David Held

dheld@andrew.cmu.edu · http://www.cs.cmu.edu/~dheld

Employment

- **Carnegie Mellon University, Robotics Institute**: Associate Professor (2023–Present)
- **Carnegie Mellon University, Robotics Institute**: Assistant Professor (2017–2023)
- **U.C. Berkeley**: Post-doctoral Researcher (2016–2017)

Education

- **Stanford University**: Ph.D., Computer Science (2012–2016)
- **Stanford University**: M.S., Computer Science (2010–2012)
- **Massachusetts Institute of Technology**: M.S., Mechanical Engineering (2006–2007)
- **Massachusetts Institute of Technology**: B.S., Mechanical Engineering (2001–2005)

Publications

Journal Publications

[1] Pranay Gupta, Abhijat Biswas, Henny Admoni, and David Held. "Object Importance Estimation using Counterfactual Reasoning for Intelligent Driving". In: *IEEE Robotics and Automation Letters (RAL)* (**2024 (NEW)**).

[2] Alberta Longhini, Yufei Wang, Irene Garcia-Camacho, David Blanco-Mulero, Marco Moletta, Michael Welle, Guillem Alenyà, Hang Yin, Zackory Erickson, David Held, Júlia Borràs, and Danica Kragic. "Unfolding the Literature: A Review of Robotic Cloth Manipulation". In: *Annual Review of Control, Robotics, and Autonomous Systems* (**2024 (NEW)**).

[3] Siddharth Ancha, Gaurav Pathak, Ji Zhang, Srinivasa Narasimhan, and David Held. "Active Velocity Estimation using Light Curtains via Self-Supervised Multi-Armed Bandits". In: *Autonomous Robotics* (**2024 (NEW)**).

[4] Zhanyi Sun, Yufei Wang, David Held, and Zackory Erickson. "Force Constrained Visual Policy: Safe Robot-Assisted Dressing via Multi-Modal Sensing". In: *Robotics and Automation Letters (RAL)* (**2024 (NEW)**). * indicates equal contribution.

[5] Y. Wang, David Held, and Zackory Erickson. "Visual Haptic Reasoning: Estimating Contact Forces by Observing Deformable Object Interactions". In: *Robotics and Automation Letters (RA-L)* (2022). Presented at the International Conference on Intelligent Robots and Systems (IROS).

[6] C. Qi, X. Lin, and David Held. "Learning Closed-loop Dough Manipulation using a Differentiable Reset Module". In: *Robotics and Automation Letters (RA-L)* (2022). Presented at the International Conference on Intelligent Robots and Systems (IROS).

[7] Q. Gu, B. Okorn, and David Held. "OSSID: Online Self-Supervised Instance Detection by (and for) Pose Estimation". In: *Robotics and Automation Letters (RA-L)* (2022). Presented at the International Conference of Robotics and Automation (ICRA).

[8] T. Weng, A. Pallankize, Y. Tang, O. Kroemer, and David Held. "Multi-modal Transfer Learning for Grasping Transparent and Specular Objects". In: *Robotics and Automation Letters (RA-L)* (2020). Presented at the International Conference of Robotics and Automation (ICRA).

[9] P. Hu, David Held, and D. Ramanan. "Learning to Optimally Segment Point Clouds". In: *Robotics and Automation Letters (RA-L)* (2020). Presented at the International Conference of Robotics and Automation (ICRA).

[10] David Held, J. Levinson, S. Thrun, and S. Savarese. "Robust Real-Time Tracking Combining 3D Shape, Color, and Motion". In: *International Journal of Robotics Research (IJRR)* (2016).

[11] L.A. Jones and David Held. "Characterization of Tactors Used in Vibrotactile Displays". In: *Journal of Computing and Information Sciences in Engineering* (2008).

Conference Publications

[13] Divyam Goel, Yufei Wang, Tiancheng Wu, Helen Qiao, Pavel Piliptchak, David Held, and Zackory Erickson. "Geometric Red-Teaming for Robotic Manipulation". In: *Proceedings of the Conference on Robot Learning (CoRL)*. Oral Presentation, Selection rate 5.7%. **2025 (NEW)**.

[14] Yishu Li, Xinyi Mao, Ying Yuan, Kyutae Sim, Ben Eisner, and David Held. "Learn from What We HAVE: History-Aware VErifier that Reasons about Past Interactions Online". In: *Proceedings of the Conference on Robot Learning (CoRL)*. **2025 (NEW)**.

