-3-642-41610-1_165-1
3. **K. Hauser**. Adaptive locomotion on uneven terrains. In A. Goswami and P. Vadakkepat (eds), Humanoid Robotics: A Reference, Springer, 2017.
4. **K. Hauser** and V. Ng-Thow-Hing. Multi-Modal Motion Planning for Precision Pushing on a Humanoid Robot. In K. Harada, E. Yoshida, and K. Yokoi (eds), Motion Planning for Humanoid Robots, Springer, 2010.
5. **K. Hauser**, Motion Planning for Legged and Humanoid Robots. Ph.D. Thesis, Stanford University, September 2008.

OTHER PUBLICATIONS

1. A.D. Smith, B. Muthumanickam, Y. Feng, W. Ding, and **K. Hauser**. UnityEyes 2: Open Source Robust Synthetic Eye Generation for Camera-Based Eye Tracking with Machine Learning. ACM Symposium on Eye Tracking Research & Applications Late Breaking Work, May 2025.
2. N. Dengler, J.M.C. Marques, J. Mücke, T. Zaenker, S. Wang, **K. Hauser**, and M. Bennewitz. Manipulation-Enhanced Spatial Mapping via Belief Prediction. German Robotics Conference, March 2025.
3. N. Dengler, J.M.C. Marques, T. Zaenker, V. Kalagaturu, S. Wang, M. Bennewitz, and **K. Hauser**. Uncertainty-Aware Map-Space Dynamics Models for Manipulation-Enhanced Mapping. IROS 2024 3rd Workshop on Mobile Manipulation and Embodied Intelligence, October 2024.
4. S. Yao, S. Pan, M. Bennewitz, and **K. Hauser**. Safe Leaf Manipulation for Accurate Shape and Pose Estimation of Occluded Fruits. IROS 2024 Workshop on Agricultural Robotics for a Sustainable Future, October 2024.
5. A. Stratton, **K. Hauser**, and C. Mavrogiannis. Towards a Characterization of the Complexity of Social Robot Navigation Scenarios. RSS 2024 Workshop on Unsolved Problems in Social Robot Navigation, July 19, 2024. **Best Workshop Paper Award**
6. M. Zhang, D. Jha, A. Raghunathan, and **K. Hauser**. Simultaneous Trajectory Optimization and Contact Selection for Contact-rich Manipulation with High-Fidelity Geometry. RSS 2024 Workshop on Frontiers of Optimization for Robotics, July 15, 2024.
7. K. Zhang, B. Li, **K. Hauser**, Y. Li. AdaptiGraph: Material-Adaptive Graph-Based Neural Dynamics for Robotic Manipulation. ICRA 2024 4th Workshop on Representing and Manipulating Deformable Objects, May 17, 2024. **Best Workshop Paper Award**
8. S. Yao, Y. Zhu, and **K. Hauser**. Structured Bayesian Meta-Learning for Data-Efficient Visual-Tactile Model Estimation. ICRA 2024 4th Workshop on Representing and Manipulating Deformable Objects, May 17, 2024.
9. A. D. Smith, A. Naik, P. Arnold, and K. Hauser. A Skull-Mounted Articulating Arm Coordinate Measuring Machine for Neurosurgical Navigation. ICRA 2024 Workshop on Robot-Assisted Medical Imaging. May 13, 2024.
10. P. Thangeda, A. Goel, E. Tevere, Y. Zhu, E. Kramer, A. Daca, H. Nayar, **K. Hauser**, and M. Ornik. Learning and Autonomy for Extraterrestrial Terrain Sampling: An Experience Report from OWLAT Deployment. 2024 AIAA SciTech, January 8, 2024.
11. A. Smith, A. Naik, W. Mostafa, **K. Hauser**, and P. Arnold. Atlas Neurosurgical Navigation System: Bedside Neurotrauma Navigation for Low-Income Settings. 18th World Conference on Neurosurgery, December 4, 2023.

