Curriculum Vitae   Matthew R. Walter

Contact Information	Associate Professor	Voice: +1 (773) 834-3637
	Toyota Technological Institute at Chicago	Fax: +1 (773) 357-6970
	6045 S. Kenwood Avenue	mwalter@ttic.edu
	Chicago, IL 60637 USA	http://ttic.edu/walter

Education

Massachusetts Institute of Technology   Ph.D. February 2008
Woods Hole Oceanographic Institution

Mechanical and Ocean Engineering
MIT/WHOI Joint Program in Applied Ocean Science and Engineering

Thesis: **Sparse Bayesian Information Filters for Localization and Mapping**
Committee: John J. Leonard (chair), Hanumant Singh, Seth Teller

University of Illinois at Urbana-Champaign   B.S. May 2000

General Engineering, Robotics and Controls Specialization

Appointments

Toyota Technological Institute at Chicago   2022–Present
Associate Professor

Duckietown Foundation   2020–Present
Member, Board of Directors

Woods Hole Oceanographic Institution   2019–Present
Applied Ocean Physics and Physics and Engineering
Guest Investigator

University of Chicago   2018–Present
Department of Computer Science
Assistant Professor, part-time

Toyota Technological Institute at Chicago   2014–2022
Assistant Professor

Massachusetts Institute of Technology   2011–2014
Computer Science and Artificial Intelligence Laboratory
Research Scientist

Massachusetts Institute of Technology   2008–2011
Computer Science and Artificial Intelligence Laboratory
Postdoctoral Associate

Advising & Mentoring Experience

Ph.D. Theses Advised

- Zhongtian ("Falcon") Dai, *On Reward Structures of Markov Decision Processes*, Ph.D., Toyota Technological Institute at Chicago, August 2023

- Andrea F. Daniele, *Accessible Interfaces for the Development and Deployment of Robotic Platforms*, Ph.D., Toyota Technological Institute at Chicago, May 2023
  Currently: CTO, Duckietown

- Chip Schaff, *Neural Approaches to Co-Optimization in Robotics*, Ph.D., Toyota Technological Institute at Chicago, August 2022
  Currently: Autopilot Engineer at Tesla

- Igor Vasiljevic, *Neural Camera Models*, Ph.D., Toyota Technological Institute at Chicago, June 2022, Co-advised by Greg Shakhnarovich
  Currently: Research Scientist in Machine Learning at Toyota Research Institute (TRI)

- Tri Huynh, *Universal Neural Memory Architectures: Multigrid Connectivity, Domain-Agnostic Geometry, and Local Operators*, Ph.D., Department of Computer Science,, University of Chicago, May 2021, Co-advised by Michael Maire
  Currently: Software Engineer at Google

Current Ph.D. Students

- Jiading Fang, Ph.D. student, 2018–present

- Shengjie Lin, Ph.D. student, 2017–present

- Keziah Naggita, Ph.D. student, 2019–present, Co-advised by Avrim Blum

- Luzhe Sun, Ph.D. student, 2023–present

- Takuma Yoneda, Ph.D. student, 2018–present

- David Yunis, Ph.D. student, 2022–present

M.S. Theses Advised

- Ben Picker, *The Hips as a Four-Bar Linkage System: Using Reinforcement Learning to Explore Compensation Patterns in Patients with Leg Length Discrepancies*, M.S., Department of Statistics, University of Chicago, May 2022, Co-advised by Yali Amit

- Andrea F. Daniele, *Learning to Generate Natural Language Instructions for Navigation*, M.S., Artificial Intelligence and Robotics, Sapienzà di Roma, January 2017, Co-advised with Daniele Nardi
  Currently: CTO, Duckietown

- Hongyuan Mei, *Natural Language Processing with Attention-based Neural Networks*, M.S., Department of Physical Sciences, University of Chicago, August 2016, Co-advised by Mohit Bansal
  Currently: Research Assistant Professsor at TTIC

- Bharat Chandar, *Grasping With Visual and Semantic Features*, M.S., Department of Statistics, University of Chicago, July 2016, Co-advised by Yali Amit
  Currently: PhD student at Stanford

B.S. Theses Advised

- Zachary Robertson, *Imitation Learning from Observation*, B.S., Computational and Applied Mathematics, University of Chicago, June 2020
  Currently: PhD student at Stanford University

Other Students Advised

- Alejandro Perez, *Anytime Optimal Motion Planning for Manipulation*, Computer Science and Artificial Intelligence Laboratory (CSAIL), Massachusetts Institute of Technology, August 2011

- Sarah Thorton, *Off-road Terrain Classification for an Autonomous Robotic Forklift*, MIT Summer Research Program (MSRP), Massachusetts Institute of Technology, February 2011
  Currently: Autonomy Systems Engineer at Nuro

- Alejandro Perez, *Anytime Optimal Motion Planning*, MIT Summer Research Program (MSRP), Massachusetts Institute of Technology, August 2010

- Darrel Deo, *Prototype Vision-based Navigation System for the Visually Impaired*, MIT Summer Research Program (MSRP), Massachusetts Institute of Technology, August 2010
  Currently: Postdoctoral Research Fellow, Neurosurgery, Stanford University

- Yuan Wei, *A Perception-Guided Approach to Motion and Manipulation Planning*, M.Eng., Department of Electrical Engineering and Computer Science (EECS), Massachusetts Institute of Technology, June 2009, Co-advised with Nicholas Roy
  Currently: Engineering Manager at Box

Visiting Students

- James Alvarado, 2019
  Currently: BS student at the University of Michigan

- Christian Cabada, 2019
  Currently: BS student at the University of Illinois at Chicago

- Cha Chen, 2016–2017
  Currently: Software Engineer at Apple

- Lorand Cheng, 2022
  Currently: BS student at the University of Southern California

- Hang Chu, 2015–2016
  Currently: Principal Research Scientist at Autodesk AI Lab

- Julian Coward, 2019
  Currently: BS student at the University of Illinois at Chicago

- Rasool Fakoor, 2015–2016
  Currently: Research Scientist at Amazon

- Stephen Fitz, 2015–2016

- Colin Flaherty, 2020–2021
  Currently: Research Engineer at FAIR

- Alex Gajewski, 2016–2017
  Currently: BS student at Columbia University

- Betsty Gonzalez, 2023
  Currently: H.S. student at Chicago Public Schools

- Asher Grossman, 2023
  Currently: H.S. student at University of Chicago Laboratory School