[15] Kallol Saha, Amber Li, Angela Rodriguez-Izquierdo, Lifan Yu, Ben Eisner, Maxim Likhachev, and David Held. "Planning from Point Clouds over Continuous Actions for Multi-object Rearrangement". In: *Proceedings of the Conference on Robot Learning (CoRL)*. Oral Presentation, Selection rate 5.7%. **2025 (NEW)**.

[16] Alexis Yihong Hao, Yufei Wang, Navin Sriram Ravie, Bharath Hegde, David Held, and Zackory Erickson. "Multi-Modal Fine-Tuning for Robot-Assisted Dressing with Arm Motions". In: *Proceedings of the Conference on Robot Learning (CoRL)*. **2025 (NEW)**.

[17] Yufei Wang, Ziyu Wang, Mino Nakura, Pratik Bhowal, Chia-Liang Kuo, Yi-Ting Chen, Zackory Erickson, and David Held. "ArticuBot: Learning Universal Articulated Object Manipulation Policy via Large Scale Simulation". In: *Proceedings of Robotics: Science and Systems (RSS)*. **2025 (NEW)**.

[18] M Nomaan Qureshi, Sparsh Garg, Francisco Yandun, David Held, George Kantor, and Abhisesh Silwal. "SplatSim: Zero-Shot Sim2Real Transfer of RGB Manipulation Policies Using Gaussian Splatting". In: *IEEE International Conference on Robotics and Automation (ICRA)*. **2025 (NEW)**.

[19] Weikang Wan, Ziyu Wang, Yufei Wang, Zackory Erickson, and David Held. "DiffTOP: Differentiable Trajectory Optimization for Deep Reinforcement and Imitation Learning". In: *Advances in Neural Information Processing Systems (NeurIPS)*. Spotlight Presentation. **2024 (NEW)**.

[20] Eric Cai, Octavian Donca, Ben Eisner, and David Held. "Non-rigid Relative Placement through 3D Dense Diffusion". In: *Conference on Robot Learning (CoRL)*. **2024 (NEW)**.

[21] Yishu Li, Wen Hui Leng, Yiming Fang, Ben Eisner, and David Held. "FlowBotHD: History-Aware Diffuser Handling Ambiguities in Articulated Objects Manipulation". In: *Conference on Robot Learning (CoRL)*. **2024 (NEW)**.

[22] Abhijat Biswas, Pranay Gupta, Shreeya Khurana, David Held, and Henny Admoni. "Modeling Drivers' Situational Awareness from Eye Gaze for Driving Assistance". In: *Conference on Robot Learning (CoRL)*. **2024 (NEW)**.

[23] Xialin He, Chengjing Yuan, Wenxuan Zhou, Ruihan Yang, David Held, and Xiaolong Wang. "Visual Manipulation with Legs". In: *Conference on Robot Learning (CoRL)*. **2024 (NEW)**.

[24] Carl Qi, Yilin Wu, Lifan Yu, Haoyue Liu, Bowen Jiang, Xingyu Lin, and David Held. "Learning Generalizable Tool-use Skills through Trajectory Generation". In: *International Conference on Intelligent Robots and Systems (IROS)*. **2024 (NEW)**.

[25] Bowen Jiang, Yilin Wu, Wenxuan Zhou, Chris Paxton, and David Held. "HACMan++: Spatially-Grounded Motion Primitives for Manipulation". In: *Robotics: Science and Systems (RSS)*. **2024 (NEW)**.

[26] Yufei Wang, Zhou Xian, Feng Chen, Tsun-Hsuan Wang, Yian Wang, Katerina Fragkiadaki, Zackory Erickson, David Held, and Chuang Gan. "RoboGen: Towards Unleashing Infinite Data for Automated Robot Learning via Generative Simulation". In: *International Conference on Machine Learning (ICML)*. **2024 (NEW)**.

[27] Yufei Wang, Zhanyi Sun, Jesse Zhang, Zhou Xian, Erdem Bıyık, David Held, and Zackory Erickson. "RL-VLM-F: Reinforcement Learning from Vision Language Foundation Model Feedback". In: *International Conference on Machine Learning (ICML)*. **2024 (NEW)**.

