

# Geoffrey A. Hollinger

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## Research Interests

algorithmic robotics, distributed control, human-robot interaction, machine learning, marine robotics, multiagent systems, planning under uncertainty, position estimation, probabilistic robotics, pursuit/evasion, mobile robotics, networked robots, optimization, robotic search, sensor networks, unmanned aerial vehicles

## Education

### Carnegie Mellon University

Ph.D. in Robotics, 2010

M.S. in Robotics, 2007

Pittsburgh, PA

Thesis: *Search in the Physical World*

Thesis advisor: Prof. Sanjiv Singh

### Swarthmore College

B.S. in General Engineering, 2005

B.A. in Philosophy, 2005

Swarthmore, PA

Graduated with High Honors

## Professional Experience

**Professor**, Mechanical, Industrial & Manufacturing Engineering

Fall 2024–present

**Courtesy Faculty**, Electrical Engineering & Computer Science

Fall 2013–present

**Director**, Robotics Interdisciplinary Graduate Program

Fall 2019–Summer 2022

**Associate Professor**, Mechanical, Industrial & Manufacturing Engineering

Fall 2019–Summer 2024

**Assistant Professor**, Mechanical, Industrial & Manufacturing Engineering

Fall 2013–Summer 2019

Oregon State University

Corvallis, OR

**Postdoctoral Research Associate**, Computer Science Department

Fall 2010–Fall 2013

University of Southern California

Los Angeles, CA

**Doctoral Research Assistant**, Robotics Institute

Fall 2005–Spring 2010

Carnegie Mellon University

Pittsburgh, PA

**Summer Fellow**, Personal Robotics Group

Summer 2008

Intel Research

Pittsburgh, PA

**Visiting Researcher**, GRASP Laboratory

Summer 2006

University of Pennsylvania

Philadelphia, PA

**Research Intern**, Embedded Control Design Team

Summer 2004, Summer 2005

NASA Marshall Space Flight Center

Huntsville, AL

**Undergraduate Research Assistant**, Engineering Department

Summer 2003–Spring 2005

Swarthmore College

Swarthmore, PA

## Awards

### National and International Awards

- National Science Foundation CAREER Award, 2019

- Office of Naval Research Young Investigator Program (YIP) Award, 2017
- Honorable Mention for NSF Graduate Research Fellowship Program (GRFP), 2006

### Conference and Society Awards

- Finalist: Best Systems Paper Award, Robotics Science and Systems Conf. (RSS), 2022
- Winner: Best Multi-Robot Systems Paper Award, IEEE Int. Conf. on Robotics and Automation (ICRA), 2021
- Winner: JD Williams Student Paper Competition Award, Cross-Cutting Technical Division Category (advisor to student Chris Lee): *Institute of Nuclear Materials Management Annual Conference*, 2020
- Winner: DARPA Subterranean Challenge Tunnel Circuit (Team Explorer), 2019
- Winner: Outstanding Associate Editor Award: *IEEE Robotics and Automation Letters*, 2019
- Finalist: Best Automation Paper Award, IEEE Int. Conf. on Robotics and Automation (ICRA), 2017
- Winner: Best Poster Award at Workshop on Self-organizing Maps (WSOM), 2014
- Winner: Outstanding Reviewer Award: *IEEE Transactions on Robotics*, 2014
- Finalist: KUKA Service Robotics Best Paper Award, IEEE Int. Conf. on Robotics and Automation (ICRA), 2011
- Finalist: Best Student Paper Award at Robotics: Science and Systems Conf. (RSS), 2008

### University and Regional Awards

- Research Award, College of Engineering, Oregon State University, 2022
- Engelbrecht Young Faculty Award, College of Engineering, Oregon State University, 2017
- Northwest Energy XP Award (advisor to students Andrew Smith and Robert Debortoli), 2015 and 2016
- Robotics Graduate Fellowship, Carnegie Mellon University, 2005–2010
- Perdue Award for Engineering Excellence, Swarthmore College, 2004
- District Champion IEEE Micromouse Robotics Team, 2002

### Publications

*Summary: 43 refereed journal articles (published or accepted for publication), 2 edited journal volumes, 67 refereed conference papers, and 33 refereed workshop papers. These papers have received 5362 total citations with h-Index 36 and i10-index 81 (according to Google Scholar).*

*All publications are available online at:*  
<http://research.engr.oregonstate.edu/rdml/>

### Journal Articles

43. A. Helmi, E. Scheide, T.-H. Wang, S. W. Logan, **G. Hollinger**, N. T. Fitter, “GoBot: An Autonomous Assistive Robot Using Behavior Trees to Encourage Child Mobility,” *ACM Transactions on Human-Robot Interaction*, to appear.
42. E. Scheide, G. Best, and **G. Hollinger**, “Synthesizing compact behavior trees for probabilistic robotics domains,” *Autonomous Robots*, vol.49, no. 3, January 2025.