- Yuchen He, 2015–2016
  Currently: Research Scientist at Facebook

- Davide Iafrate, 2023
  Currently: Autonomous Systems Engineer at Duckietown

- Justin Jung, 2022–2023

- Dong Ki Kim, 2016–2018
  Currently: AI Research Scientist at LG AI Research

- Arthur MacKeith, 2019–2021
  Currently: PhD student at Yale University

- Lei Mao, 2017
  Currently: Senior Deep Learning Engineer at NVIDIA

- Devshi Mehrotra, 2019
  Currently: Co-founder and CEO of Justice Text

- Jonathan Michaux, 2017–2019
  Currently: PhD student at the University of Michigan

- Alonso Morales, 2019
  Currently: BS student at the Illinois Institute of Technology

- Jonathan Padua, 2019
  Currently: BS student at the University of Illinois at Chicago

- Emma Quansh, 2023
  Currently: H.S. student at Chicago Public Schools

- Alea Ritchie, 2023
  Currently: H.S. student at the Illinois Math and Science Academy

- Nikita Rudrapati, 2022–2023
  Currently: BS student at the University of Illinois at Urbana-Champaign

- Angel Santiago, 2021
  Currently: BS student at the University of Puerto Rico

- Ethan Schondorf, 2021, Co-supervised with Audrey Sedal
  Currently: Software Engineer at Globus Labs

- Bobby Shi, 2018–2019
  Currently: PhD student at UT Austin

- Benjamin Stoddart, 2023
  Currently: B.S. student at the University of Michigan

- Dylan Sumaya Lobo, 2023
  Currently: H.S. student at Chicago Public Schools

- Luzhe Sun, 2022–2023
  Currently: Ph.D. Student at TTIC

- Daksh Vermareddy, 2023
  Currently: H.S. student at Chicago Public Schools

- Zhengyang Wu, 2015–2016
  Currently: Senior Deep Learning Engineer at Magic Leap

- David Yunis, 2017–2019
  Currently: PhD student at TTIC

Faculty Mentored

- Audrey Sedal, Research Assistant Professor, 2020–2021
  Currently: Assistant Professor at McGill University

- Jungo Kasai, Research Assistant Professor, 2021–Present

- Hongyuan Mei, Research Assistant Professor, 2021–Present

Other Persons Mentored

- Jesus Duran, Visiting Researcher, 2019–2021
  Currently: Ph.D. student at DePaul University and Curriculum Developer in the Office of Computer Science at CPS

Thesis Committees

- Chair, Andrea Daniele, *Accessible Interfaces for the Development and Deployment of Robotic Platforms*, May, 2023

- Chair, Zhongtian (Falcon) Dai, *On Reward Structures of Markov Decision Processes*, August, 2023

- Member, Jacob Arkin, *Scalable and Efficient Models for Bidirectional Grounded Language Communication*, June, 2023

- Chair, Charles (Chip) Schaff, *Neural Approaches to Co-Optimization in Robotics*, August, 2022

- Member, Igor Vasiljevic, *Neural Camera Models*, June, 2022

- Member, Yuchen He, *Representation Learning via Interaction*, , 2018

- Member, Jianzhu Ma, *Protein Structure Prediction by Protein Alignments*, September, 2015

AWARDS

- First Place, Max Planck Institute Real Robot Challenge, 2020 (https://arxiv.org/abs/2105.02087)
- Best Paper, NeurIPS Multimodal Machine Learning Workshop, 2015
- Best Application Paper Award Nominee, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2011
- Fourth Place, DARPA Urban Challenge, MIT's Team Talos, 2007
- National Defense Science and Engineering Graduate (NDSEG) Fellowship
- Bernt O. Larson Award, University of Illinois at Urbana-Champaign, 2001

TEACHING

Robot Learning and Estimation (TTIC 31170)
Toyota Technological Institute at Chicago   Spring 2015, 2017, 2019, 2021, 2023

Probabilistic Graphical Models (TTIC 31180)
Toyota Technological Institute at Chicago   Spring 2016, 2018, 2020, 2022

Self-Driving Cars with Duckietown
edX (with Andrea Censi, Liam Paull, and Jacopo Tani)   Spring/Summer 2021, 2022, 2023

Self-driving Vehicles: Models and Algorithms for Autonomy (TTIC 31240)
Toyota Technological Institute at Chicago   Autumn 2017

Rapid Robotics: Autonomous Systems with Open Source Software
Massachusetts Institute of Technology   Summer 2013, 2014, 2015

Guest Lectures

- Introduction to Machine Learning Summer School TTIC, June, 2018

- Workshop on Natural Language Understanding for Robotics RoCKIn Camp, January, 2014

- Robotics: Science and Systems II MIT, October, 2010

- Robotics: Science and Systems I MIT, April, 2009

- Mobile Autonomous Systems Lab (MASLAB) MIT, January, 2009

- Probabilistic Techniques for Mobile Robotics MIT, October, 2008

- Information Filter-based SLAM Summer School on Simultaneous Localization and Mapping, August, 2006

PUBLICATIONS   Manuscripts are available at https://www.ttic.edu/ripl/publications as well as on Google Scholar (link), which provides a more up-to-date list of publications.

Journal Articles

[J1]   C. Schaff, A. Sedal, S. Ni, and M. R. Walter, "Sim-to-real transfer of co-optimized soft robot crawlers," *Autonomous Robots*, 2023.

[J2]   A. Phung, G. Billings, A. F. Daniele, M. R. Walter, and R. Camilli, "Enhancing scientific exploration of the deep sea through shared autonomy in remote manipulation," *Science Robotics*, vol. 8, no. 81, 2023.

[J3]   M. R. Walter, S. Patki, A. F. Daniele, E. Fahnestock, F. Duvallet, S. Hemachandra, J. Oh, A. Stentz, N. Roy, and T. M. Howard, "Language understanding for field and service robots in a priori unknown environments," *Field Robotics*, vol. 2, pp. 1191–1231, 2022.