[28] Ben Eisner, Yi Yang, Todor Davchev, Mel Vecerik, Jonathan Scholz, and David Held. "Deep SE(3)-Equivariant Geometric Reasoning for Precise Placement Tasks". In: *International Conference on Learning Representations (ICLR)*. **2024 (NEW)**.

[29] Fan Yang, Wenxuan Zhou, Zuxin Liu, Ding Zhao, and David Held. "Reinforcement Learning in a Safety-Embedded MDP with Trajectory Optimization". In: *International Conference on Robotics and Automation (ICRA)*. **2024 (NEW)**.

[30] Jenny Wang, Octavian Donca, and David Held. "Learning Distributional Demonstration Spaces for Task-Specific Cross-Pose Estimation". In: *International Conference on Robotics and Automation (ICRA)*. **2024 (NEW)**.

[31] Harry Zhang, Ben Eisner, and David Held. "FlowBot++: Learning Generalized Articulated Objects Manipulation via Articulation Projections". In: *Robotics: Science and Systems (RSS)*. 2023.

[32] Wenxuan Zhou, Bowen Jiang, Fan Yang, Chris Paxton, and David Held. "HACMan: Learning Hybrid Actor-Critic Maps for 6D Non-Prehensile Manipulation". In: *Conference on Robot Learning (CoRL)*. Oral Presentation (Selection rate 6.6%). 2023.

[33] Lawrence Yunliang Chen, Baiyu Shi, Roy Lin, Daniel Seita, Ayah Ahmad, Richard Cheng, Thomas Kollar, David Held, and Ken Goldberg. "Bagging by Learning to Singulate Layers Using Interactive Perception". In: *International Conference on Intelligent Robots and Systems (IROS)*. 2023.

[34] Yufei Wang, Zhanyi Sun, Zackory Erickson, and David Held. "One Policy to Dress Them All: Learning to Dress People with Diverse Poses and Garments". In: *Robotics: Science and Systems (RSS)*. 2023.

[35] Siddharth Ancha, Gaurav Pathak, Ji Zhang, Srinivasa Narasimhan, and David Held. "Active Velocity Estimation using Light Curtains via Self-Supervised Multi-Armed Bandits". In: *Robotics: Science and Systems (RSS)*. 2023.

[36] Tarasha Khurana, Peiyun Hu, David Held, and Deva Ramanan. "Point Cloud Forecasting as a Proxy for 4D Occupancy Forecasting". In: *Conference on Computer Vision and Pattern Recognition (CVPR)*. 2023.

[37] Alberta Longhini, Marco Moletta, Alfredo Reichlin, Michael C. Welle, Alexander Kravberg, Yufei Wang, David Held, Zackory Erickson, and Danica Kragic. "Elastic Context: Encoding Elasticity for Data-driven Models of Textiles". In: *International Conference on Robotics and Automation (ICRA)*. 2023.

[38] Alberta Longhini, Marco Moletta, Alfredo Reichlin, Michael C. Welle, David Held, Zackory Erickson, and Danica Kragic. "EDO-Net: Learning Elastic Properties of Deformable Objects from Graph Dynamics". In: *International Conference on Robotics and Automation (ICRA)*. 2023.

[39] Zixuan Huang, Xingyu Lin, and David Held. "Self-supervised Cloth Reconstruction via Action-conditioned Cloth Tracking". In: *International Conference on Robotics and Automation (ICRA)*. 2023.

[40] Thomas Weng, David Held, Franziska Meier, and Mustafa Mukadam. "Neural Grasp Distance Fields for Robot Manipulation". In: *International Conference on Robotics and Automation (ICRA)*. 2023.

[41] L. Chen, B. Shi, D. Seita, R. Cheng, T. Kollar, David Held, and K. Goldberg. "AutoBag: Learning to Open Plastic Bags and Insert Objects". In: *International Conference on Robotics and Automation (ICRA)*. 2023.

[42] Wenxuan Zhou and David Held. "Learning to Grasp the Ungraspable with Emergent Extrinsic Dexterity". In: *Conference on Robot Learning (CoRL)*. Oral Presentation (Selection rate 6.5%). 2022.

[43] C. Pan, B. Okorn, H. Zhang, B. Eisner, and David Held. "TAX-Pose: Task-Specific Cross-Pose Estimation for Robot Manipulation". In: *Conference on Robot Learning (CoRL)*. 2022.