41. M. Chen, R. Vivekanandan, C. J. Rusch, D. Okushemiya, D. Manalang, B. Robertson, **G. Hollinger**, “A unified simulation framework for wave energy powered underwater vehicle docking and charging,” *Applied Energy*, vol. 361, pp. 122877, February 2024.
40. C. Cao, L. Nogueira, H. Zhu, J. Keller, G. Best, R. Garg, D. Kohanbash, J. Maier, S. Zhao, F. Yang, K. Cujic, R. Darnley, R. DeBortoli, B. Drozd, P. Sun, I. Higgins, S. Willits, G. Armstrong, J. Zhang, **G. Hollinger**, M. Travers, and S. Scherer, “Exploring the most sectors at the DARPA Subterranean Challenge finals,” *Field Robotics*, vol. 3, pp. 801–836, June 2023.
39. S. Chow, D. Chang, and **G. Hollinger**, “Parallelized control-aware motion planning with learned controller proxies,” *Robotics and Automation Letters*, vol. 8, no. 4, pp. 2237–2244, April 2023.
38. S. Scherer, V. Agrawal, G. Best, C. Cao, K. Cujic, R. Darnley, R. DeBortoli, E. Dexheimer, B. Drozd, R. Garg, I. Higgins, J. Keller, D. Kohanbash, L. Nogueira, R. Pradhan, M. Tatum, V. Viswanathan, S. Willits, S. Zhao, H. Zhu, D. Abad, T. Angert, G. Armstrong, R. Boirum, A. Dongare, M. Dworman, S. Hu, J. Jaekel, R. Ji, A. Lai, Y. Lee, A. Luong, J. Mangelson, J. Maier, J. Picard, K. Pluckter, A. Saba, M. Saroya, E. Scheide, N. Shoemaker-Trejo, J. Spisak, J. Teza, F. Yang, A. Wilson, H. Zhang, H. Choset, M. Kaess, A. Rowe, S. Singh, J. Zhang, **G. Hollinger**, and M. Travers, “Resilient and modular subterranean exploration with a team of roving and flying robots,” *Field Robotics*, vol. 2, pp. 678–734.
37. J. Benz, C. Palmer, H. McGee-Hilbert, C. Y. H. Lee, R. Kumar, **G. Hollinger**, and N. Benker, “Examining autonomous inspection of geologic repositories,” *International Journal of Nuclear Safeguards and Non-proliferation*, vol. 64, no. 1, pp. 48–63, June 2022.
36. R. DeBortoli, F. Li, A. Kapoor, and **G. Hollinger**, “Adversarial training on point clouds for sim-to-real 3D object detection,” *Robotics and Automation Letters*, vol. 6, no. 4, pp. 6662–6669, Oct. 2021.
35. S. McCammon and **G. Hollinger**, “Topological path planning for autonomous information gathering,” *Autonomous Robots*, vol. 45, no. 6, pp. 821–842, Sept. 2021.
34. S. McCammon, G. Marcon dos Santos, M. Frantz, T. P. Welch, G. Best, R. K. Shearman, J. D. Nash, J. A. Barth, J. A. Adams, and **G. Hollinger**, “Ocean front detection and tracking using a team of heterogeneous marine vehicles,” *Journal of Field Robotics*, vol. 38, no. 6, pp. 854–881, Sept. 2021.
33. M. Saroya, G. Best, and **G. Hollinger**, “Roadmap learning for probabilistic occupancy maps with topology-informed growing neural gas,” *Robotics and Automation Letters*, vol. 6, no. 3, pp. 4805–4812, July 2021.
32. M. J. Kuhlman, D. Jones, D. A. Sofge, **G. Hollinger**, S. K. Gupta, “Collaborating underwater vehicles conducting large-scale geospatial tasks,” *IEEE Journal of Ocean Engineering*, vol. 46, no. 3, pp. 785–807, July 2021.
31. J. Anderson and **G. Hollinger**, “Communication planning for cooperative terrain-based underwater localization,” *Sensors*, vol. 21, no. 5, Mar. 2021.
30. G. Olson, S. Chow, A. Nicolai, C. Branyan, **G. Hollinger** and Y. Menguc, “A generalizable equilibrium model for bending soft arms with longitudinal actuators,” *International Journal of Robotics Research*, vol. 40, no. 1, pp. 148–177, Jan. 2021.
29. J. Caley, N. Lawrance, and **G. Hollinger**, “Deep learning of structured environments for robot search,” *Autonomous Robots*, vol. 43, no. 7, pp. 1695–1714, Oct. 2019.
28. N. Lawrance, R. DeBortoli, D. Jones, S. McCammon, L. Milliken, A. Nicolai, T. Somers and **G. Hollinger**, “Shared autonomy for low-cost underwater vehicles,” *Journal of Field Robotics*, vol. 36, no. 3, pp. 495–516, May 2019.
27. J. J. Chung, A. Smith, R. Skeeel and **G. Hollinger**, “Risk-aware graph search with dynamic edge cost discovery,” *International Journal of Robotics Research*, vol. 38, no. 2–3, pp. 182–196, Mar. 2019.
26. A. Smith, G. Best, J. Yu, and **G. Hollinger**, “Real-time distributed non-myopic task selection for heterogeneous robotic teams,” *Autonomous Robots*, vol. 43, no. 3, pp. 789–811, Mar. 2019.