[J4]   T. M. Howard, E. Stump, J. Fink, J. Arkin, R. Paul, D. Park, S. Roy, D. Barber, R. Bendell, K. Schmeckpeper, J. Tian, J. Oh, M. Wigness, L. Quang, B. Rothrock, J. Nash, M. R. Walter, F. Jentsch, and N. Roy, "An intelligence architecture for grounded language communication with field robots," *Field Robotics*, vol. 2, pp. 406–436, 2022.

[J5]   G. Billings, M. R. Walter, O. Pizarro, M. Johnson-Roberson, and R. Camilli, "Towards automated sample collection and return in extreme underwater environments," *Field Robotics*, vol. 2, pp. 1351–1358, 2022.

[J6]   N. Funk, C. Schaff, R. Madan, T. Yoneda, J. U. De Jesus, J. Watson, E. K. Gordon, F. Widmaier, S. Bauer, S. S. Srinivasa, T. Bhattacharjee, M. R. Walter, and J. Peters, "Benchmarking structured policies and policy optimization for real-world dexterous object manipulation," *IEEE Robotics and Automation Letters*, 2021, Accepted, to appear.

[J7]   J. Zilly, J. Tani, B. Considine, B. Mehta, A. F. Daniele, M. Diaz, G. Bernasconi, C. Ruch, J. Hakenberg, F. Golemo, A. K. Bowser, M. R. Walter, R. Hristov, S. Mallya, E. Frazzoli, A. Censi, and L. Paull, "The AI Driving Olympics at NeurIPS 2018," *The NeurIPS '18 Competition*, pp. 37–68, 2020.

[J8]   J. Arkin, D. Park, S. Roy, M. R. Walter, N. Roy, T. M. Howard, and R. Paul, "Multimodal estimation and communication of latent semantic knowledge for robust execution of robot instructions," *International Journal of Robotics Research*, vol. 39, no. 10–11, pp. 1279–1304, 2020.

[J9]   C. Landsiedel, V. Rieser, M. R. Walter, and D. Wollherr, "A review of spatial reasoning and interaction for real-world robotics," *Advanced Robotics*, vol. 31, no. 5, pp. 222–242, January 2017.

[J10]   M. R. Walter, M. Antone, E. Chuangsuwanich, A. Correa, R. Davis, L. Fletcher, E. Frazzoli, Y. Friedman, J. Glass, J. P. How, J. H. Jeon, S. Karaman, B. Luders, N. Roy, S. Tellex, and S. Teller, "A situationally-aware voice-commandable robotic forklift working alongside people in unstructured outdoor environments," *Journal of Field Robotics*, vol. 32, no. 4, pp. 590–628, Jun. 2015.

[J11]   M. R. Walter, S. Hemachandra, B. Homberg, S. Tellex, and S. Teller, "A framework for learning semantic maps from grounded natural language descriptions," *International Journal of Robotics Research*, vol. 31, no. 9, pp. 1167–1190, August 2014.

[J12]   M. R. Walter, Y. Friedman, M. Antone, and S. Teller, "One-shot visual appearance learning for mobile manipulation," *International Journal of Robotics Research*, vol. 31, no. 4, pp. 554–567, April 2012.

[J13]   S. Tellex, T. Kollar, S. Dickerson, M. R. Walter, A. G. Banerjee, S. Teller, and N. Roy, "Approaching the symbol-grounding problem with probabilistic graphical models," *AI Magazine*, vol. 32, no. 4, pp. 64–76, December 2011.

[J14]   J. Leonard, J. How, S. Teller, M. Berger, S. Campbell, G. Fiore, L. Fletcher, E. Frazzoli, A. Huang, S. Karaman, O. Koch, Y. Kuwata, D. Moore, E. Olson, S. Peters, J. Teo, R. Truax, M. Walter, D. Barrett, A. Epstein, K. Maheloni, K. Moyer, T. Jones, R. Buckley, M. Antone, R. Galejs, S. Krishnamurthy, and J. Williams, "A perception-driven autonomous urban vehicle," in (Springer Tracts in Advanced Robotics), M. Buehler, K. Iagnemma, and S. Singh, Eds., Springer Tracts in Advanced Robotics. Berlin, Heidelberg: Springer-Verlag, 2010, vol. 56, ch. 5, pp. 163–230.

[J15]   J. Leonard, J. How, S. Teller, M. Berger, S. Campbell, G. Fiore, L. Fletcher, E. Frazzoli, A. Huang, S. Karaman, O. Koch, Y. Kuwata, D. Moore, E. Olson, S. Peters, J. Teo, R. Truax, M. Walter, D. Barrett, A. Epstein, K. Maheloni, K. Moyer, T. Jones, R. Buckley, M. Antone, R. Galejs, S. Krishnamurthy, and J. Williams, "A perception-driven autonomous urban vehicle," *Journal of Field Robotics*, vol. 25, no. 10, pp. 727–774, October 2008.

[J16]   M. R. Walter, R. M. Eustice, and J. J. Leonard, "Exactly sparse extended information filters for feature-based SLAM," *International Journal of Robotics Research*, vol. 26, no. 4, pp. 335–359, April 2007.

[J17]   R. M. Eustice, H. Singh, J. J. Leonard, and M. R. Walter, "Visually mapping the RMS Titanic: Conservative covariance estimates for SLAM information filters," *International Journal of Robotics Research*, vol. 25, no. 12, pp. 1223–1242, December 2006.

Refereed Conference Publications

[C1] T. Yoneda, L. Sun, G. Yang, B. Stadie, and M. Walter, "To the noise and back: Diffusion for shared autonomy," in *Proceedings of Robotics: Science and Systems (RSS)*, 2023.

[C2] X. Liu, T. Yoneda, C. Wang, M. R. Walter, and Y. Chen, "Active policy improvement from multiple black-box oracles," in *Proceedings of the International Conference on Machine Learning (ICML)*, Jul. 2023.

[C3] V. Guizilini, I. Vasiljevic, J. Fang, R. Ambrus, G. Shakhnarovich, M. R. Walter, and A. Gaidon, "Depth field networks for generalizable multi-view scene representation," in *Proceedings of the European Conference on Computer Vision (ECCV)*, October 2022.

[C4] T. Yoneda, G. Yang, M. R. Walter, and B. Stadie, "Invariance through latent alignment," in *Proceedings of Robotics: Science and Systems (RSS)*, Jul. 2022.