[44] D. Seita, Y. Wang, S. Shetty, E. Li, Zackory Erickson, and David Held. "ToolFlowNet: Robotic Manipulation with Tools via Predicting Tool Flow from Point Clouds". In: *Conference on Robot Learning (CoRL)*. 2022.

[45] X. Lin, H. Qi, Y. Zhang, Z. Huang, K. Fragkiadaki, Y. Li, C. Gan, and David Held. "Planning with Spatial-Temporal Abstraction from Point Clouds for Deformable Object Manipulation". In: *Conference on Robot Learning (CoRL)*. 2022.

[46] B. Okorn, C. Pan, M. Hebert, and David Held. "Deep Projective Rotation Estimation through Relative Supervision". In: *Conference on Robot Learning (CoRL)*. 2022.

[47] T. Khurana, P. Hu, A. Dave, J. Ziglar, David Held, and D. Ramanan. "Differentiable Raycasting for Self-supervised Occupancy Forecasting". In: *European Conference on Computer Vision (ECCV)*. 2022.

[48] S. Tirumala, T. Weng, D. Seita, O. Kroemer, Z. Temel, and David Held. "Learning to Singulate Layers of Cloth based on Tactile Feedback". In: *International Conference on Intelligent Robots and Systems (IROS)*. 2022.

[49] B. Eisner, H. Zhang, and David Held. "FlowBot3D: Learning 3D Articulation Flow to Manipulate Articulated Objects". In: *Robotics: Science and Systems (RSS)*. Best paper finalist. 2022.

[50] Z. Huang, X. Lin, and David Held. "Mesh-based Dynamics with Occlusion Reasoning for Cloth Manipulation". In: *Robotics: Science and Systems (RSS)*. 2022.

[51] X. Lin, Z. Huang, Y. Li, J. Tenenbaum, David Held, and C. Gan. "DiffSkill: Skill Abstraction from Differentiable Physics for Deformable Object Manipulations with Tools". In: *International Conference on Learning Representations (ICLR)*. 2022.

[52] G. Narasimhan, K. Zhang, B. Eisner, X. Lin, and David Held. "Transparent Liquid Segmentation for Robotic Pouring". In: *International Conference of Robotics and Automation (ICRA)*. 2022.

[53] H. Mittal, B. Okorn, A. Jangid, and David Held. "Self-Supervised Point Cloud Completion via Inpainting". In: *British Machine Vision Conference (BMVC)*. Oral presentation (Selection rate 3.3%). 2021.

[54] S. Dasari, J. Wang, J. Hong, S. Bahl, Y. Lin, A. Wang, A. Thankaraj, K. Chahal, B. Calli, S. Gupta, David Held, L. Pinto, D. Pathak, V. Kumar, and A. Gupta. "RB2: Robotic Manipulation Benchmarking with a Twist". In: *NeurIPS Datasets and Benchmarks Track*. 2021.

[55] J. Wang, H. Gang, S. Ancha, Y.T. Chen, and David Held. "Semi-supervised 3D Object Detection via Temporal Graph Neural Networks". In: *International Conference on 3D Vision (3DV)*. 2021.

[56] X. Lin, Y. Wang, Z. Huang, and David Held. "Learning Visible Connectivity Dynamics for Cloth Smoothing". In: *Conference on Robot Learning (CoRL)*. 2021.

[57] T. Weng, S. Bajracharya, Y. Wang, and David Held. "FabricFlowNet: Bimanual Cloth Manipulation with a Flow-based Policy". In: *Conference on Robot Learning (CoRL)*. 2021.

[58] H. Sikchi, W. Zhou, and David Held. "Learning Off-policy for Online Planning". In: *Conference on Robot Learning (CoRL)*. Oral presentation (Selection rate 6.5%), Best Paper Finalist. 2021.

[59] S. Ancha, G. Pathak, S. Narasimhan, and David Held. "Active Safety Envelopes using Light Curtains with Probabilistic Guarantees". In: *Robotics: Science and Systems (RSS)*. 2021.

[60] B. Okorn, Q. Gu, M. Hebert, and David Held. "ZePHyR: Zero-shot Pose Hypothesis Rating". In: *International Conference of Robotics and Automation (ICRA)*. 2021.

[61] Y. Raaj, S. Ancha, R. Tamburo, David Held, and S. Narasimhan. "Exploiting & Refining Depth Distributions with Triangulation Light Curtains". In: *Conference on Computer Vision and Pattern Recognition (CVPR)*. 2021.