25. A. Smith and **G. Hollinger**, “Distributed inference-based multi-robot exploration,” *Autonomous Robots*, vol. 42, no. 8, pp. 1651–1668, Dec. 2018.
24. K. J. Benoit-Bird, T. P. Welch, C. M. Waluk, J. A. Barth, I. Wangen, P. McGill, C. Okuda, **G. Hollinger**, M. Sato, and S. McCammon, “Equipping an underwater glider with a new echosounder to explore ocean ecosystems,” *Limnology and Oceanography: Methods*, vol. 16, no. 11, pp. 734–749, Nov. 2018.
23. A. Nicolai and **G. Hollinger**, “Denoising autoencoders for laser-based scan registration,” *IEEE Robotics and Automation Letters*, vol. 3, no. 4, pp. 4391–4398, Oct. 2018.
22. J. J. Chung, C. Rebhuhn, C. Yates, **G. Hollinger** and K. Tumer, “A multiagent framework for learning dynamic traffic management strategies,” *Autonomous Robots*, vol. 43, no. 6, pp. 1375–1391, Aug. 2018.
21. Y. Ye, L. He, Z. Wang, D. Jones, **G. Hollinger**, M. Taylor, and Q. Zhang, “Orchard manoeuvring strategy for a robotic bin-handling machine,” *Biosystems Engineering*, vol. 169, pp. 85–103, May 2018.
20. J. Faigl and **G. Hollinger**, “Autonomous data collection using a self-organizing map,” in *IEEE Transactions on Neural Networks and Learning Systems*, vol. 29, no. 5, pp. 1703–1715, May 2018.
19. D. Jones and **G. Hollinger**, “Planning energy-efficient trajectories in strong disturbances,” in *IEEE Robotics and Automation Letters*, vol. 2, no. 4, pp. 2080–2087, Oct. 2017.
18. Y. Ye, Z. Wang, D. Jones, L. He, M. Taylor, **G. Hollinger** and Q. Zhang, “Bin-dog: A robotic platform for bin management in orchards,” *Robotics*, vol. 6, no. 2, article 12, May 2017.
17. N. Lawrance, J. J. Chung and **G. Hollinger**, “Fast marching adaptive sampling,” *IEEE Robotics and Automation Letters*, vol. 2, no. 2, pp. 696–703, Apr. 2017.
16. T. Somers and **G. Hollinger**, “Human-robot planning and learning for marine data collection,” *Autonomous Robots (AURO16)*, vol. 40, no. 7, pp. 1123–1137, Oct. 2016.
15. D. Fernandez and **G. Hollinger**, “Model predictive control for underwater robots in ocean waves,” in *IEEE Robotics and Automation Letters*, vol. 2, no. 1, pp. 88–95, Jan. 2016 (also presented at ICRA 2016).
14. **G. Hollinger**, A. Pereira, J. Binney, T. Somers, G. Sukhatme, “Learning uncertainty in predictive ocean models for safe and reliable navigation of underwater vehicles,” *Journal of Field Robotics (JFR15)*, vol. 33, no. 1, pp. 47–66, Jan. 2016.
13. **G. Hollinger**, S. Yerramalli, S. Singh, U. Mitra, and G. Sukhatme, “Distributed data fusion for multi-robot search,” *IEEE Transactions on Robotics (TRO15)*, vol. 31, no. 1, pp. 55–66, Feb. 2015.
12. **G. Hollinger** and G. Sukhatme, “Sampling-based robotic information gathering algorithms,” *International Journal of Robotics Research (IJRR)*, vol. 33, no. 9, pp. 1271–1287, Aug. 2014.
11. A. Pereira, J. Binney, **G. Hollinger**, and G. Sukhatme, “Risk-aware path planning for autonomous underwater vehicles using predictive ocean models,” *Journal of Field Robotics (JFR13)*, vol. 30, no. 5, pp. 741–762, Oct. 2013.
10. **G. Hollinger**, B. Englot, F. Hover, U. Mitra, G. Sukhatme, “Active planning for underwater inspection and the benefit of adaptivity,” *International Journal of Robotics Research (IJRR12)*, vol. 32, no. 1, pp. 3–18, Jan. 2013.
9. **G. Hollinger** and S. Singh, “Multirobot coordination with periodic connectivity: Theory and experiments,” *IEEE Transactions on Robotics (TRO12a)*, vol. 28, no. 4, pp. 967–973, Aug. 2012.
8. **G. Hollinger**, S. Choudhary, P. Qarabaqi, C. Murphy, U. Mitra, G. Sukhatme, M. Stojanovic, H. Singh, and F. Hover, “Underwater data collection using robotic sensor networks,” *IEEE Journal on Selected Areas in Communications (JSAC12)*, vol. 30, no. 5, pp. 899–911, June 2012.
7. **G. Hollinger**, J. Djgash, and S. Singh, “Target tracking without line of sight using range from radio,” *Autonomous Robots (AURO12)*, vol. 32, no. 1, pp. 1–14, Jan. 2012.

6. T. Chung\*, **G. Hollinger\***, and V. Isler\*, “Search and pursuit-evasion in mobile robotics: A survey,” *Autonomous Robots* (AURO11), vol. 31, no. 4, pp. 299–316, Nov. 2011. \*Authors contributed equally to article.
5. **G. Hollinger**, A. Kehagias, and S. Singh, “Improving the efficiency of clearing with multi-agent teams,” *International Journal of Robotics Research* (IJRR10), vol. 29, no. 8, pp. 1088–1105, July 2010.
4. **G. Hollinger**, A. Kehagias, and S. Singh, “GSST: Anytime guaranteed search,” *Autonomous Robots* (AURO10b), vol. 29, no. 1, pp. 99–118, July 2010.
3. S. Srinivasa, D. Ferguson, C. Helfrich, D. Berenson, A. Collet, R. Diankov, G. Gallagher, **G. Hollinger**, and J. M. Vande Wenghe, “Herb: A home exploring robotic butler,” *Autonomous Robots* (AURO10a), vol. 28, no. 1, pp. 5–20, Jan. 2010.
2. A. Kehagias, **G. Hollinger**, and S. Singh, “A graph search algorithm for indoor pursuit/evasion,” *Mathematical and Computer Modelling* (MCM09), vol. 50, no. 9-10, pp. 1305–1317, Nov. 2009.
1. **G. Hollinger**, S. Singh, J. Djugash, and A. Kehagias, “Efficient multi-robot search for a moving target,” *International Journal of Robotics Research* (IJRR09), vol. 28, no. 2, pp. 201–219, Feb. 2009.

#### Edited Journal Volumes

2. J. J. Chung, J. Faigl, and **G. Hollinger**, Eds., *Autonomous Robots: Special Issue on Online Decision Making in Multi-Robot Coordination*, vol. 42, no. 4, Apr. 2018.
1. **G. Hollinger**, T. Chung, and V. Isler, Eds., *Autonomous Robots: Special Issue on Search and Pursuit-evasion with Mobile Robots*, vol. 31, no. 4, Nov. 2011.