[C5] C. Schaff, A. Sedal, and M. R. Walter, "Soft robots learn to crawl: Jointly optimizing design and control with sim-to-real transfer," in *Proceedings of Robotics: Science and Systems (RSS)*, Jul. 2022.

[C6] J. Fang, I. Vasiljevic, V. Guizilini, R. Ambrus, G. Shakhnarovich, A. Gaidon, and M. R. Walter, "Self-supervised camera self-calibration from video," in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, May 2022, pp. 8468–8475.

[C7] T. Huynh, S. Kornblith, M. R. Walter, M. Maire, and M. Khademi, "Boosting contrastive self-supervised learning with false negative cancellation," in *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision*, January 2022, pp. 2785–2795.

[C8] F. Z. Dai and M. R. Walter, "Loop estimator for discounted values in Markov reward processes," in *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, February 2021.

[C9] J. Tani, A. F. Daniele, G. Bernasconi, A. Camus, A. Petrov, A. Courchesne, B. Mehta, R. Suri, T. Zaluska, M. R. Walter, E. Frazzoli1, L. Paull, and A. Censi, "Integrated benchmarking and design for reproducible and accessible evaluation of robotic agents," in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, October 2020.

[C10] C. Schaff and M. R. Walter, "Residual policy learning for shared autonomy," in *Proceedings of Robotics: Science and Systems (RSS)*, Jul. 2020.

[C11] T. Huynh, M. Maire, and M. R. Walter, "Multigrid neural memory," in *Proceedings of the International Conference on Machine Learning (ICML)*, Jun. 2020.

[C12] F. Z. Dai and M. R. Walter, "Maximum expected hitting cost of a Markov decision process and informativeness of rewards," in *Advances in Neural Information Processing Systems (NeurIPS)*, Vancouver, B.C. Canada, December 2019.

[C13] S. Patki, E. Fahnestock, T. M. Howard, and M. R. Walter, "Language-guided semantic mapping and mobile manipulation in partially observable environments," in *Proceedings of the Conference on Robot Learning (CoRL)*, Osaka, Japan, October 2019.

[C14] Z. Dai and M. R. Walter, "Finite time analysis of potential-based reward shaping," in *Proceedings of the Multi-Disciplinary Conference on Reinforcement Learning and Decision Making (RLDM)*, Montréal, Canada, Jul. 2019.

[C15] C. Schaff, D. Yunis, A. Chakrabarti, and M. R. Walter, "Jointly learning to construct and control agents using deep reinforcement learning," in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, May 2019.

[C16] S. Patki, A. F. Daniele, M. R. Walter, and T. M. Howard, "Inferring compact representations for efficient natural language understanding of robot instructions," in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, May 2019.

[C17] A. F. Daniele, T. M. Howard, and M. R. Walter, "A multiview approach to learning articulated motion models," in *Proceedings of the International Symposium of Robotics Research (ISRR)*, December 2017.

[C18] C. Schaff, D. Yunis, A. Chakrabarti, and M. R. Walter, "Jointly optimizing placement and inference for beacon-based localization," in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Vancouver, B.C. Canada, Sep. 2017.

[C19] J. Arkin, M. R. Walter, A. Boteanu, M. E. Napoli, H. Biggie, H. Kress-Gazit, and T. M. Howard, "Contextual awareness: Understanding monologic natural language instructions for autonomous robots," in *Proceedings of the IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN)*, August 2017.

[C20] D.-K. Kim and M. R. Walter, "Satellite image-based localization via learned embeddings," in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, Singapore, May 2017.

[C21] A. F. Daniele, M. Bansal, and M. R. Walter, "Navigational instruction generation as inverse reinforcement learning with neural machine translation," in *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, Vienna, Austria, March 2017.

[C22] H. Mei, M. Bansal, and M. R. Walter, "Coherent dialogue with attention-based language models," in *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, San Francisco, CA, February 2017.

[C23] J. Oh, T. M. Howard, M. R. Walter, D. Barber, M. Zhu, Z. Park, A. Suppe, L. Navarro-Serment, F. Duvallet, A. Boularias, O. Romero, J. Vinokurov, T. Keegan, R. Dean, craig Lennon, B. Bodt, M. Childers, J. Shi, K. daniilidis, N. Roy, C. Lebiere, M. Hebert, and A. Stentz, "Integrated intelligence for human-robot teams," in *Proceedings of the International Symposium on Experimental Robotics (ISER)*, Tokyo, Japan, October 2016.

[C24] H. Mei, M. Bansal, and M. R. Walter, "What to talk about and how? Selective generation using LSTMs with coarse-to-fine alignment," in *Proceedings of the Conference of the North American Chapter of the Association for Computational Linguistics — Human Language Technologies (NAACL HLT)*, San Diego, CA, Jun. 2016, pp. 720–730.

[C25] D. J. Barber, T. M. Howard, and M. R. Walter, "A multimodal interface for real-time soldier-robot teaming," in *Proceedings of SPIE, Unmanned Systems Technology*, Baltimore, MD, April 2016.

[C26] H. Mei, M. Bansal, and M. R. Walter, "Listen, attend, and walk: Neural mapping of navigational instructions to action sequences," in *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, Phoenix, AZ, February 2016, pp. 2772–2778.

[C27] I. Chung, O. Propp, M. R. Walter, and T. M. Howard, "On the performance of hierarchical distributed correspondence graphs for efficient symbol grounding of robot instructions," in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Hamburg, Germany, October 2015.

[C28] S. Hemachandra and M. R. Walter, "Information-theoretic dialog to improve spatial-semantic representations," in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Hamburg, Germany, October 2015.

[C29]   S. Hemachandra, F. Duvallet, T. M. Howard, N. Roy, A. Stentz, and M. R. Walter, "Learning models for following natural language directions in unknown environments," in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, Seattle, WA, May 2015.

[C30]   S. Pillai, M. R. Walter, and S. Teller, "Learning articulated motions from visual demonstrations," in *Proceedings of Robotics: Science and Systems (RSS)*, Berkeley, CA, Jul. 2014.

[C31]   F. Duvallet, M. R. Walter, T. Howard, S. Hemachandra, J. Oh, S. Teller, N. Roy, and A. Stentz, "Inferring maps and behaviors from natural language instructions," in *Proceedings of the International Symposium on Experimental Robotics (ISER)*, Marrakech, Morocco, Jun. 2014.