12. R. Qiu, P. Chen, W. Sun, Y.-X. Wang, and **K. Hauser**. GAPS: Few-Shot Incremental Semantic Segmentation via Guided Copy-Paste Synthesis. CVPR 2023 Workshop on Learning with Limited Labelled Data, June 19, 2023.
13. M. Zhang, D. K. Jha, A. Raghunathan, and **K. Hauser**. STOCS: Simultaneous Trajectory Optimization and Contact Selection for Contact-Rich Manipulation. IEEE International Conference on Robotics and Automation 2023 Workshop on Embracing Contacts. June 2, 2023.
14. J. M. C. Marques, J.-C. Peng, P. Naughton, Y. Zhu, J. S. Nam, and **K. Hauser**. Commodity Telepresence with Team AVATRINA's Nursebot in the ANA Avatar XPRIZE Finals. ICRA 2023 2nd Workshop on Toward Robot Avatars, June 2, 2023.
15. P. Naughton, J. S. Nam, J. M. C. Marques, J.-C. Peng, Y. Zhu, Q. Kong, and **K. Hauser**. Pan-Tilt-Roll Televisualization With Adjustable Baseline Stereo. ICRA 2023 2nd Workshop on Toward Robot Avatars, June 2, 2023.
16. B. Li, W. Edwards, and **K. Hauser**. Efficient Automatic Tuning for Data-driven Model Predictive Control via Meta-Learning. In ICRA 2023 Workshop on Effective Representations, Abstractions, and Priors for Robot Learning (RAP4Robots), May 29, 2023.
17. J. M. C. Marques, P. Naughton, Y. Zhu, N. Malhotra, and **K. Hauser**. Commodity Telepresence with the AvaTRINA Nursebot in the ANA Avatar XPRIZE Semifinals. RSS 2022 Workshop on Toward Robot Avatars: Perspectives on the ANA Avatar XPRIZE Competition. July 1, 2022.
18. S. Yao and **K. Hauser**. Online Estimation of Point-based Volumetric Stiffness Model Using Joint Torque Sensors. ICRA 2022 2nd Workshop on Representing and Manipulating Deformable Objects, May 23, 2022.
19. D. Null, T. Tchalakov, W. Edwards, **Kris Hauser**, and Y. Z. Automatically-Tuned Model Predictive Control for an Underwater Soft Robotic Arm. ICRA 2022 Workshop on Compliant Manipulation, May 23, 2022.
20. G. Tang and **K. Hauser**. Discontinuous Trajectory Learning with Topological Data Analysis. RSS 2021 Workshop on Geometry and Topology in Robotics: Learning, Optimization, Planning, and Control, July 15, 2021.
21. Y. Zhu, A. Smith, and **K. Hauser**. Informative Path Planning for Automatic Robotic Auscultation. ICRA 2021 Workshop on Impact of COVID-19 on Medical Robotics and Wearables Research, June 4, 2021.
22. W. Edwards, G. Tang, J. Izatt, A. Kuo, and **K. Hauser**. Model Learning for Automatic Needle Insertion in Deep Anterior Lamellar Keratoplasty. 2020 IROS Cognitive Robotic Surgery Workshop, Las Vegas, NV, USA, Nov. 6, 2020. **Honorable Mention**.
23. **K. Hauser** and R. Shaw. How Medical Robots Will Help Treat Patients in Future Outbreaks. IEEE Spectrum, May 4, 2020. <https://spectrum.ieee.org/automan/robotics/medical-robots/medical-robots-future-outbreak-response>
24. M. Draelos, P. Ortiz, R. Qian, C. Viehland, **K. Hauser**, A. Kuo, and J. Izatt. Robotically Aligned OCT Scanner for Automated Patient Tracking Retinal Imaging. Investigative Ophthalmology and Vision Science, June 2019, 60(9):1268.
25. M. Draelos, G. Tang, B. Keller, **K. Hauser**, A. Kuo, and J. Izatt. Automating Needle Insertions for Deep Anterior Lamellar Keratoplasty. ICRA 2019 Workshop on Open Challenges and State-of-the-Art in Control System Design and Technology Development for Surgical Robotic Systems, May 2019.
26. W. Sun, G. Tang, and **K. Hauser**. Time-Optimal Trajectory Generation for Dynamic Vehicles: A Bilevel Optimization Approach. ICRA 2019 Workshop on Toward Online Optimal Control of Dynamic Robots, May 2019.
27. W. Sun, G. Tang, and **K. Hauser**. Fast UAV Trajectory Generation Using Bilevel Optimization. ICRA 2019 Workshop on The Future of Aerial Robotics: Challenges and Opportunities, May 2019.
28. T. Lu, H. Bader, and **K. Hauser**. The Design and Doffing of Personal Protective Equipment for Healthcare Robots. Military Health Systems Research Symposium (MHSRS), August 2018.
29. M. Aubert and **K. Hauser**. Toward Engaged Human-Robot Teams: A Contextualized Bandit Approach to an Engagement-Aware Division of Labor. In HRI 2018 Workshop on Longitudinal Human-Robot Teaming, May 2018.
30. Y. Zhou and **K. Hauser**. 6DOF Grasp Planning by Optimizing a Deep Learning Scoring Function. RSS 2017 Workshop on Revisiting Contact - Turning a Problem into a Solution, July 2017.

31. M. C. Aubert, A. W. Draelos, M. Draelos, Y. Feng, H. He, B. Keller, J. Li, B. Vincent, F. Wang, S. Wu, K. Zhou, T. Zhu, and **K. Hauser**. A Rapid Development Methodology for an Autonomous Warehouse Picking Robot. ICRA 2017 Warehouse Picking Automation Workshop, May 2017.
32. **K. Hauser**. Learning the Problem-Optimum Map: Analysis and Application to Global Optimization in Robotics. RSS 2016 Workshop on Robot Learning and Planning, June 2016. **Best paper award**.
33. Z. Li and **K. Hauser**. Ebolabot: Progress Toward a Tele-Nursing Robotic System for Ebola Patient Treatment. RSS 2015 Workshop on Robotics for Advance Response to Epidemics, July 2015.
34. **K. Hauser**. Rigid Body Simulation with Point Cloud Models in Klamp't. RSS 2015 Workshop on Realistic, Rapid, and Repeatable Robot Simulation, July 2015.
35. M. Poffald, Y. Zhang, and **K. Hauser**. Learning problem space metrics for motion primitive selection. IROS 2014 Workshop on Machine Learning in Planning and Control of Robot Motion, September 2014.
36. **K. Hauser** and Y. Zhang. Planning-Aided Robot Design: Unified Optimization of Form, Physics, and Motion. ICRA 2014 Workshop on Task-Based Optimal Design of Robots, Hong Kong, May 2014.
37. G. Franchi and **K. Hauser**. Use of Hybrid Systems to model the RobotiQ Adaptive Gripper. Indiana University Computer Science Technical Report TR711, February 2014.
38. **K. Hauser**. Large Motion Libraries: Toward a "Google" for Robot Motions. In RSS Workshop on Robotics Challenges and Vision. Berlin, Germany, June 2013. **Best Paper Award**.
39. J. Johnson and **K. Hauser**. Optimal Longitudinal Control Planning with Moving Obstacles. In ICRA 2013 Workshop on Vehicle Autonomy for Urban Transportation Systems. Karlsruhe, Germany, May 2013.
40. Y. Zhang, J. Luo, and **K. Hauser**. Planner-aided Design of Ladder Climbing Capabilities for a DARPA Robotics Challenge Humanoid. In ICRA 2013 Workshop on Progress and Open Problems in Motion Planning and Navigation for Humanoids. Karlsruhe, Germany, May 2013.
41. Y. Zhang and **K. Hauser**. Unbiased, Scalable Sampling of Constrained Kinematic Loops. In BIBM 2012 Computational Structural Biology Workshop. October, 2012.
42. **K. Hauser**. Cutting Through the Clutter: Identifying Minimally Disturbed Subsets. In the RSS Workshop on Manipulation in Clutter: Manipulation, Perception, and Navigation in Human Environments. July, 2012.
43. C. C. Bennet and **K. Hauser**. Artificial Intelligence Framework for Simulating Cognition in Clinical Decision-Making: A Markov Decision Process Multi-Agent System. In Midwest Cognitive Science Conference, May 2012.
44. **K. Hauser**. Design of Optimal Robot User Interfaces. In IROS 2011 Workshop on Open Problems in Motion Planning, September 2011.
45. J. Johnson, Y. Zhang, and **K. Hauser**. Semiautonomous Longitudinal Collision Avoidance Using a Probabilistic Decision Threshold. In IROS 2011 Workshop on Perception and Navigation for Autonomous Vehicles in Human Environments, September, 2011.
46. **K. Hauser**. Online Planning in Continuous POMDPs with Open-Loop Information-Gathering Plans. In ICML Workshop on Planning and Acting with Uncertain Models, July 2011.
47. Y. Zhang and **K. Hauser**. Driver Interference and Risk in Semiautonomous Braking Under Uncertainty. In Intl. Workshop on Collaborative Robots and Human Robot Interaction, Philadelphia, USA, May 2011.
48. **K. Hauser**. Task Planning with Continuous Actions and Nondeterministic Motion Planning Queries. In proceedings of AAAI Workshop on Bridging the Gap between Task and Motion Planning, Atlanta, USA, July 11, 2010.
49. N. Chentanez, R. Alterovitz, D. Ritchie, L. Cho, **K. K. Hauser**, K. Goldberg, J. R. Shewchuk, and J. F. O'Brien. Simulation of Needle Insertion and Tissue Deformation for Modeling Prostate Brachytherapy. Brachytherapy, 9(Supplement 1):S72–S73, 2010. Abstracts of the 31st Annual Meeting of the American Brachytherapy Society, April 29-May 1, 2010.
50. **K. Hauser**. On the Connectivity of Motion Spaces for Biologically-Inspired Legged Robots. In proceedings of IROS 2009 Workshop on Biologically-Inspired Robots, October, 2009.
51. **K. Hauser** and J.-C. Latombe. Integrating Task and PRM Motion Planning: Dealing with Many Infeasible Motion Planning Queries. In proceedings of ICAPS 2009 Workshop on Bridging the Gap Between Task and Motion Planning, Thessaloniki, Greece, Sep. 2009.