#### Refereed Conference Papers

67. A. Agrawal, P. Mayer, Z. Kingston, **G. Hollinger**, “Constrained nonlinear Kaczmarz projection on intersections of manifolds for coordinated multi-robot mobile manipulation,” *Proc. IEEE International Conference on Robotics and Automation*, Atlanta, GA, May 2025.
66. N. Butler and **G. Hollinger**, “Hybrid decentralization for multi-robot orienteering with mothership-passenger systems,” in *Proc. IEEE International Conference on Robotics and Automation*, Atlanta, GA, May 2025.
65. R. Singh and **G. Hollinger**, “Motion-aware underwater robotic grasping,” in *Proc. IEEE OCEANS Conference*, Halifax, Canada, September 2024.
64. E. Palmer, C. Holm, and **G. Hollinger**, “Angler: An autonomy framework for intervention tasks with lightweight underwater vehicle manipulator systems,” in *Proc. IEEE International Conference on Robotics and Automation*, Tokyo, Japan, May 2024.
63. P. Singh and **G. Hollinger**, “Mission planning for multiple autonomous underwater vehicles with constrained in situ recharging,” in *Proc. IEEE International Conference on Robotics and Automation*, Tokyo, Japan, May 2024.
62. M. Rosette, H. Kolano, C. Holm, **G. Hollinger**, A. Marburg, M. Pickett, J. R. Davidson, “WAVE: An open-source underWater Arm-Vehicle Emulator,” in *Proc. IEEE International Conference on Robotics and Automation*, Tokyo, Japan, May 2024.
61. C. Mitchell, G. Best, and **G. Hollinger**, “Sequential stochastic multi-task assignment for multi-robot deployment planning,” in *Proc. IEEE International Conference on Robotics and Automation*, London, UK, May 2023.
60. R. Vivekanandan, D. Chang, and **G. Hollinger**, “Autonomous underwater docking using flow state estimation and model predictive control,” in *Proc. IEEE International Conference on Robotics and Automation*, London, UK, May 2023.

59. T. Player, D. Chang, L. Fuxin, and **G. Hollinger**, “Real-time generative grasping with spatio-temporal sparse convolution,” in *Proc. IEEE International Conference on Robotics and Automation*, London, UK, May 2023.
58. G. Best, R. Garg, J. Keller, **G. Hollinger**, and S. Scherer, “Resilient multi-sensor exploration of multifarious environments with a team of aerial robots,” in *Proc. Robotics: Science and Systems Conference*, New York, NY, 2022. **Finalist for Best Systems Paper Award**
57. C. Lee, G. Best, and **G. Hollinger**, “Stochastic assignment for deploying multiple marsupial robots,” in *Proc. International Symposium on Multi-Robot and Multi-Agent Systems*, Cambridge, UK, November, 2021.
56. C. Lee, G. Best, and **G. Hollinger**, “Optimal sequential stochastic deployment of multiple passenger robots,” in *Proc. IEEE International Conference on Robotics and Automation (ICRA)*, Xi’an, China, May 2021. **Winner of Best Multi-Robot Systems Paper Award**
55. I. Rankin, S. McCammon, and **G. Hollinger**, “Robotic information gathering using semantic language instructions,” in *Proc. IEEE International Conference on Robotics and Automation (ICRA)*, Xi’an, China, May 2021.
54. E. Scheide, G. Best, and **G. Hollinger**, “Behavior tree learning for robotic task planning through Monte Carlo DAG search over a formal grammar,” in *Proc. IEEE International Conference on Robotics and Automation (ICRA)*, Xi’an, China, May 2021.
53. S. Chow, G. Olson, and **G. Hollinger**, “Compensating for unmodeled forces using neural networks in soft manipulator planning,” in *Proc. IEEE International Conference on Robotics and Automation (ICRA)*, Xi’an, China, May 2021.
52. C. Lee, R. Kumar, J. Benz, H. McGee-Hilbert, C. Palmer, and **G. Hollinger**, “Autonomous inspection of nuclear repositories: current state of the art and future directions,” in *Proc. INMM Annual Conference*, virtual, July 2020.
51. G. Best and **G. Hollinger**, “Decentralised self-organising maps for multi-robot information gathering,” in *Proc. IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, NV, October 2020.
50. M. Saroya, G. Best, and **G. Hollinger**, “Online exploration of tunnel networks leveraging topological CNN-based world predictions,” in *Proc. IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, NV, October 2020.
49. S. McCammon, D. Jones, and **G. Hollinger**, “Topology-aware self-organizing maps for robotic information gathering,” in *Proc. IEEE Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, NV, October 2020.
48. A. Rafter, **G. Hollinger**, Y. Menguc, and G. Olson, “Analyzing the effect of soft arm design on obstacle navigation through collision,” in *Proc. IEEE Int. Conf. on Soft Robotics*, virtual, May 2020.
47. J. Caley and **G. Hollinger**, “Environment prediction from sparse samples for robotic information gathering,” in *Proc. IEEE Int. Conf. on Robotics and Automation*, virtual, May 2020.
46. A. Nicolai, G. Olson, Y. Menguc, and **G. Hollinger**, “Learning to control reconfigurable staged soft arms,” in *Proc. IEEE Int. Conf. on Robotics and Automation*, virtual, May 2020.
45. R. DeBortoli, L. Fuxin, and **G. Hollinger**, “ElevateNet: A convolutional neural network for estimating the missing dimension in 2D underwater sonar images,” in *Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems*, Macau, China, Nov. 2019.
44. S. McCammon, T. P. Welch, C. M. Waluk, K. Benoit-Bird, J. A. Barth, and **G. Hollinger**, “Onboard autonomy system for the Slocum glider,” in *Proc. IEEE/MTS OCEANS Conference*, Seattle, WA, Oct. 2019.
43. G. Best and **G. Hollinger**, “Decentralised self-organising maps for the online orienteering problem with neighbourhoods,” *Proc. IEEE International Symposium on Multi-Robot and Multi-Agent Systems*, (Extended Abstract), Rutgers, NJ, Aug 2019
42. D. Jones, M. Kuhlman, D. Sofge, S. Gupta, and **G. Hollinger**, “Stochastic optimization for autonomous vehicles with limited control authority,” in *Proc. IEEE/RSJ Int. Conf. on Intelligent Robots and Systems*, Madrid, Spain, Oct. 2018, pp. 2395–2401.