[C32]   S. Hemachandra, M. R. Walter, S. Tellex, and S. Teller, "Learning spatially-semantic representations from natural language descriptions and scene classifications," in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, Hong Kong, May 2014.

[C33]   M. R. Walter, S. Hemachandra, B. Homberg, S. Tellex, and S. Teller, "Learning semantic maps from natural language descriptions," in *Proceedings of Robotics: Science and Systems (RSS)*, Berlin, Germany, Jun. 2013.

[C34]   A. Perez, S. Karaman, A. Shkolnik, E. Frazzoli, S. Teller, and M. R. Walter, "Asymptotically-optimal path planning for manipulation using incremental sampling-based algorithms," in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, San Francisco, CA, Sep. 2011, pp. 4307–4313.

[C35]   S. Tellex, T. Kollar, S. Dickerson, M. R. Walter, A. G. Banerjee, S. Teller, and N. Roy, "Understanding natural language commands for robotic navigation and mobile manipulation," in *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, San Francisco, CA, August 2011, pp. 1507–1514.

[C36]   S. Karaman, M. R. Walter, A. Perez, E. Frazzoli, and S. Teller, "Anytime motion planning using the RRT*," in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, Shanghai, China, May 2011, pp. 1478–1483.

[C37]   M. R. Walter, Y. Friedman, M. Antone, and S. Teller, "Vision-based reacquisition for task-level control," in *Proceedings of the International Symposium on Experimental Robotics (ISER)*, New Delhi, India, December 2010.

[C38]   M. R. Walter, S. Karaman, E. Frazzoli, and S. Teller, "Closed-loop pallet engagement in unstructured environments," in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Taipei, Taiwan, October 2010, pp. 5119–5126.

[C39]   O. Koch, M. R. Walter, A. S. Huang, and S. Teller, "Ground robot navigation using uncalibrated cameras," in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, Anchorage, AK, May 2010, pp. 2423–2430.

[C40]   S. Teller, M. R. Walter, M. Antone, A. Correa, R. Davis, L. Fletcher, E. Frazzoli, J. Glass, J. P. How, A. S. Huang, J. H. Jeon, S. Karaman, B. Luders, N. Roy, and T. Sainath, "A voice-commandable robotic forklift working alongside humans in minimally-prepared outdoor environments," in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, Anchorage, AK, May 2010, pp. 526–533.

[C41]   A. Correa, M. R. Walter, L. Fletcher, J. Glass, S. Teller, and R. Davis, "Multi-modal interaction with an autonomous forklift," in *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, Osaka, Japan, March 2010, pp. 243–250.

[C42] A. Bahr, M. R. Walter, and J. J. Leonard, "Consistent cooperative localization," in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, Kobe, Japan, 2009, pp. 3415–3422.

[C43] D. C. Moore, A. S. Huang, M. Walter, E. Olson, L. Fletcher, J. Leonard, and S. Teller, "Simultaneous local and global state estimation for robotic navigation," in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, Kobe, Japan, 2009, pp. 3794–3799.

[C44] A. Shkolnik, M. Walter, and R. Tedrake, "Reachability-guided sampling for planning under differential constraints," in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, Kobe, Japan, May 2009, pp. 2859–2865.

[C45] M. Walter, F. Hover, and J. Leonard, "SLAM for ship hull inspection using exactly sparse extended information filters," in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, Pasadena, CA, May 2008, pp. 1463–1470.

[C46] M. Walter, R. Eustice, and J. Leonard, "A provably consistent method for imposing exact sparsity in feature-based SLAM information filters," in *Proceedings of the International Symposium of Robotics Research (ISRR)*, San Francisco, CA: Springer, October 2005, pp. 214–234.

[C47] R. Eustice, M. Walter, and J. Leonard, "Sparse extended information filters: Insights into sparsification," in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Edmonton, Alberta, Canada, August 2005, pp. 641–648.

[C48] E. Olson, M. Walter, S. Teller, and J. Leonard, "Single-cluster spectral graph partitioning for robotics applications," in *Proceedings of Robotics: Science and Systems (RSS)*, Cambridge, MA, Jul. 2005.

[C49] R. Eustice, H. Singh, J. Leonard, M. Walter, and R. Ballard, "Visually navigating the RMS Titanic with SLAM information filters," in *Proceedings of Robotics: Science and Systems (RSS)*, Cambridge, MA, Jun. 2005, pp. 57–64.

[C50] M. Walter and J. Leonard, "An experimental investigation of cooperative SLAM," in *Proceedings of the IFAC Symposium on Intelligent Autonomous Vehicles (IAV)*, Lisbon, Portugal, Jul. 2004.

Refereed Workshop Publications

[W1] C. Schaff, A. Sedal, and M. R. Walter, "Learning to design and control soft crawling robots with zero-shot sim-to-real transfer," in *Proceedings of the CoRL Workshop on Sim-to Real Robot Learning*, 2022.

[W2] S. Bauer, M. Wüthrich, F. Widmaier, A. Buchholz, S. Stark, A. Goyal, T. Steinbrenner, J. Akpo, S. Joshi, V. Berenz, V. Agrawal, B. Schölkopf, N. Funk, J. U. D. Jesus, J. Peters, J. Watson, C. Chen, K. Srinivasan, J. Zhang, J. Zhang, M. R. Walter, R. Madan, C. Schaff, T. Yoneda, D. Yarats, A. Allshire, E. K. Gordon, T. Bhattacharjee, S. S. Srinivasa, A. Garg, T. Maeda, H. Sikchi, J. Wang, Q. Yao, S. Yang, R. McCarthy, F. R. Sanchez, Q. Wang, D. C. Bulens, K. McGuinness, N. O'Connor, and S. J. Redmond, "Real robot challenge: A robotics competition in the cloud," in *NeurIPS 2021 Competitions and Demonstrations Track*, December 2022, pp. 190–204.

[W3] D. Yunis, K. K. Patel, P. H. P. Savarese, G. Vardi, J. Frankle, M. R. Walter, K. Livescu, and M. Maire, "On convexity and linear mode connectivity in neural networks," in *Proceedings of the International OPT Workshop on Optimization for Machine Learning*, Chicago, IL, December 2022.

[W4] V. Guizilini, I. Vasiljevic, J. Fang, R. Ambrus, G. Shakhnarovich, M. R. Walter, and A. Gaidon, "Depth field networks for generalizable multi-view scene representation," in *Proceedings of the Bay Area Machine Learning Symposium (BayLearn)*, October 2022.