52. C. Shen, **K. Hauser**, C. Gatchalian, and J.F. O'Brien, Modal Analysis for Real-Time Viscoelastic Deformation. Technical Sketch. ACM SIGGRAPH 2002 Conference Abstracts and Applications.

PATENTS

1. (pending) V. Nadgir, J.M.C. Marques, K. Hauser. "Memory-Efficient Many-Class 3D Semantic Fusion". U.S. Patent Application No. 63/806,504, filed May 15, 2025.W
2. (pending) A.D. Smith, A. Naik, W. Mostafa, K. Hauser, and P. Arnold. "Atlas Neurosurgical Navigation System". U.S. Patent Application No. 18/970,755, filed Dec 4, 2024.
3. F. Wang and K. Hauser. "Autonomous Robot Packaging of Arbitrary Objects". US Patent 12,390,931, issued Aug 19, 2025.
4. J. Marques, Z. Pan, and K. Hauser. "A Targeted Approach for Optimized Ultraviolet Disinfection of Surfaces". US Patent No. 11865218, issued Jan 9, 2024.
5. M. Draelos, K. Hauser, B. Keller, A. Kuo, and J. Izatt. "Systems and Methods for Arbitrary Viewpoint of Robotic Manipulation Robotic Surgical Assistance" U.S. Patent 10,888,389, issued Jan 13, 2021. International Patent No. WO2017044965, issued Mar 16, 2017
6. C. Bennett and K. Hauser. "Clinical decision-making artificial intelligence object oriented system and method". U.S. Patent 10,282,512, issued May 7, 2019
7. K. Hauser and V. Ng-Thow-Hing. "Multi-modal push planner for humanoid robots." U.S. Patent 8,116,908, issued Feb 14, 2012

AWARDS

- Amazon Research Award, 2018, 2019, 2020
- NSF CAREER Award, 2013
- Best Paper Award, IEEE Humanoids 2015
- Best Paper of 2021 Award, IEEE Technical Committee on Model-Based Optimization for Robotics, 2022
- Indiana University Women in Computing Inspirational Teacher Award, 2011
- Siebel Scholar Fellowship, 2007 – 2008
- Thomas V. Jones Stanford Graduate Fellowship, 2003 – 2007

POSITIONS HELD

- 8/25 – **Head of Robotic Intelligence**, Samsung Research America
- 8/19 – **Professor** (Associate Professor until 8/21, on leave as of 8/25)
School of Computing and Data Science, Department of Electrical and Computer Engineering,
University of Illinois at Urbana-Champaign.
- 8/19 – 7/23 **Software Engineering Consultant**, Waymo, LLC
- 12/17 – 5/19 **Consultant**, Drive.ai, LLC
- 9/14 – 8/19 **Associate Professor**. Department of Electrical and Computer Engineering, Department of
Mechanical Engineering and Materials Science, Duke University
- 8/09 – 8/14 **Assistant Professor**. Department of Computer Science and Informatics, Indiana University
- 8/08 – 6/09 **Postdoctoral Fellow**. IEOR Department, University of California at Berkeley
- 6/08 – 8/08 **Postdoctoral Researcher**. Honda Research Institute of America
- 1/04 – 6/08 **Research Assistant**. Department of Computer Science, Stanford University
- 1/07 – 9/07 **Researcher**. Honda Research Institute of America
- 6/06 – 9/06 **Intern**. Honda Research Institute of America
- 6/03 – 8/03 **Intern**. Sony Computer Entertainment of America R&D
- 6/02 – 8/02 **Intern**. Sony Computer Entertainment of America R&D
- 2/02 – 5/03 **Research Assistant**. EECS Department, University of California at Berkeley

TEACHING

- Spring 2025 CS 588: *Autonomous Vehicle Systems Engineering*, University of Illinois at Urbana-Champaign
- Fall 2024 CS 598: *Advanced Computational Topics in Robotics*, University of Illinois at Urbana-Champaign
- Spring 2024 CS 588: *Autonomous Vehicle Systems Engineering*, University of Illinois at Urbana-Champaign
- Fall 2023 CS 598: *Advanced Computational Topics in Robotics*, University of Illinois at Urbana-Champaign
- Fall 2022 CS 598: *Advanced Computational Topics in Robotics*, University of Illinois at Urbana-Champaign