41. S. McCammon and **G. Hollinger**, “Topological hotspot identification for informative path planning with a marine robot,” in *Proc. IEEE Int. Conf. on Robotics and Automation*, Brisbane, Australia, May 2018, pp. 4865–4872.
40. R. DeBortoli\*, A. Nicolai\*, F. Li, and **G. Hollinger**, “Realtime underwater 3D reconstruction using global context and active labeling,” in *Proc. IEEE Int. Conf. on Robotics and Automation*, Brisbane, Australia, May 2018, pp. 6204–6211. \*Authors contributed equally to article.
39. T. Oshiro, C. Palmer, **G. Hollinger**, Y. Menguc, T. Palmer, T. Courier, O. D. Yirmibesoglu, S. Morrell and A. Rynes, “Soft robotics in radiation environments for safeguards applications,” *Proc. Institute of Nuclear Materials Management Annual Meeting*, Indian Wells, CA, July 2017, pp.1513-1522.
38. C. Fleming, S. Walker, C. Branyan. A. Nicolai, **G. Hollinger** and Y. Menguc, “Toolpath planning for continuous extrusion additive manufacturing,” in *Proc. Int. Conf. on Shape, Solid, Structure and Physical Convention (S3PM)*, Berkeley, CA, June 2017.
37. S. McCammon and **G. Hollinger**, “Planning and executing optimal non-entangling paths for tethered underwater vehicles,” in *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA)*, Singapore, May 2017, pp. 3040–3046. **Finalist for Best Automation Paper Award**
36. L. Milliken and **G. Hollinger**, “Modeling user expertise for choosing levels of shared autonomy,” in *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA)*, Singapore, May 2017, pp. 2285–2291.
35. **G. Hollinger**, C. Palmer, T. Palmer and B. Smart, “Advanced teleoperation and shared autonomy for nuclearized robotic systems,” in *Proc. Waste Management Symposium (WM)*, Phoenix, AZ, Mar. 2017.
34. R. Skeelee, J. J. Chung and **G. Hollinger**, “Risk-aware graph search with dynamic edge cost discovery,” in *Proc. Workshop on the Algorithmic Foundations of Robotics (WAFR)*, San Francisco, CA, Dec. 2016. [WAFR16 acceptance rate 25%]
33. J. Caley and **G. Hollinger**, “Deep learning of structured environments for robot search,” in *Proc. IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)*, Daejeon, Korea, Oct. 2016, pp. 3987–3992.
32. N. Lawrance, T. Somers, D. Jones, S. McCammon, **G. Hollinger**, “Ocean deployment and testing of a semi-autonomous underwater vehicle,” in *Proc. IEEE/MTS OCEANS Conf.*, Monterey, CA, Sept. 2016.
31. J. Caley and **G. Hollinger**, “Data-driven comparison of spatio-temporal monitoring techniques,” in *Proc. IEEE/MTS OCEANS Conf. (OCEANS15)*, Washington, DC, Oct. 2015.
30. C. Rebhuhn, R. Skeelee, J. J. Chung, **G. Hollinger** and K. Tumer, “Learning to trick cost-based planners into cooperative behavior,” in *Proc. IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS15)*, Hamburg, Germany, Sept. 2015, pp. 4627–4633.
29. **G. Hollinger**, “Long-horizon robotic search and classification using sampling-based motion planning,” in *Robotics: Science and Systems Conf. (RSS15)*, Rome, Italy, July 2015.
28. R. Skeelee and **G. Hollinger**, “Aerial vehicle path planning for monitoring wildfire frontiers,” in *Proc. Int. Conf. on Field and Service Robotics (FSR15)*, Toronto, Canada, June 2015.
27. S.-H. Yoo, A. Stuntz, Y. Zhang, R. Rothschild, **G. Hollinger** and R. Smith, “Experimental analysis of receding horizon planning algorithms for marine monitoring,” in *Proc. Int. Conf. on Field and Service Robotics (FSR15)*, Toronto, Canada, June, 2015.
26. T. Somers and **G. Hollinger**, “Coactive learning with a human expert for robotic information gathering,” in *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA15)*, Seattle, WA, May 2015, pp. 559–564.
25. K. Cesare, R. Skeelee, S.-H. Yoo, Y. Zhang and **G. Hollinger**, “Multi-UAV exploration with limited communication and battery,” in *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA15)*, Seattle, WA, May 2015, pp. 2230–2235.