[W5] J. Fang, I. Vasiljevic, V. Guizilini, R. Ambrus, G. Shakhnarovich, A. Gaidon, and M. R. Walter, "Self-supervised camera self-calibration from video," in *Proceedings of the Bay Area Machine Learning Symposium (BayLearn)*, October 2022.

[W6] Z. Dai and M. R. Walter, "Loop estimator for discounted values in markov reward processes," in *Proceedings of the Bay Area Machine Learning Symposium (BayLearn)*, October 2021.

[W7] T. Yoneda, M. R. Walter, and J. Naradowsky, "Pow-Wow: A dataset and study on collaborative communication in Pommerman," in *Proceedings of the International Conference on Machine Learning Workshop on Language in Reinforcement Learning*, Jul. 2020.

[W8] A. Censi, L. Paull, J. Tani, and M. R. Walter, "The AI Driving Olympics: An accessible robot learning benchmark," in *Proceedings of the Neural Information Processing Systems (NeurIPS) Workshop on Machine Learning Competitions for All (CiML)*, Vancouver, B.C. Canada, December 2019.

[W9] A. F. Daniele, T. M. Howard, and M. R. Walter, "Learning articulated object models from language and vision," in *Proceedings of the AAAI Fall Symposium on Natural Communication for Human-Robot Collaboration*, November 2017.

[W10] A. F. Daniele, M. Bansal, and M. R. Walter, "Natural language generation in the context of providing indoor route instructions," in *Proceedings Robotics: Science and Systems Workshop on Model Learning for Human-Robot Communication*, Ann Arbor, MI, Jun. 2016.

[W11] H. Mei, M. Bansal, and M. R. Walter, "Listen, attend, and walk: Neural mapping of navigational instructions to action sequences," in *Proceedings of Robotics: Science and Systems (RSS) Workshop on Model Learning for Human-Robot Communication*, Rome, Italy, Jul. 2015.

[W12] S. Hemachandra, M. R. Walter, and S. Teller, "Information theoretic question asking to improve spatial semantic representations," in *AAAI Fall Symposium on Knowledge, Skill, and Behavior Transfer in Autonomous Robots*, Arlington, VA, November 2014.

[W13] S. Hemachandra and M. R. Walter, "Learning semantic maps through dialog for a voice-commandable wheelchair," in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) Workshop on Rehabilitation and Assistive Robotics*, Chicago, IL, Sep. 2014.

[W14] T. M. Howard, I. Chung, O. Propp, M. R. Walter, and N. Roy, "Efficient natural language interfaces for assistive robots," in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) Workshop on Rehabilitation and Assistive Robotics*, Chicago, IL, Sep. 2014.

[W15] S. Tellex, P. Thaker, J. Joseph, M. R. Walter, and N. Roy, "Toward learning perceptually grounded word meanings from unaligned parallel data," in *Proceedings of the NAACL HLT Workshop on Semantic Interpretation in an Actionable Context*, Montréal, Canada, Jun. 2012, pp. 7–14.

[W16] S. Hemachandra, R. Finman, S. Teller, and M. R. Walter, "Towards enabling a robot to effectively assist people in human-occupied environments," in *Proceedings of the AAAI Spring Symposium*, Palo Alto, CA, March 2012.

[W17] A. Perez, S. Karaman, E. Frazzoli, S. Teller, and M. R. Walter, "Asymptotically-optimal path planning for manipulation using incremental sampling-based algorithms," in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) PR2 Workshop*, San Francisco, CA, October 2011.

[W18] S. Tellex, T. Kollar, S. Dickerson, M. R. Walter, A. Banerjee, S. Teller, and N. Roy, "Interpreting robotic mobile manipulation commands expressed in natural language," in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA) Workshop on Manipulation Under Uncertainty*, Shanghai, China, May 2011.

[W19] M. R. Walter, Y. Friedman, M. Antone, and S. Teller, "Appearance-based object reacquisition for mobile manipulation," in *Proceedings of the IEEE Computer Vision and Pattern Recognition Workshops (CVPRW)*, San Francisco, CA, Jun. 2010.

[W20] S. Karaman, M. R. Walter, E. Frazzoli, and S. Teller, "Closed-loop pallet engagement in an unstructured environment," in *Proceeding of the IEEE International Conference on Robotics and Automation (ICRA) Workshop on Mobile Manipulation*, Anchorage, AK, May 2010.

INVITED TALKS	*Learning Better Ways to Measure and Move: Joint Optimization of an Agent's Physical Design and Computational Reasoning* International Workshop on Symbolic-Neural Learning (SNL)	July 2023
	Collaborating Trust and Expectations in Shared Autonomy: Reinforcement Learning for Autonomous Vehicles Auto.AI Conference	June 2023
	Learning Better Ways to Measure and Move: Joint Optimization of an Agent's Physical Design and Computational Reasoning Northeastern University	March 2023
	Trustworthy AI: Calibrating Capabilities and Expectations The Summit on AI in Society: Futures of Collective Trust, Understanding and Innnovation (Panelist)	October 2022
	Joint Optimization of Robot Design and Control via Reinforcement Learning Workshop on New Models in Online Decision Making for Real-World Applications	July 2022
	Learning Better Ways to Measure and Move: Joint Optimization of an Agent's Physical Design and Computational Reasoning DePaul University	May 2022
	Learning Better Ways to Measure and Move: Joint Optimization of an Agent's Physical Design and Computational Reasoning ETH Zürich	March 2022
	Learning Better Ways to Measure and Move: Joint Optimization of an Agent's Physical Design and Computational Reasoning University of Texas at Austin	November 2021
	Learning Better Ways to Measure and Move: Joint Optimization of an Agent's Physical Design and Computational Reasoning University of Texas at Austin	November 2021

Learning Better Ways to Measure and Move: Joint Optimization of an   November 2021
Agent's Physical Design and Computational Reasoning
University of Washington

Robots that Learn Through Language   October 2021
Carnegie Mellon University

Robots that Learn Through Language   October 2021
University of California, Berkeley

Natural Language Learning for Human-Robot Collaboration   May 2020
DePaul University

Natural Language Learning for Human-Robot Collaboration   May 2020
Conference on Computer and Robot Vision (CRV)