Spring 2022	CS 498: <i>AI for Robotic Manipulation</i> , University of Illinois at Urbana-Champaign
Fall 2021	CS 598: <i>Advanced Computational Topics in Robotics</i> , University of Illinois at Urbana-Champaign
Spring 2021	CS 498: <i>AI for Robotic Manipulation</i> , University of Illinois at Urbana-Champaign
Spring 2020	CS 498: <i>Intelligent Robotics</i> , University of Illinois at Urbana-Champaign
Spring 2019	ECE 489/MEMS 555.06: <i>Advanced Robotic System Design</i> , Duke University
Fall 2018	ECE 383/MEMS 442/MEMS 555: <i>Introduction to Robotics and Automation</i> , Duke University
Spring 2018	ECE 590: <i>Motion Planning and Optimal Control</i> , Duke University
Fall 2017	ECE 383/MEMS 442/ECE 590: <i>Introduction to Robotics and Automation</i> , Duke University
Spring 2017	CS 270: <i>Introduction to Artificial Intelligence</i> , Duke University ECE 590: <i>Amazon Robotics Challenge</i> , Duke University
Fall 2016	ECE 383/MEMS 442: <i>Introduction to Robotics and Automation</i> , Duke University
Spring 2016	ECE 490.02/MEMS 555.06: <i>Advanced Robotic System Design</i> , Duke University
Fall 2015	ECE 383/MEMS 442: <i>Introduction to Robotics and Automation</i> , Duke University
Spring 2015	ECE 590.04: <i>Robot Perception, Planning, and Control</i> , Duke University
Spring 2014	INFO I400/I590, CS B659: <i>Intelligent Robotics</i> , Indiana University
Fall 2013	CS B351/COGS Q351: <i>Introduction to Artificial Intelligence and Computer Simulation</i> , Indiana University
Spring 2013	CS B659: <i>Intelligent Robotics</i> , Indiana University
Fall 2012	CS B551: <i>Elements of Artificial Intelligence</i> , Indiana University
Spring 2012	CS B553: <i>Optimization and Learning Algorithms</i> , Indiana University
Fall 2011	CS B551: <i>Elements of Artificial Intelligence</i> , Indiana University
Spring 2010	CS B659: <i>Principles of Intelligent Robot Motion</i> , Indiana University
Fall 2010	CS B351/COGS Q351: <i>Introduction to Artificial Intelligence and Computer Simulation</i> , Indiana University
Spring 2009	CS B659: <i>Principles of Intelligent Robot Motion</i> , Indiana University
Fall 2009	CS B551: <i>Elements of Artificial Intelligence</i> , Indiana University
Fall 2007	Course Assistant. <i>Motion Planning</i> , Stanford University
Spring 2007	Course Assistant. <i>Motion Planning for Robots, Digital Actors, and Other Moving Objects</i> , Stanford University
Winter 2007	Course Assistant. <i>Introduction to Artificial Intelligence</i> , Stanford University
2001-2002	Reader. <i>Introduction to Computer Graphics</i> , University of California at Berkeley

GRANTS

- *NSF: FRR: Perception-Driven Models for Granular Material Manipulation* (PI), NSF #2409661 (Hauser/Li). Award amount: \$963,568. 9/1/2024-8/31/2027.
- *NRI: Toward Safe and Reliable Robotic Eye Examinations* (PI), NIH R01 EY035106 A (Hauser/Izatt/Kuo). Award amount: \$1,299,853. 5/1/2023-4/30/2026.
- *DRILLAWAY: aDaptive, ResIllient Learning-enabLed oceAnWorld AutonomY* (Co-PI), NASA COLDTech program. Award amount: \$1,000,000. 6/1/2021-5/30/2023.
- *CPS: Frontier: Collaborative Research: COALESCE: COnText Aware LEarning for Sustainable CybEr-agricultural systems* (Co-PI). NSF CPS program. Award amount: \$2,000,000. 1/15/2021-1/14/2025.
- *NRI: FND: Immersive Whole-Body Teleoperation of Wheeled Humanoid Robots for Dynamic Mobile Manipulation* (Co-PI). NSF NRI program. Award amount: \$750,000. 10/1/2020-9/30/2023.
- *SBIR Phase I: Autonomous Disinfecting Robot for Crowded Spaces* (Co-I). NSF SBIR Program. Award amount: \$256,000. 6/1/2020-5/30/2021.
- *Robotic Packing of Novel and Non-Rigid Objects with Visuotactile Modeling* (PI). Amazon Research Award. Award amount: \$80,000 + \$10,000 AWS credit. 5/1/2020-4/30/2021.
- *RI: Small: Pose and Trajectory Optimization with Pervasive Contact* (PI). NSF RI program. Award Amount: \$500,000. 9/01/2019-8/31/2022.
- *Intrasurgical OCT Image-Guided Robot Assist Device for Partial Thickness Corneal Transplantation* (Co-PI). NIH R21 (Izatt/Hauser/Kuo). Award amount: \$416,078. 5/1/2019-4/30/2021.
- *Closed-Loop Robotic Packing for Irregular and Diverse Objects* (PI). Amazon Research Award. Award amount: \$72,000 + \$20,000 AWS credit. 3/1/2019-2/28/2020.
- *NRI: INT: Customizing Semi-Autonomous Nursing Robots using Human Expertise* (PI). NSF NRI program. Award amount: \$962,572. 9/1/2018-8/31/2021.