[62] P. Hu, A. Huang, J. Dolan, David Held, and D. Ramanan. "Safe Local Motion Planning with Self-Supervised Freespace Forecasting". In: *Conference on Computer Vision and Pattern Recognition (CVPR)*. 2021.

[63] X. Lin, Y. Wang, J. Okin, and David Held. "SoftGym: Benchmarking Deep Reinforcement Learning for Deformable Object Manipulation". In: *Conference on Robot Learning (CoRL)*. 2020.

[64] Y. Wang, G. Narasimhan, X. Lin, B. Okorn, and David Held. "Visual Self-Supervised Reinforcement Learning with Object Reasoning". In: *Conference on Robot Learning (CoRL)*. 2020.

[65] W. Zhou, S. Bajracharya, and David Held. "PLAS: Latent Action Space for Offline Reinforcement Learning". In: *Conference on Robot Learning (CoRL)*. Plenary talk (Selection rate 4.1%). 2020.

[66] S. Ancha, Y. Raaj, P. Hu, S. Narasimhan, and David Held. "Active 3D Perception using Light Curtains". In: *European Conference on Computer Vision (ECCV)*. Spotlight (Selection rate 5.3%). 2020.

[67] J. Qian, T. Weng, L. Zhang, B. Okorn, and David Held. "Cloth Region Segmentation for Robust Grasp Selection". In: *International Conference on Intelligent Robots and Systems (IROS)*. 2020.

[68] J. Wang, S. Ancha, Y. Chen, and David Held. "Self-supervised Learning for 3D Data Association". In: *International Conference on Intelligent Robots and Systems (IROS)*. 2020.

[69] B. Okorn, M. Xu, M. Hebert, and David Held. "Learning Orientation Distributions for Object Pose Estimation". In: *International Conference on Intelligent Robots and Systems (IROS)*. 2020.

[70] X. Weng, J. Wang, David Held, and K. Kitani. "3D Multi-Object Tracking: A Baseline and New Evaluation Metrics". In: *International Conference on Intelligent Robots and Systems (IROS)*. 2020.

[71] H. Mittal, B. Okorn, and David Held. "Just Go with the Flow: Self-Supervised Scene Flow Estimation". In: *Conference on Computer Vision and Pattern Recognition (CVPR)*. Oral (Selection rate 5.7%). 2020.

[72] P. Hu, J. Ziglar, David Held, and D. Ramanan. "What You See is What You Get: Exploiting Visibility for 3D Object Detection". In: *Conference on Computer Vision and Pattern Recognition (CVPR)*. Oral (Selection rate 5.7%). 2020.

[73] S. Ancha, J. Lin, and David Held. "Combining Deep Learning and Verification for Precise Object Instance Detection". In: *Conference on Robot Learning (CoRL)*. 2019.

[74] X. Lin, H. Baweja, G. Kantor, and David Held. "Adaptive Auxiliary Task Weighting for Reinforcement Learning". In: *NeurIPS*. 2019.

[75] X. Lin, P. Guo, C. Florensa, and David Held. "Adaptive Variance for Changing Sparse-Reward Environments". In: *International Conference on Robotics and Automation (ICRA)*. 2019.

[76] W. Yuan, T. Khot, David Held, C. Mertz, and M. Hebert. "PCN: Point Completion Network". In: *International Conference on 3D Vision (3DV)*. Best Paper Honorable Mention. 2018.

[77] C. Florensa, David Held, X. Geng, and P. Abbeel. "Automatic Goal Generation for Reinforcement Learning Agents". In: *International Conference on Machine Learning (ICML)*. 2018.

[78] S. Huang, David Held, P. Abbeel, and A. Dragan. "Enabling Robots to Communicate their Objectives". In: *Autonomous Robotics (AURO)*. 2018.

[79] C. Florensa, David Held, M. Wulfmeier, and P. Abbeel. "Reverse Curriculum Generation for Reinforcement Learning". In: *Conference on Robot Learning (CoRL)*. 2017.

[80] I. Clavera, David Held, and P. Abbeel. "Policy Transfer via Modularity". In: *International Conference on Intelligent Robots and Systems (IROS)*. 2017.

[81] J. Achiam, David Held, A. Tamar, and P. Abbeel. "Constrained Policy Optimization". In: *International Conference on Machine Learning (ICML)*. 2017.