Visual Place Recognition for Self-driving Vehicles   February 2020
AutoAI Conference

Visual Place Recognition for Autonomous Driving   September 2019
IEEE Vehicular Technology Society

Joint Optimization over Robot Motion and Control   July 2019
International Workshop on Symbolic-Neural Learning

Natural Language Learning for Human-Robot Collaboration   March 2019
University of Rochester

Visual Place Recognition for Self-Driving Vehicles   February 2019
AutoAI Conference

Natural Language Learning for Human-Robot Collaboration   October 2018
TTIJ Symposium on Computer Science & Smart Vehicles

Language Learning for Control and Collaboration   June 2018
University of Michigan

Jointly Learning to Construct and Control Agents Using Deep   April 2018
Reinforcement Learning
Robotics: Science and Systems (RSS) AC Meeting

Natural Language Learning for Human-Robot Collaboration   March 2018
Department of Computer Science, University of Texas at Austin

Visual Place Recognition for Self-Driving Vehicles   February 2018
AutoAI Conference

Natural Language Interaction in Unknown Environments   November 2017
University of Toronto

Learning to Follow (and Give) Natural Language Instructions in   April 2017
Unknown Environments
Robotics: Science and Systems (RSS) AC Meeting

Natural Language Interaction in Unknown Environments   April 2017
Northeastern University

Smart Cars: Perception-Driven Autonomous Vehicles Northwestern University	January 2017
Following Natural Language Instructions in Unknown Environments University of Wisconsin, Madison	March 2016
Following Natural Language Directions in Unknown Environments Department of Electrical Engineering and Computer Science, University of Michigan	February 2016
Smart Cars: Perception-Driven Autonomous Vehicles Northwestern University	February 2016
Real-Time Analytics Onboard Self-Driving Cars The University of Chicago Booth School of Business	August 2015
Perception-Driven Autonomous Vehicles The University of Chicago Booth School of Business	May 2015
Inferring Cognitive Models of Space and Action from Natural Language Computer Science and Artificial Intelligence Laboratory, MIT	August 2014
Learning Cognitive Models from Machine Vision and Natural Language Department of Computer Science, Northeastern University	April 2014
Learning Semantic Maps from Natural Language Descriptions Department of Computer Science, Cornell University	April 2014
Learning Semantic Maps from Natural Language Descriptions Department of Computer Science, Worcester Polytechnic Institute	April 2014
Learning Cognitive Models from Machine Vision and Natural Language Toyota Technological Institute at Chicago	February 2014
Learning Cognitive Models from Machine Vision and Natural Language Department of Computer Science, Rutgers University	February 2014
Acquiring Rich Models of Objects and Space Through Vision and Natural Language NASA Ames Research Center	July 2013
Acquiring Rich Models of Objects and Space Through Vision and Natural Language Queensland University of Technology	July 2013
Acquiring Rich Models of Objects and Space Through Vision and Natural Language Johns Hopkins University Applied Physics Laboratory	June 2013
Acquiring Rich Models of Objects and Space Through Vision and Natural Language Department of Mechanical Engineering, Texas A&M University	May 2013

Acquiring Rich Models of Objects and Space Through Vision and Natural Language School of Computer Science, University of Massachusetts Amherst	February 2013
Acquiring Rich Models of Objects and Space Through Vision and Natural Language IROS Workshop on Active Semantic Perception	October 2012
Intuitive Interaction with Autonomous Robots in Unstructured Environments Vecna Technologies	April 2012
Intuitive Interaction with Autonomous Robots in Unstructured Environments Inria Sophia Antipolis-Méditerranée	April 2012
Intuitive Interaction with Autonomous Robots in Unstructured Environments Inria Paris-Rocquencourt	April 2012
Intuitive Interaction with Autonomous Robots in Unstructured Environments Institute for Aerospace Studies, University of Toronto	February 2012
Persistent Visual Memories for Object Manipulation MIT Intelligence Initiative Workshop	January 2012
Multimodal Interaction with an Autonomous Forklift Spoken Language Systems Group, MIT	May 2010
Voice-Commandable Autonomous Forklift for Operation in Semi-Structured Environments Ecole Polytechnique Fédérale de Lausanne	July 2009

RESEARCH ACTIVITIES

Oceanographic Expeditions

- NOAA Ocean Exploration Cooperative Institute (OECI) Technology Demonstration (NA131) with HROV Nereid Under Ice (NUI) and Mesobot on *R/V Nautilus*, Santa Catalina Island, September 2021
- Exploration of Kolumbo and Santorini calderas with HROV Nereid Under Ice (NUI) on *CLV Ocean Link*, Santorini, Greece, November 2019
- Acoustic mapping of ship hulls with Bluefin HAUV, Panama City, June 2007
- Ocean-acoustic sampling and prediction with two Bluefin-21s and several autonomous surface craft, Focused Acoustic Forecasting (FAF) on *R/V Leonardo* and *R/V Alliance*, Pianosa, Italy, July 2005
- Cooperative acoustic navigation and mapping for mine counter measures with two Bluefin-21s, Generic Oceanographic Array Technology Systems (GOATS) on *R/V Leonardo*, Pianosa, Italy, July 2004

SERVICE

Workshop Organization

- Co-organizer, ICCV Workshop on the Frontiers of Monocular 3D Perception: Geometric Foundation Models 2023
- Co-organizer, ECCV Workshop on Frontiers of Monocular 3D Perception: Explicit vs. Implicit 2022