- *RI: Small: Exploiting Global Structure in Robot Decision Problems* (PI). NSF RI program. Award amount: \$348,774. 8/1/2018-7/31/2021.
- *Enhanced Robotic Manipulation Testbeds for Interdisciplinary Engineering Education* (PI). Duke University Pedagogy Experimentation Grant. Award amount: \$62,000. 8/1/2018-5/30/2019.
- *Optimized Robotic Packing for Irregular and Diverse Objects* (PI). Amazon Research Award. Award amount: \$51,578 + \$20,000 AWS credit. 3/1/2018-2/28/2019.
- *Image-Guided Robotic Assist Device for Partial-Thickness Corneal Transplantation* (Co-PI). Coulter Foundation (Izatt/Hauser/Kuo). Award amount: \$436,965. 9/1/2016-8/31/2018.
- *Hands on R&D Experience in Advanced Intelligent Robotics in a Design Course Based on the Amazon Picking Challenge* (PI). Lord Foundation of North Carolina. Award amount: \$22,000. 7/1/2016-10/1/2016.
- *Modeling Intent Communication Pathways for Human-Autonomous System Collaboration* (Co-PI). NSF EAGER CMMI program (Cummings/Hauser). Award amount: \$299,990. 9/1/2015-8/31/2017.
- *NRI: Collaborative Research: Versatile Locomotion: from Walking to Dexterous Climbing with a Human-Scale Robot* (PI). NSF National Robotics Initiative program. Duke award amount: \$472,712 (total: \$1,377,580). 9/1/2015-8/31/2018.
- *RAPID: Tele-Nursing Robots for Remote Treatment of Ebola Patients* (PI). NSF RAPID program. Award amount: \$73,025. 12/1/2014-11/30/2015.
- *Cloud-Based Perception and Control of Sensor Nets and Robot Swarms* (Co-PI). AFOSR Dynamic Data-Driven Applications Systems program (Fox/Hauser/Crandall). Award amount: \$400,000. 10/1/2013-9/30/2015.
- *SCH: EXP: Intelligent Clinical Decision Support with Probabilistic and Temporal EHR Modeling* (PI). NSF Smart and Connected Health program (Hauser/Natarajan/Grannis). Award amount: \$686,411. 3/1/2014-2/8/2017.
- *Cooperative Motion Planning for Human-Operated Robots* (PI). NSF CAREER program. Award amount: \$481,151. 8/1/2013-7/31/2018.
- *Intelligent User Interfaces for Robotic Manipulation* (PI). Indiana University Faculty Research Support Program. Award amount: \$50,000. 1/1/2013-12/31/2013.
- *DRC-Hubo - Leveraging a 7-Hubo Infrastructure and Unified Algorithmic Framework for the DARPA Robotics Challenge* (Co-PI, Lead: Drexel U). DARPA Robotics Challenge program. Award amount: \$130,000 (IU portion, Phase I). 10/1/2012-1/13/2014.
- *RI: Small: Discovery and Reuse of Domain Knowledge in Large Motion Planning Systems* (PI). NSF Robust Intelligence program. Award amount: \$381,168. 8/1/2012-7/31/2015.
- *Semiautonomous Decision-Making in Vehicle Emergency Safety Systems* (PI). Indiana University Collaborative Research Grant Program. Award amount: \$36,592. 3/1/2011-2/29/2012.

PROFESSIONAL ACTIVITIES

- Director, UIUC Coordinated Sciences Lab (CSL) Robotics Group, 2023-2025
- Associate Director for Robotics, UIUC Center for Autonomy, 2019-2025
- Program Chair, Robotics Science and Systems Conference, 2022
- General Chair, Robotics Science and Systems Conference, 2023
- Program Co-Chair (Americas Region), IEEE International Conference on Humanoid Robots, 2015.
- Editor, IEEE International Conference on Robotics and Automation, 2017-2019
- Workshop Co-Chair, Robotics Science and Systems Conference, 2020
- Senior Program Committee, IEEE International Conference on Robotics and Automation, 2025
- Area Chair, Robotics Science and Systems Conference, 2014-2015, 2021
- Area Chair, Conference on Robot Learning (CoRL), 2021
- Associate Editor, IEEE Transactions on Robotics, 2017-2020
- Associate Editor, IEEE International Conference on Robotics and Automation, 2011-2016
- Associate Editor, IEEE/RSJ International Conference on Intelligent Robots and Systems, 2011-2013, 2015
- Associate Editor, IEEE Intelligent Vehicles Symposium, 2014
- Special Issue Associate Editor, International Journal of Robotics Research, 2023-2024
- Special Issue Associate Editor, Autonomous Robots, 2023-2024
- Co-Chair, IEEE/RAS Technical Committee on Algorithms for Planning and Control of Robot Motion, 2009-2012

- Senior Program Committee, AAAI Conference, 2019
- Program Committee, Workshop on the Algorithmic Foundations of Robotics (WAFR) 2016, 2018, 2024
- Program Committee, Robotics: Science and Systems Conference, 2009-2013,2017-2018, 2020
- Program Committee, Conference on Robot Learning (CoRL) 2017
- Program Committee, Int'l Symposium on Experimental Robotics (ISER) 2016
- Program Committee, International Conference on Automated Planning and Scheduling Robotics Track, 2014
- Program Committee, AAAI Conference, 2012-2014
- Program Committee, International Workshop on Collaborative Robots and Human Robot Interaction, 2013
- Program Committee, International Conference on Development and Learning, 2010
- Organizer, ICRA 2023 2nd Workshop on Toward Robot Avatars: Perspectives on the ANA Avatar XPRIZE Competition, 2023.
- Organizer, RSS 2022 Workshop on Toward Robot Avatars: Perspectives on the ANA Avatar XPRIZE Competition, 2022.
- Organizer, ICRA Workshop on No-Touch Care for Worker Safety During Pandemic Response, 2021
- Organizer, ICRA Warehouse Picking Automation Workshop, 2017
- Organizer, IROS Robotic Grasping and Manipulation Competition, 2016
- Organizer, AAAI Fall Symposium on Artificial Intelligence in Human-Robot Interaction (AI-HRI), November 2014, 2015
- Organizer, HRI Workshop on Algorithmic Human-Robot Interaction (AHRI), March 2014
- Organizer, RSS Workshop on Combined Robot Motion Planning and AI Planning for Practical Applications, June 2013
- Organizer, ICRA Workshop on Combining Task and Motion Planning (TAMP), May 2013
- Organizer, ICRA Workshop on Manipulation Under Uncertainty, May 2011
- Organizer, ICRA Workshop on Mobile Manipulation, May 2010
- Organizer, RSS Workshop on Motion Planning: From Theory to Practice, June 2010
- Senior Member, IEEE, 2019- (Member since 2008)
- Member, IEEE Robotics and Automation Society (RAS), 2009-
- Member, IEEE/RAS Technical Committee on Mobile Manipulation, 2010-
- Member, IEEE/RAS Technical Committee on Algorithms for Planning and Control of Robot Motion, 2009-
- Member, IEEE/RAS Workshop Oversight Committee, 2015-
- Member, ACM, 2020-
- Member, Robotics: Science and Systems Foundation Board, 2022-
- Panelist, NSF, 2012-2013, 2015-2019, 2021
- Reviewer, ACM CHI Conference; ACM Transactions on Human-Robot Interaction, Communications of the ACM, International Joint Conference on Artificial Intelligence; International Journal of Robotics Research; IEEE Transactions on Automation Science and Engineering; IEEE Transactions on Biomedical Engineering; IEEE Transactions on Biomechanics; IEEE Transactions on Mechatronics; IEEE Transactions on Robotics; Artificial Intelligence for Engineering Design, Analysis and Manufacturing; International Conference on Advances in Computer-Human Interaction; IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS); IEEE International Conference on Robotics and Automation (ICRA), IEEE International Conference on Humanoid Robots; IEEE Robotics and Automation Magazine; Transactions on Workshop on Algorithmic Foundations of Robotics (WAFR)