[82] S. H. Huang, David Held, P. Abbeel, and A. D. Dragan. "Enabling Robots to Communicate their Objectives". In: *Robotics: Science and Systems (RSS)*. 2017.

[83] David Held, Z. McCarthy, M. Zhang, F. Shentu, and P. Abbeel. "Probabilistically Safe Policy Transfer". In: *International Conference on Robotics and Automation (ICRA)*. 2017.

[84] David Held, S. Thrun, and S. Savarese. "Learning to Track at 100 FPS with Deep Regression Networks". In: *European Conference on Computer Vision (ECCV)*. 2016.

[85] David Held, D. Guillory, B. Rebsamen, S. Thrun, and S. Savarese. "A Probabilistic Framework for Real-time 3D Segmentation using Spatial, Temporal, and Semantic Cues". In: *Robotics: Science and Systems (RSS)*. 2016.

[86] David Held, S. Thrun, and S. Savarese. "Robust Single-View Instance Recognition". In: *International Conference of Robotics and Automation (ICRA)*. 2016.

[87] David Held, J. Levinson, S. Thrun, and S. Savarese. "Combining 3D Shape, Color, and Motion for Robust Anytime Tracking". In: *Robotics: Science and Systems (RSS)*. 2014.

[88] David Held, J. Levinson, and S. Thrun. "Precision Tracking with Sparse 3D and Dense Color 2D Data". In: *International Conference of Robotics and Automation (ICRA)*. Best Vision Paper Finalist. 2013.

[89] David Held, J. Levinson, and S. Thrun. "A Probabilistic Framework for Car Detection in Images using Context and Scale". In: *International Conference of Robotics and Automation (ICRA)*. 2012.

[90] David Held, Y. Yekutieli, and T. Flash. "Characterizing Stiffness of Multi-Segment Flexible Arm Movements". In: *International Conference of Robotics and Automation (ICRA)*. 2012.

[91] L.A. Jones, David Held, and I. Hunter. "Surface Waves and Spatial Localization in Vibrotactile Displays". In: *IEEE Haptics Symposium*. 2010.

[92] Z. Jin, S. Waydo, E.B. Wildanger, M. Lammers, H. Scholze, P. Foley, David Held, and R.M. Murray. "MVWT-II: The Second Generation Caltech Multi-Vehicle Wireless Testbed". In: *American Control Conference (ACC)*. 2004.

Research & Industry Experience

- **U.C. Berkeley Robot Learning Lab**: Post-doctoral Researcher (2016–2017). Developed deep reinforcement learning algorithms for object manipulation.
- **Stanford Autonomous Driving Team**: Ph.D. Student (2010–2016). Developed perception algorithms for self-driving cars.
- **Google [x] Self-driving Car Team**: Intern (2013). Developed perception algorithms for Google's self-driving car.
- **Weizmann Laboratory for Vision Research and Robotics**: Research Assistant (2009–2010). Developed novel methods to analyze stiffness of a simulated octopus arm.
- **Evolven Software**: Software Developer (2008–2009). Developed enterprise software for configuration management.
- **MIT Bioinstrumentation Lab**: Master's Thesis (2006–2007). Modeled interactions of tactors with skin for a vibro-tactile display.
- **Harvard Social Psychology Lab**: Research Assistant (2005). Conducted experiments on the contrast effect.
- **MIT Aerospace Controls Lab**: Research Assistant (2004). Analyzed digital magnetometer signals for UAV control.
- **Caltech Controls and Dynamical Systems**: Research Assistant (2003). Designed an outdoor testbed of 12 miniature hovercrafts.

Patents

- **Robust Anytime Tracking Combining 3D Shape, Color, and Motion**: with Annealed Dynamic Histograms (Provisional Patent: 14/733,902)

Awards

- **RSS**: Best Paper Finalist, 2022
- **NSF CAREER Award**: 2021
- **3DV**: Best Paper Honorable Mention, 2018
- **Google Research Faculty Award**: 2017
- **ICRA**: Best Vision Paper Finalist, 2013
- **Stanford CS Department**: Best Master's Thesis, 2012