24. J. Faigl and **G. Hollinger**, “Unifying multi-goal path planning for autonomous data collection,” in *Proc. IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS14)*, Chicago, IL, Sept. 2014, pp. 2937–2942.
23. J. Faigl and **G. Hollinger**, “Self-organizing maps for the prize-collecting traveling salesman problem,” in *Proc. Workshop on Self-organizing Maps (WSOM14)*, Mittweida, Germany, July 2014. **Winner of Best Poster Award**
22. **G. Hollinger** and G. Sukhatme, “Trajectory learning for human-robot scientific data collection,” in *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA14)*, Hong Kong, China, May 2014, pp. 6600–6605.
21. **G. Hollinger**, C. Choudhuri, U. Mitra, and G. Sukhatme, “Squared error distortion metrics for motion planning in robotic sensor networks,” in *Proc. Int. Workshop on Wireless Networking for Unmanned Autonomous Vehicles (Wi-UAV13)*, Atlanta, GA, Dec. 2013.
20. **G. Hollinger** and G. Sukhatme, “Sampling-based motion planning for robotic information gathering,” in *Proc. Robotics: Science and Systems Conf. (RSS13)*, Berlin, Germany, June 2013. **[RSS 2013 acceptance rate: 30%]**
19. **G. Hollinger**, A. Pereira, and G. Sukhatme, “Learning uncertainty models for reliable operation of autonomous underwater vehicles,” in *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA13)*, Karlsruhe, Germany, May 2013, pp. 5573–5579 .
18. **G. Hollinger**, U. Mitra, and G. Sukhatme, “Active and adaptive dive planning for dense bathymetric mapping,” in *Proc. Int. Symp. on Experimental Robotics (ISER12)*, Quebec City, Canada, June 2012, pp. 803–817.
17. **G. Hollinger**, B. Englot, F. Hover, U. Mitra, and G. Sukhatme, “Uncertainty-driven view planning for underwater inspection,” in *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA12)*, St. Paul, MN, May 2012, pp. 4884–4891.
16. **G. Hollinger**, S. Choudhary, P. Qarabaqi, C. Murphy, U. Mitra, G. Sukhatme, M. Stojanovic, H. Singh, and F. Hover, “Communication protocols for underwater data collection using a robotic sensor network,” in *Proc. Int. Workshop on Wireless Networking for Unmanned Autonomous Vehicles (Wi-UAV11)*, Houston, TX, Dec. 2011.
15. **G. Hollinger**, U. Mitra, and G. Sukhatme, “Autonomous data collection from underwater sensor networks using acoustic communication,” in *Proc. IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS11)*, San Francisco, CA, Sept. 2011, pp. 3564–3570.
14. **G. Hollinger**, U. Mitra, and G. Sukhatme, “Active classification: Theory and application to underwater inspection,” in *Proc. Int. Symp. on Robotics Research (ISRR11)*, Flagstaff, AZ, Aug. 2011.
13. **G. Hollinger**, S. Yerramalli, S. Singh, U. Mitra, and G. Sukhatme, “Distributed coordination and data fusion for underwater search,” in *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA11)*, Shanghai, China, May 2011, pp. 349–355. **Finalist for KUKA Service Robotics Best Paper Award**
12. **G. Hollinger** and S. Singh, “Towards experimental analysis of challenge scenarios in robotics,” in *Proc. Int. Symp. on Experimental Robotics (ISER10)*, Delhi, India, Dec. 2010, pp. 909–921.
11. **G. Hollinger** and S. Singh, “Multi-robot coordination with periodic connectivity,” in *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA10)*, Anchorage, AK, May 2010, pp. 4457–4462.
10. **G. Hollinger**, A. Kehagias, and S. Singh, “Efficient, guaranteed search with multi-agent teams,” in *Proc. Robotics: Science and Systems Conf. (RSS09)*, Seattle, WA, June 2009, pp. 265–272. **[RSS 2009 acceptance rate: 25%]**
9. **G. Hollinger**, D. Ferguson, S. Srinivasa, and S. Singh, “Combining search and action for mobile robots,” in *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA09)*, Kobe, Japan, May 2009, pp. 952–957.
8. **G. Hollinger** and S. Singh, “Proofs and experiments in scalable, near-optimal search by multiple robots,” in *Proc. Robotics: Science and Systems Conf. (RSS08)*, Zurich, Switzerland, June 2008, pp. 206–213. **[RSS 2008 acceptance rate: 24%], Finalist for Best Student Paper Award**



7. **G. Hollinger**, J. Djugash, and S. Singh, "Tracking a moving target in cluttered environments with ranging radios," in *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA08)*, Pasadena, CA, May 2008, pp. 1430–1435.
6. **G. Hollinger**, J. Djugash, and S. Singh, "Coordinated search in cluttered environments using range from multiple robots," in *Proc. Int. Conf. on Field and Service Robotics (FSR07)*, Chamonix, France, July 2007, pp. 433–442.
5. **G. Hollinger**, A. Kehagias, and S. Singh, "Probabilistic strategies for pursuit in cluttered environments with multiple robots," in *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA07)*, Rome, Italy, Apr. 2007, pp. 3870–3876.
4. **G. Hollinger**, Y. Georgiev, A. Manfredi, B. Maxwell, Z. Pezzementi, and B. Mitchell, "Design of a social mobile robot using emotion-based decision mechanisms," in *Proc. IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS06)*, Beijing, China, Oct. 2006, pp. 3093–3098.
3. **G. Hollinger** and D. Gwaltney, "Evolutionary design of fault-tolerant analog control for a piezoelectric pipe-crawling robot," in *Proc. Genetic and Evolutionary Computation Conf. (GECCO06)*, Seattle, WA, July 2006, pp. 761–768.
2. E. Liao, **G. Hollinger**, J. Djugash, and S. Singh, "Preliminary results in tracking mobile targets using range sensors from multiple robots," in *Proc. Int. Symp. on Distributed Autonomous Robotics Systems (DARS06)*, Minneapolis, MN, June 2006, pp. 125–134.
1. **G. Hollinger** and J. Briscoe, "Genetic optimization and simulation of a piezoelectric pipe-crawling robot," in *Proc. IEEE Int. Conf. on Robotics and Automation (ICRA05)*, Barcelona, Spain, Apr. 2005, pp. 484–489.

#### Refereed Workshop Papers

33. P. Singh and **G. Hollinger**, "Mission planning for multiple autonomous underwater vehicles with constrained in-situ recharging," in *Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems Advanced Marine Robotics Technical Committee Workshop: Towards Long-Term Marine Robotics (IROS)*, Detroit, MI, October 2023.
32. R. Vivekandan and **G. Hollinger**, "Autonomous underwater docking and recharging," in *Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems Workshop on Robotics for the Blue Economy and Climate Resiliency (IROS)*, Detroit, MI, October, 2023.
31. I. Rankin, S. McCammon, T. Somers, **G. Hollinger**, "Explaining robot decisions using contrasting examples" in *Proc. IEEE International Symposium on Robot and Human Interactive Communication Workshop on Human-Robot Interactions for Explainability in Robotics (RO-MAN)*, Busan, Korea, August 2023.
30. M. Chen, R. Vivekanandan, C. Rusch, B. Robertson, **G. Hollinger**, "A framework for wave-to-wire simulation of wave energy converters for autonomous underwater vehicle recharging," in *Proc. University Marine Energy Research Community (UMERC) Conference*, Portland, OR, September 2022.
29. R. Vivekanandan, D. Chang, and **G. Hollinger**, "Flow state estimation and optimal control for autonomous underwater docking," in *Proc. University Marine Energy Research Community (UMERC) Conference*, Portland, OR, September 2022.
28. K. Puente, S. Walker, J. Davidson, and **G. Hollinger**, "Design and grasp planning for a reconfigurable variable stiffness underwater robotic hand," in *Proc. IEEE International Conference on Robotics and Automation Workshop on Compliant Manipulation (ICRA)*, Philadelphia, PA, May 2022.
27. A. Agrawal, D. Chang, and **G. Hollinger**, "Task and motion planning for collective robotic construction," in *Proc. IEEE International Conference on Robotics and Automation Workshop on Collective Robotic Construction (ICRA)*, Philadelphia, PA, May 2022.