INVITED TALKS AND PANELS

1. **Invited Talk**, *Understanding and Optimizing Physical Interactions in the Wild*, Amazon Robotics Research Symposium, October 25, 2024.
2. **Invited Talk**, *Representation Learning to Interact with an Uncertain World*. IROS 2024 Workshop on Mobile Manipulation and Embodied Intelligence, October 14, 2024.
3. **Invited Talk**, *Robot Systems Engineering... in the Modern Learning Era*. Amazon Robotics, June 13, 2024.
4. **Invited Talk**, *Robot Systems Engineering... in the Modern Learning Era*. Toyota Research Institute, June 12, 2024.
5. **Invited Talk**, *Robot Systems Engineering... in the Modern Learning Era*. Mitsubishi Electric Research Lab, June 11, 2024.

6. **Invited Talk**, *Toward Open-World Robotics*. Yale Mechanical Engineering Seminar Series. September 27, 2023.
7. **Invited Talk**, *Toward Open-World Robotics*. Contextual Robotics Institute Seminar, University of California San Diego. February 9, 2023.
8. **Invited Talk**, *Toward Open World AI for Autonomy*. National Science Foundation (NSF) Summit of AI Leadership, December 13, 2022.
9. **Invited Talk**, *Toward Open-World Robotics*. University of Michigan Robotics Seminar. December 1, 2022.
10. **Invited Talk**, *Toward Open-World Robotics*. University of Wisconsin, Madison Robotics Seminar. October 5, 2022.
11. **Invited Talk**, *Toward Semi-Autonomous Operation of Clinical Support Robots*. IEEE Standards Association for Healthcare and Life Sciences Webinar: Clinical Support Robots for the Aging: The Human Design Factors, Utility and Functionality. Sept 14, 2022.
12. **Invited Talk**, *Toward Fully-Automated Learning of Model Predictive Control*. IROS 2021 Workshop on Combining Learning and Motion Planning. Sept 27, 2021.
13. **Invited Talk**, *Toward No-Touch Robotic Nursing and Routine Medical Care*. ICRA 2021 No-Touch Care for Pandemics Workshop. May 27, 2021.
14. **Invited Talk**, *Robotics in Medicine: On the Near Horizon*. Ohio State University Symposium on Robotics Engineered for the Future of Healthcare. April 9, 2021.
15. **Invited Talk, Panelist**, *Opportunities for Robotics in Infectious Disease Response*. U.S. Chamber of Commerce Foundation 9th Annual Building Resilience Through Private-Public Partnerships Conference, July 16, 2020.
16. **Plenary Panel**, *Covid-19: How Can Roboticists Help?* IEEE International Conference on Robotics and Automation, May 25, 2020.
17. **Invited Talk**, *Toward Real-time Globally Optimal Motion Planning*. Google Robotics, Mountain View, CA. Dec 20, 2019.
18. **Invited Talk**, *Robot Motion Planning: From Algorithms to Systems*. Ohio State University Mechanical Engineering Department Seminar, November 1, 2019
19. **Invited Talk**, *Real2sim: Generalizable Learning to Simulate Complex Contact Phenomena*. RSS 2019 Workshop on Closing the Reality Gap in Sim2real Transfer for Robotic Manipulation. June 23, 2019.
20. **Invited Talk**, *Real-time Optimization for Humanoid Fall Protection*. RSS 2019 Workshop on Numerical Optimization for Online Multi-Contact Motion Planning and Control. June 22, 2019.
21. **Invited Talk**, *Toward Real-time Globally Optimal Motion Planning*. Waymo LLC, Mountain View, CA. June 18, 2019.
22. **Invited Talk**, *Engineering the Robot-operator Interface: Lessons from the TRINA Tele-nursing Project*. ICRA 2019 Workshop on Human-Robot Teaming Beyond Human Operational Speeds. May 23, 2019.
23. **Invited Talk**, *Learning from Optimal Trajectory Databases for Control of Nonlinear Systems*. ICRA 2019 Workshop on Optimal Planning and Control fusing Offline and Online Algorithms. May 23, 2019.
24. **Invited Talk**, *Exploiting Inter-problem Structure in Motion Planning and Control*. Massachusetts Institute of Technology. May 7, 2019.
25. **Invited Talk**, *Optimized Robotic Packing for Automated Warehouses*. Amazon Inc., Seattle WA. April 23, 2019.
26. **Invited Talk**, *Simulation and Planning for Complex Robot-object Interactions*. Vanderbilt University, Nashville TN. December 2, 2018.
27. **Invited Talk**, *The Space of Spaces: Understanding the Structure Between Motion Planning Problems*. University of Washington, Seattle WA. February 23, 2018.
28. **Invited Talk**, *Toward Data-driven Contact Mechanics*. IROS 2017 Workshop on Frontiers in Contact-Rich Robotic Manipulation: Modeling, Optimization, and Contact Synthesis. Vancouver, Canada. September 28, 2017.
29. **Invited Talk**, *Optimizing and Learning from Many Primitives for Dynamic Control*. IROS 2017 Workshop on Planning Legged and Aerial Locomotion with Dynamic Motion Primitives. Vancouver, Canada. September 24, 2017.
30. **Invited Talk**, *Beyond Geometric Path Planning: Paradigms and Algorithms for Modern Robotics*. Osaka University, Osaka, Japan, August 2, 2017.
31. **Invited Talk**, *Can we quantify the hardness of learning manipulation?* RSS 2017 Workshop on (Empirically) Data-Driven Manipulation, July 16, 2017.
32. **Invited Talk**, *Beyond Geometric Path Planning: Paradigms and Algorithms for Modern Robotics*. Robotics Institute Seminar, Carnegie Mellon University, Pittsburg PA, February 3, 2017.