Invited Talks

- **(NEW) 2025:** Brown
- **(NEW) 2025:** ICRA 2025 Workshop: Beyond Pick and Place — Unifying Learning-Based and Model-Based Approaches for Contact-Rich Manipulation
- **(NEW) 2025:** AAAI 2025 Bridge Program on Learning for Integrated Task and Motion Planning
- **(NEW) 2024:** Deformable Object Manipulation Workshop at IROS 2024
- **2023:** ICCV Workshop: "Tricky: Transparent & Reflective Objects in the Wild Challenges"
- **2023:** CoRL Workshop: "NeuRL-RMW: Workshop for Neural Representation Learning for Robot Manipulation"
- **2023:** CoRL Workshop: "What tasks should robotics researchers focus on?"
- **2023:** Yale
- **2023:** Cornell

- **2023:** University of Southern California
- **2023:** UW Madison
- **2023:** Duke
- **2023:** UT Austin
- **2023:** University of Maryland
- **2023:** University of Michigan (Ann Arbor)
- **2023:** Brown
- **2023:** University of Chicago
- **2023:** TTIC
- **2023:** Georgia Tech
- **2022:** IV Workshop (Intelligent Vehicles): "Beyond Supervised Learning: Addressing Data Scarcity in Intelligent Transportation Systems"
- **2022:** Georgia Tech
- **2022:** USC CS Colloquium
- **2022:** Stanford Vision and Learning Lab
- **2022:** UW Robotics Colloquium
- **2022:** UC Berkeley CITRIS People and Robots Seminar
- **2022:** Michigan Robotics
- **2021:** MIT Robotics Seminar
- **2021:** Northeastern Robotics Seminar
- **2021:** Cornell CS Colloquium
- **2021:** ICCV Workshop on Benchmarking Multi-Target Tracking
- **2021:** Brown Robotics Seminar
- **2021:** RSS Workshop: "Deformable Object Simulation in Robotics"
- **2021:** CVPR Workshop: "3D Deep Learning and Robotics"
- **2021:** Naver Labs Europe
- **2021:** Technion Robotics Seminar
- **2021:** ICPR Workshop: "Perception and Modeling for Manipulation of Objects"
- **2020:** IPAM Workshop: "Individual Vehicle Autonomy: Perception and Control"
- **2019:** Robot Learning Workshop, Lehigh University
- **2019:** Aachen University (Germany)
- **2019:** CVPR Workshop: "Bringing Robots to the Computer Vision Community"
- **2019:** Deep Learning Summit, Boston, MA

- **2018:** Brown University (Providence, RI)
- **2018:** UT Austin
- **2018:** Symposium on Machine Learning in Science and Engineering
- **2017:** Carnegie Mellon University, RoboOrg Meta-Seminar
- **2017:** Carnegie Mellon University, Robotics Institute Seminar
- **2017:** Cornell University
- **2017:** Carnegie Mellon University
- **2017:** University of British Columbia
- **2017:** Microsoft Research, Cambridge, UK
- **2017:** Hebrew University (Israel)
- **2017:** University of Michigan
- **2017:** Tel Aviv University (Israel)
- **2017:** Princeton University
- **2017:** Massachusetts Institute of Technology
- **2017:** University of California, Los Angeles
- **2017:** University of Southern California
- **2017:** Toyota Technology Institute of Chicago
- **2017:** University of California, San Diego
- **2017:** Northeastern University
- **2017:** Columbia University
- **2017:** Weizmann Institute (Israel)
- **2017:** University of Cambridge
- **2016:** Spotlight NeurIPS Workshop on Reliable Machine Learning in the Wild
- **2016:** Talk in Future Star Talks Series at RSS Workshop on Deep Learning for Autonomous Robots
- **2016:** Northeastern College of Computer and Information Science Seminar
- **2016:** Harvard SEAS Special Seminar
- **2016:** Johns Hopkins Laboratory for Computational Sensing and Robotics Seminar
- **2016:** University of Maryland Computer Vision Laboratory Seminar
- **2016:** TTI Chicago Young Researcher Seminar Series
- **2015:** MIT Robotics Seminar
- **2015:** UC Berkeley
- **2015:** Carnegie Mellon University VASC Seminar
- **2015:** University of Toronto AI Seminar

- **2015:** University of Michigan AI Seminar
- **2015:** "The Future of Driverless Car Technology" at UCLA VC Fund
- **2015:** Google [x] Self-driving Car Team
- **2015:** Stanford-Seoul National University Workshop on Automated Driving