- Co-organizer, CVPR Frontiers of Monocular 3D Perception 2021
- Co-organizer, IROS Workshop on Evaluating the Broader Impacts of Self-Driving Cars 2021
- Co-organizer, IROS Workshop on Evaluating the Broader Impacts of Self-Driving Cars 2021
- Co-organizer, AI Driving Olympics (AI-DO) at NeurIPS 2021
- Co-organizer, CVPR Frontiers of Monocular 3D Perception 2021
- Co-organizer, IROS Workshop on Evaluating the Broader Impacts of Self-Driving Cars 2021
- Co-organizer, IROS Workshop on Benchmarking Progress in Autonomous Driving 2020
- Co-organizer, AI Driving Olympics (AI-DO) at NeurIPS 2020
- Co-organizer, IROS Workshop on Benchmarking Progress in Autonomous Driving 2020
- Co-organizer, AI Driving Olympics (AI-DO) at ICRA 2019
- Co-organizer, AI Driving Olympics (AI-DO) at NeurIPS 2018
- Co-organizer, RSS Workshop on Models and Representations for Human-Robot Communication 2018
- Co-organizer (with Ram Vasudevan), Midwest Robotics Workshop (MWRW) 2018
- Co-organizer (with Jean Oh and Zhou Yu, AAAI Fall Symposium on Natural Communication for Human-Robot Collaboration (NCHRC) 2017
- Co-organizer (with Thomas Howard), RSS Workshop on Spatial-Semantic Representations for Robotics (SSRR) 2017
- Co-organizer (with Ram Vasudevan), Midwest Robotics Workshop (MWRW) 2017
- Co-organizer (with Thomas Howard), RSS Workshop on Model Learning for Human-Robot Communication 2016
- Founder and Organizer, Midwest Robotics Workshop (MWRW) 2016
- Steering Committee Member, Midwest Robotics Workshop (MWRW) 2015–present
- Co-founder and Co-organizer (with Thomas Howard), RSS Workshop on Model Learning for Human-Robot Communication 2015
- Steering Committee Member, Northeast Robotics Colloquium (NERC) 2012–present
- Co-founder and Co-organizer (with George Konidaris and Stefanie Tellex), Northeast Robotics Colloquium (NERC) 2012

Editorial Activities

- Associate Editor, Transactions on Machine Learning Research (TMLR) 2022–present
- Associate Editor, IEEE Transactions on Robotics (T-RO) 2022–present
- Area Chair, International Conference on Machine Learning (ICML) 2021, 2022, 2023
- Area Chair, International Conference on Learning Representations (ICLR) 2021, 2022, 2023
- Area Chair, Neural Information Processing Systems (NeurIPS) 2020, 2021, 2022, 2023
- Area Chair, Conference on Robot Learning (CoRL) 2020
- Senior Program Committee, International Joint Conference on Artificial Intelligence (IJCAI) 2019, 2020
- Senior Program Committee, National Conference on Artificial Intelligence (AAAI) 2018
- Associate Editor, ACM Transactions on Human-Robot Interaction 2017–present
- Associate Editor, IEEE Robotics and Automation Letters (RA-L) 2017–2022
- Area Chair, Robotics: Science and Systems (RSS) 2017, 2018
- Associate Editor, International Conference on Robotics and Automation (ICRA) 2016, 2017, 2018, 2019
- Senior Editor, Advanced Robotics 2016
- Associate Editor, International Conference on Intelligent Robots and Systems (IROS)

2015, 2016

Conference Committees

- Organizer, Families@RSS, 2018
- Co-organizer, Families@RSS, 2017

Program Committees

- North American Chapter of the Assoc. for Computational Linguistics (NAACL) 2018, 2021
- Association for the Advancement of Artificial Intelligence (AAAI) 2018, 2019, 2020
- International conference on Computational Linguistics (COLING) 2018
- International conference on Machine Learning (ICML) 2018
- Association for Computational Linguistics (ACL) 2017, 2018, 2020
- Artificial Intelligence and Statistics (AISTATS) 2017, 2018, 2019, 2020, 2021, 2022
- Language Grounding for Robotics (RoboNLP) 2017
- Symbolic-Neural Learning (SNL) 2017
- European Chapter of the Association for Computational Linguistics (EACL) 2017
- Empirical Methods in Natural Language Processing (EMNLP) 2016, 2017, 2018, 2019, 2020, 2021
- Neural Information Processing Systems (NIPS) 2016, 2017
- International Symposium on Experimental Robotics (ISER) 2014
- IEEE Workshop on Robot Vision (WoRV) 2013
- Robotics: Science and Systems (RSS) 2005, 2012, 2013, 2016

Reviewer

- **Conferences**: Conference on Robot Learning (CoRL); Conference on Robot Vision (CRV); International Conference on Biomedical Robotics and Biomechatronics (BioRob); International Conference on Field and Service Robotics (FSR); International Conference on Human-Robot Interaction (HRI); International Conference on Humanoid Robots (HUMANOIDS); International Conference on Intelligent Robots and Systems (IROS); International Conference on Learning Representations (ICLR); International Conference on Robotics and Automation (ICRA); International Offshore and Polar Engineering Conference (ISOPE); National Conference on Artificial Intelligence (AAAI); NeurIPS Competition Track; Neural Information Processing Systems (NeurIPS); Robotics: Science and Systems (RSS);
- **Journals**: Autonomous Robots; Field Robotics; IEEE Journal of Oceanic Engineering; IEEE Transactions on Aerospace and Electronic Systems; IEEE Transactions on Robotics; IEEE Transactions on Systems, Man, and Cybernetics; International Journal of Computer Vision; International Journal of Robotics Research; Journal of Translational Engineering in Health and Medicine; Journal of Translational Engineering in Health and Medicine; Robotics and Automation Magazine; Robotics and Autonomous Systems; Speech Communication;

Outreach Activities

A subset of community outreach activities:
- Exhibitor, Museum of Science and Industry National Robotics Week April, 2023
- Exhibitor, Museum of Science and Industry National Robotics Week April, 2022
- Exhibitor, Museum of Science and Industry National Robotics Week April, 2019
- Guest Lecturer, Kenwood Academy December, 2019

- Guest Lecturer, Girls Who Code July, 2019
- Exhibitor, Museum of Science and Industry National Robotics Week April, 2018
- Guest Lecturer, Girls Who Code July, 2018
- Exhibitor, Museum of Science and Industry National Robotics Week April, 2017
- Guest Lecturer, Girls Who Code July, 2017
- Guest Lecturer, Chicago City Data User Group April, 2016
- Guest Lecturer, Girls Who Code July, 2016
- Exhibitor, Cambridge Science Festival April, 2013
- Mentor, YearUp Boston 2009–2010
- Guest Lecturer, Center for Talented Youth (CTY) Robotics Workshop April, 2009
- Guest Lecturer, YearUp Boston November, 2009

Professional Memberships

- Senior Member, Institute of Electrical and Electronics Engineers (IEEE)
- IEEE Robotics and Automation Society (RAS)
- American Association for the Advancement of Science (AAAS)
- Association for Computing Machinery (ACM)