33. **Invited Talk**, *Beyond Geometric Path Planning: Paradigms and Algorithms for Modern Robotics*. Institute for Robotics and Intelligent Machines Seminar, Georgia Tech, Atlanta GA, September 28, 2016.
34. **Invited Talk**, *Cooperative motion planning for human-operated robots*, RSS 2016 Workshop on Planning for Human Robot Interaction, Ann Arbor MI, June 18, 2016.
35. **Invited Talk**, *The nuances of hybrid structure in task and motion planning*, RSS 2016 Workshop on Task and Motion Planning, Ann Arbor MI, June 19, 2016.
36. **Invited Talk**, *Reliable Physics Simulation of Underactuated Compliant Hands for Manipulation Skill Learning*, RSS 2016 Workshop on Bootstrapping Manipulation Skills, Ann Arbor MI, June 19, 2016.
37. **Invited Talk**, *Robust Trajectory Optimization Under Frictional Contact with Iterative Learning*, ICRA 2016 Workshop on Robust Optimization-based Control and Planning for Legged Robots, May 16, 2016.
38. **Invited Talk**, *Motion Planning for Real World Robots*, Massachusetts Institute of Technology, Boston MA, March 1, 2016.
39. **Invited Talk**, *Motion Planning for Real-World Robots*, Ewha Women's University, Seoul, Korea, November 6, 2015.
40. **Invited Talk**, *Motion Planning for Real-World Robots*, Robotics Jam Session, Italian Institute of Technology, Pisa, Italy, July 21, 2015.
41. **Invited Talk**, *Planning for Manipulation and Locomotion is Unified. Why not control? RSS 2015 Workshop on Unifying Whole-Body and Manipulation Control*, Rome, Italy, July 17, 2015.
42. **Invited Talk**, *Performance Bottlenecks for Optimal Motion Planning*. ICRA 2015 Workshop on Optimal Robot Motion Planning, Seattle WA, May 30, 2015.
43. **Invited Talk**, *Exploiting Task and Constraint Structure in Motion Planning*. ICRA 2015 Workshop on Beyond Geometric Constraints: Planning for Solving Complex Tasks, Reducing Uncertainty, and Generating Informative Paths & Policies, Seattle WA, May 30, 2015.
44. **Invited Talk**, *Motion Planning for Real-World Robots*, GRASP Seminar Series, University of Pennsylvania, Nov 14, 2014
45. **Invited Talk**, *Practical Robot Motion Planning*, New Faculty Lecture Series, Duke University, Nov 12, 2014.
46. **Invited Talk**, *Robust Contact Generation for Robot Simulation with Unstructured Meshes*, Institute for Human and Machine Cognition, Pensacola, FL, Oct 1, 2014.
47. **Invited Talk**, *Cooperative Motion Planning for Safe Human-Controlled Robots*, IROS 2014 Workshop on Constraint-Based Motion Generation, Chicago, IL, September 18, 2014.
48. **Invited Talk** (with Drew Simshaw), *Cloud Robotics, Data Security and Privacy*. Santa Clara American Bar Association, Silicon Valley Law Group, San Jose, CA, August 27, 2014.
49. **Invited Talk**, *Team DRC-Hubo: a DRC Trials Postmortem*. RSS Workshop on the DARPA Robotics Challenge, July 12, 2014.
50. **Invited Talk**, *Healthcare in the Age of Intelligent Machines*. Cook Medical Executive Luncheon, February 12, 2014.
51. **Invited Talk**, *User Intent Identification for Intelligent Robot Teleoperation via Hybrid Time Series Modeling*. Statistics Seminar, Indiana University, September 9, 2013.
52. **Invited Talk**, *Robot Motion Planning for Unstructured, Dynamic, and Human Environments*. ITEE Research Seminar, University of Queensland School of Information Technology and Electrical Engineering, July 20, 2012.
53. **Invited Talk**, *Automatic Crash Prevention in the Dynamic, Uncertain Driving Environment*. Delphi Electronics & Safety, Kokomo, IN, June 6, 2012.
54. **Invited Talk**, *Robot Motion Planning for Unstructured, Dynamic, and Human Environments*. Electrical Engineering Department Colloquium, University of California at Riverside, May 7, 2012.
55. **Invited Talk**, *Automatic Crash Prevention in the Dynamic, Uncertain Driving Environment*. Transportation Active Safety Institute, Indiana University / Purdue University at Indianapolis, April 20, 2012.
56. **Invited Talk**, *Robotics at Indiana University: Algorithms for Robot Planning and Control*. Rose-Hulman Institute of Technology, December 9, 2011.
57. **Invited Talk**, *Probabilistically Complete Motion Planning for Problems with Discrete Tasks, Hybrid Dynamics, and Real-Time Constraints*. Center for the Foundations of Robotics, Carnegie Mellon University, December 6, 2011.
58. **Invited Talk**, *Motion Planning for Dynamic Human-Robot Systems*. Graduate Seminar, Computer Science Department, University of North Carolina at Charlotte, December 2, 2011.
59. **Invited Talk**, *Motion Planning for Dynamic Human-Robot Systems*. Graduate Seminar, Computer Science Department, University of North Carolina at Chapel Hill, December 1, 2011.