Service

- **Editorial Roles:**
  - Associate Editor, ICRA (2017–2023)
  - Associate Editor, CoRL (2022–2023)
  - Associate Editor, RA-L (2020–2023)
  - Associate Editor, IROS (2018–2020)
  - Associate Editor, ICML (2019–2020)
  - Associate Editor, ICRA Workshops (2021)
  - Associate Editor, NeurIPS (2019–2020)
- **Workshop Organizer Roles:**
  - **(NEW)** Co-organizer, *5th Workshop: Reflections on Representations and Manipulating Deformable Objects*, ICRA 2025
  - Co-organizer, *4th Workshop on Representing and Manipulating Deformable Objects*, ICRA 2024
  - Co-organizer, ICRA 2024 Workshop: *3D Visual Representations for Robot Manipulation*
  - Co-organizer, *3rd Workshop on Representing and Manipulating Deformable Objects*, ICRA 2023
  - Co-organizer, *2nd Workshop on Representing and Manipulating Deformable Objects*, ICRA 2022
  - Co-organizer, CoRL Workshop: *Towards Generalist Robots: Learning Paradigms for Scalable Skill Acquisition* (2023)
  - RSS Workshop on Visual Learning and Reasoning for Robotics, 2020-2021
  - NeurIPS Workshop - Deep Learning for Action and Interaction, 2016
  - Stanford AI Lab Distinguished Speaker Series 2014-2015
  - Bay Area Vision Meeting 2014
  - ONR Workshop on Structured Learning for Scene Understanding 2014
- **Other Leadership and Service Roles:**
  - **(NEW)** CMU Robot Learning Days Organizer (2020-Present)
  - **(NEW)** CoRL Publications Chair (2024)
  - **(NEW)** Founder and Faculty Sponsor, CMU AI Mentor-Matching Program (2017–Present)
  - **(NEW)** Co-chair, IEEE RAS Technical Committee on Robot Learning (2022–2025)
  - **(NEW)** ICRA Session Chair (2025)
  - RSS Session Chair (2023)
  - Co-chair, AI4All Summer Program (2022)
  - Stanford AI Lab Distinguished Speaker Series (2014–2015)
  - ICRA Publications co-Chair (unofficial), 2016
  - Bay Area Vision Meeting (2014)

- ONR Workshop on Structured Learning for Scene Understanding (2014)
- NSF Panel Member (2019–2021)
- Mentor, Tartan Scholars (2021–2022)
- Founder and Faculty Sponsor, RI Manipulation Discussion Group (2019–2022)
- Guest Speaker, AI4All Summer Program (2018–2019, 2021)

- **Reviewer Roles:**
  - **(NEW)** Reviewer, RSS (2016–2018, 2020–2025)
  - **(NEW)** Reviewer, RSS Pioneers (2018–2020, 2024-2025)
  - **(NEW)** Reviewer, IJRR (2024)
  - **(NEW)** Reviewer, CoRL (2017–2018, 2019–2021, 2025)
  - Reviewer, NeurIPS Workshop: *Black in AI* (2018–2023)
  - Reviewer, WAFR (2022)
  - Reviewer, ICRA (2014–2016, 2018–2019, 2022)
  - Reviewer, Black in AI Innovation and Research Summer Research Grant (2021)
  - Reviewer, ICRA Workshops (2021)
  - Reviewer, RA-L (2019–2020)
  - Reviewer, Journal of Field Robotics (2019)
  - Reviewer, ICML Workshop: *Multi-Task and Lifelong Reinforcement Learning* (2019)
  - Reviewer, CVPR Workshop: *Real-World Challenges and New Benchmarks for Deep Learning in Robotic Vision* (2018)
  - Reviewer, CVPR VOCVALC – 2nd International Workshop on Visual Odometry and Computer Vision Applications Based on Location Clues (2018)
  - Reviewer, TPAMI (2017–2018)
  - Reviewer, IROS (2013–2016)
  - Reviewer, NeurIPS Workshop: *Acting and Interacting in the Real World: Challenges in Robot Learning* (2017)
  - Reviewer, NeurIPS Workshop: *Hierarchical Reinforcement Learning* (2017)
  - Reviewer, CVPR Workshop: *Deep Learning for Robotic Vision* (2015, 2017)
  - Reviewer, IETE Journal of Research (2016)
  - Reviewer, T-RO (2015)
  - Reviewer, CVPR (2015)
  - Reviewer, CVPR Workshop: *Computer Vision in Vehicle Technology* (2015)
  - Reviewer, ITS (2011–2014)