26. R. Vivekanandan, D. Chang, and **G. Hollinger**, “Model predictive control for underwater vehicle rendezvous and docking with a wave energy converter,” in *Proc. IEEE International Conference on Robotics and Automation Workshop on Reliable AI for Marine Robotics: Challenges and Opportunities (IROS)*, virtual, October 2021.
25. L. Griswold, I. Rankin, T. Player, S. Walker, J. Davidson, and **G. Hollinger**, “Explainable grasping with soft grippers using visual quality metrics,” in *Proc. IEEE International Conference on Intelligent Robots and Systems Workshop on Benchmarking of Robotic Grasping and Manipulation: Protocols, Metrics and Data Analysis (IROS)*, virtual, October 2021.
24. D. Chang, S. Chow, T. Player, and **G. Hollinger**, “Adaptive and informative planning for an underwater vehicle-manipulator system,” in *Proc. IEEE International Conference on Robotics and Automation 1st Advanced Marine Robotics Technical Committee Workshop on Active Perception (ICRA)*, virtual, May 2021.
23. C. Lee, G. Best, and **G. Hollinger**, “Optimal deployment of multiple passenger robots using sequential stochastic assignment,” in *Proc. Robotics: Science and Systems Conference Workshop on Heterogeneous Multi-Robot Task Allocation and Coordination (RSS)*, virtual, July 2020.
22. I. Rankin, S. McCammon, and **G. Hollinger**, “Optimized robotic information gathering using semantic language instructions,” in *Proc. Robotics: Science and Systems Conference Workshop on Robots in the Wild: Challenges in Deploying Robust Autonomy for Robotic Exploration (RSS)*, virtual, July 2020.
21. J. Anderson and **G. Hollinger**, “Communication planning for cooperative terrain-based underwater localization,” in *Proc. Robotics: Science and Systems Conference Workshop on Robots in the Wild: Challenges in Deploying Robust Autonomy for Robotic Exploration (RSS)*, virtual, July 2020.
20. E. Scheide, G. Best, and **G. Hollinger**, “Learning behavior trees for robotic task planning by Monte Carlo search over a formal grammar,” in *Proc. Robotics: Science and Systems Conference Workshop on Learning in Task and Motion Planning (RSS)*, virtual, July 2020.
19. S. Chow and **G. Hollinger**, “Merging segments in configuration space for soft manipulator planning,” in *Proc. IEEE International Conference on Robotics and Automation Workshop on Opportunities and Challenges of Soft Robotics across Different Length Scales (ICRA)*, Montreal, Canada, May 2019.
18. R. DeBortoli\*, A. Nicolai\*, F. Li, **G. Hollinger**, “Assessing perception quality in sonar images using global context,” in *Proc. IEEE International Conference on Intelligent Robots and Systems Workshop on Introspective Methods for Reliable Autonomy (IROS)*, Vancouver, Canada, Sept. 2017. \*Authors contributed equally to article.
17. A. Smith and **G. Hollinger**, “Distributed inference-based multi-robot exploration,” in *Proc. Robotics: Science and Systems Conference Workshop on Robot Communication in the Wild (RSS17)*, Boston, MA, July 2017.
16. A. Smith and **G. Hollinger**, “Task selection for human-robot teams in dynamic environments,” in *Proc. Robotics: Science and Systems Conference Workshop on Heterogeneity and Diversity for Resilience in Multi-Robot Systems (RSS17)*, Boston, MA, July 2017.
15. J. Caley, N. Lawrance and **G. Hollinger**, “Deep networks with confidence bounds for robotic information gathering,” in *Proc. Robotics: Science and Systems Conference Workshop on New Frontiers for Deep Learning in Robotics (RSS17)*, Boston, MA, July 2017.
14. T. Somers, N. Lawrance and **G. Hollinger**, “Efficient learning of trajectory preferences using combined ratings and rankings,” in *Proc. Robotics: Science and Systems Conference Workshop on Mathematical Models, Algorithms, and Human-Robot Interaction (RSS)*, Boston, MA, July 2017.
13. J. J. Chung, L. Milliken, **G. Hollinger** and K. Tumer, “When to ask for help: introspection in multi-robot teams,” in *Proc. IEEE Int. Conf. on Robotics and Automation Workshop on Human Multi-Robot System Interaction (ICRA17)*, Singapore, May 2017.
12. D. Jones and **G. Hollinger**, “Real-time stochastic optimization for energy-efficient trajectories,” in *Proc. Robotics: Science and Systems Conf. Workshop on Robot-Environment Interaction for Perception and Manipulation (RSS16)*, Ann Arbor, MI, June, 2016.