60. **Invited Talk**, *Motion Planning for Dynamic Human-Robot Systems*. Distributed Intelligence Laboratory, University of Tennessee at Knoxville, November 30, 2011.
61. **Invited Talk**, *Real-Time Motion Planning for Dynamic Human-Robot Systems*. Computer Science Department Seminar, Indiana University / Purdue University at Indianapolis, September 2011.
62. **Panelist**. Intl. Workshop on Collaborative Robots and Human-Robot Interaction. Philadelphia, USA, May 2011.
63. **Panelist**, *Symposium on Animal Cognition*. Center for Integrative Study of Animal Behavior, Indiana University, April 2011.
64. **Invited Talk**, *Motion Planning and Control: Handling Contacts, Symbolic Tasks, and Uncertainty*. Transportation Active Safety Institute, Indiana University / Purdue University at Indianapolis, October 2010.
65. **Invited Talk**, *Motion Planning: Overcoming the Limits of Uncertainty*. Robotics and Embedded Systems Lab, University of Southern California, August 2010.
66. **Invited Talk**, *Motion Planning for Robotic and Biological Systems: Handling Contacts, Symbolic Tasks, and Uncertainty*. PRECISE Lab, Purdue University, August 2010.
67. **Invited Talk**, *Algorithmic Challenges in Assistive Robotic Manipulation*. Robotics Seminar, University of Illinois at Urbana Champaign, April 2010.
68. **Invited Talk**, *The Motion Space Complexity Hypothesis and its effects on planning, control, and learning*. Cognitive Lunch, Indiana University, November 2009.
69. **Invited Talk**, *Belief-Optimal Reasoning for Cyber-Physical Systems*. Palo Alto Research Center (PARC), Palo Alto, CA, July 2009.
70. **Invited Talk**, *Theory, Practice, and Principles for Probabilistic Roadmap Motion Planning*. Willow Garage, Menlo Park, CA, July 2009.
71. **Invited Talk**, *Feedback Control for Steering Needles in 3D Deformable Tissue*. Workshop on Advanced Sensing and Sensor Integration in Medical Robotics, IEEE Intl. Conf on Robotics and Automation (ICRA), Kobe, Japan, May 2009.
72. **Invited Talk**, *Robots in Surgery: Steerable Needles and Motion Planning*. Robotics Seminar, UC Berkeley, CA, April 2009.
73. **Invited Presenter**, *Numerical Methods in Motion Planning for Legged Robots*. Intl. Conference on Applications of Computer Algebra, Rochester, MI, July 2007.

STUDENT MENTORING

Jingru Luo (IU CS PhD 2015). Now at Bosch USA.
 Yajia Zhang (IU CS MS 2011, CS PhD 2015). Now at Cruise, LLC.
 Fan Wang (Duke ECE PhD 2020). Now at Amazon Robotics.
 Shihao Wang (Duke ME PhD 2020). Now at WeRide.ai.
 Gao Tang (UIUC CS PhD 2021). Now at Waymo, LLC.
 Yifan Zhu (UIUC CS PhD 2023). Now at Yale University.
 Mengchao Zhang (UIUC MechSE PhD 2024). Now at Toyota Research Institute.
 Joao Marcos Correia Marques (UIUC CS PhD 2025). Now at Amazon Robotics.
 Patrick Naughton (Expected UIUC CS PhD 2025). Now at Apple.
 Erkang You (IU CS MS 2011). Now at Facebook.
 Jeffrey Kane Johnson (IU CS MS 2011). Now at Maeve Automation.
 Tanzhen Li (UIUC CS MS 2021)
 Yeonju Kim (UIUC CS MS 2021). Now at NCSOFT.
 Harsh Agarwal (UIUC ECE MS 2021)
 Yu Zhou (UIUC ECE MS 2022). Now at Nvidia.
 William Edwards (UIUC CS MS 2022)
 Dohun Jeong (UIUC ECE MS 2023). Now at Aurora Flight Sciences.
 Rizhao (Roger) Qiu (UIUC CS BS 2021; UIUC CS MS 2023). Now at UCSD.
 Shubham Kedia (UIUC CS MS 2023). Now at Unknot.id
 Jing-Chen Peng (UIUC CS MS 2024)
 Anna Eilering (IU CS BS 2014). Now at Google.
 Jordan Tritell (IU CS BS 2014). Now at Niantic, Inc.
 Carrina Dong (Duke ME BS 2016). Now at Tesla.
 Marion Matthews (Duke ME BS 2016). Now at Google.

Yilun Zhou (Duke ECE/CS BS 2017). Now at MIT.
Wuming Zhang (Duke CS BS 2018). Now at Nuro.
Hayden Bader (Duke ECE MS 2019). Now at Epic.
Weidong Sun (Duke ECE MS 2019). Now at XYZ Robotics.
Tracy Lu (Duke ME BS 2019). Now at CalTech.
Keshav Shivam (UIUC CS BS 2020)
Alvin Sun (UIUC CS BS 2021). Now at Stanford.
Nathan Chow (UIUC ECE BS 2023). Now at CMU.
Andrew Stratton (UIUC CS BS 2023). Now at University of Michigan.

Shaoxiong Yao (Expected UIUC CS PhD 2026)
Alexander Smith (Expected UIUC CS PhD 2027)
Rachel Moan (Expected UIUC CS PhD 2027)
Simon Kato (Expected UIUC CS PhD 2027)
Wei-Cheng Huang (Expected UIUC CS PhD 2028)
Jiaheng Han (Expected UIUC CS PhD 2029)

POSTDOC MENTORING

Zhi (Jane) Li. Now at Worcester Polytechnic Institute.
Oscar Ramos Ponce. Now at Universidad de Ingeniería y Tecnología, Peru.
Zherong Pan. Now at Tencent.