11. S. McCammon and **G. Hollinger**, “Planning non-entangling paths for tethered underwater robots using simulated annealing,” in *Proc. Robotics: Science and Systems Conf. Workshop on Robot Learning and Planning* (RSS16), Ann Arbor, MI, June, 2016.
10. L. Milliken and **G. Hollinger**, “Modeling user expertise for choosing levels of shared autonomy,” in *Proc. Robotics: Science and Systems Conf. Workshop on Planning for Human-Robot Interaction* (RSS16), Ann Arbor, MI, June, 2016.
9. A. Nicolai, R. Skeele, C. Eriksen, and **G. Hollinger**, “Deep learning for laser based odometry estimation,” in *Proc. Robotics: Science and Systems Conf. Workshop on Limits and Potentials of Deep Learning in Robotics* (RSS16), Ann Arbor, MI, June, 2016.
8. N. Lawrance, T. Somers, D. Jones, S. McCammon and **G. Hollinger**, “Ocean deployment and testing of a semi-autonomous underwater vehicle,” in *Proc. IEEE Int. Conf. on Robotics and Automation Workshop on Marine Robot Localization and Navigation* (ICRA16), Stockholm, Sweden, May 2016.
7. Y. Zhang, Y. Ye, Z. Wang, M. Taylor, **G. Hollinger**, and Q. Zhang, “Intelligent in-orchard bin-managing system for tree fruit production,” in *Proc. IEEE Int. Conf. on Robotics and Automation Workshop on Robotics in Agriculture* (ICRA15), Seattle, WA, May 2015.
6. R. Skeele, J. Chung, **G. Hollinger**, and K. Tumer, “Risk aware graph search with uncertain edge costs,” in *Proc. IEEE Int. Conf. on Robotics and Automation Workshop on Planning for Solving Complex Tasks, Reducing Uncertainty, and Generating Informative Paths & Policies* (ICRA15), Seattle, WA, May 2015.
5. C. Rebhuhn, R. Skeele, J. Chung, **G. Hollinger**, and K. Tumer, “Promoting cooperative behavior between cost-based planners,” in *Proc. IEEE Int. Conf. on Robotics and Automation Workshop on Taxonomies of Interconnected Systems: Asymmetric Interactions in Distributed Robotics* (ICRA15), Seattle, WA, May 2015.
4. N. Lawrance, J. Chung, and **G. Hollinger**, “Shortest path exploration with fast marching,” in *Proc. IEEE Int. Conf. on Robotics and Automation Workshop on Planning for Solving Complex Tasks, Reducing Uncertainty, and Generating Informative Paths & Policies* (ICRA15), Seattle, WA, May 2015.
3. T. Somers and **G. Hollinger**, “Coactive learning with a human expert for robotic monitoring,” in *Proc. Robotics: Science and Systems Workshop on Robotic Monitoring* (RSS14), Berkeley, CA, July 2014.
2. **G. Hollinger**, A. Pereira, V. Ortenzi, and G. Sukhatme, “Towards improved prediction of ocean processes using statistical machine learning,” in *Proc. Robotics: Science and Systems Workshop on Robotics for Environmental Monitoring* (RSS12), Sydney, Australia, July 2012.
1. **G. Hollinger**, B. Englot, U. Mitra, G. Sukhatme, and F. Hover, “Path and view planning for underwater surface inspection,” in *Proc. Robotics: Science and Systems Marine Robotics Workshop* (RSS11), Los Angeles, CA, June 2011.

#### **Theses (including theses of advised students)**

- S. Chow, “Learning-based techniques for fast and robust motion planning,” PhD thesis, Oregon State University, Corvallis, OR, March 2024.
- Y. K. Senewiratne, “Decentralized multi-robot exploration with sparse communication through deep imitation learning,” MS thesis, Oregon State University, Corvallis, OR, September 2022.
- T. Somers, “Efficiently learning human preferences for robot autonomy,” MS thesis, Oregon State University, Corvallis, OR, June 2022.
- R. Debortoli, “Deep perception without a camera: enabling 3D reconstruction and object recognition using lidar and sonar sensing,” PhD thesis, Robotics, Oregon State University, Corvallis, OR, December 2021.
- C. Lee, “Deployment planning for multiple marsupial robots,” M.S. thesis, Robotics, Oregon State University, Corvallis, OR, September, 2021.

- S. McCammon, “Topologically-guided robotic information gathering,” Ph.D. thesis, Robotics, Oregon State University, Corvallis, OR, December, 2020.
- J. Anderson, “Communication planning for cooperative terrain-based underwater localization,” M.S. thesis, Robotics, Oregon State University, Corvallis, OR, December 2020.
- D. Jones, “Realizable path planning and execution for robotic systems,” Ph.D. thesis, Robotics, Oregon State University, Corvallis, OR, September 2020.
- M. Saroya, “Topological learning for robotic exploration and navigation in uncertain environments,” M.S. thesis, Robotics, Oregon State University, Corvallis, OR, September 2020.
- A. Nicolai, “Augmented deep learning techniques for robotic state estimation,” Ph.D. thesis, Robotics, Oregon State University, Corvallis, OR, August 2019.
- J. Caley, “Deep learning for robotic exploration,” Ph.D. thesis, Robotics, Oregon State University, Corvallis, OR, June 2019.
- A. Smith, “Non-myopic distributed planning and coordination for multi-robot teams,” Ph.D. thesis, Robotics and Mechanical Engineering, Oregon State University, Corvallis, OR, June 2018.
- L. Milliken, “Modeling human expertise for providing adaptive levels of robot shared autonomy,” M.S. thesis, Robotics Program, Oregon State University, Corvallis, OR, September 2017.
- C. Rebhuhn, “Adaptive multiagent traffic management for autonomous robotic systems,” Ph.D. thesis, Robotics and Mechanical Engineering, Oregon State University, Corvallis, OR, June 2017.
- R. Skeele, “Planning under uncertainty for unmanned aerial vehicles,” M.S. thesis, Robotics Program, Oregon State University, Corvallis, OR, June 2016.
- Y. Zhang, “Multi-robot coordination: applications in orchard bin management and informative path planning,” M.S. thesis, Robotics Program, Oregon State University, Corvallis, OR, September 2015.
- D. Fernandez, “Model predictive control for underwater robots in ocean waves,” M.S. thesis, Robotics Program, Oregon State University, Corvallis, OR, September 2015.
- A. Iscen, “Multiagent learning for locomotion and coordination in tensegrity robotics,” Ph.D. dissertation, Mechanical Engineering and Computer Science, Oregon State University, Corvallis, OR, May 2014.
- G. Hollinger, “Search in the physical world,” Ph.D. dissertation, Robotics Institute, Carnegie Mellon University, Pittsburgh, PA, July 2010.
- G. Hollinger, Z. Pezzementi, A. Flurie, and B. Maxwell, “Design and construction of an indoor robotic blimp for urban search and rescue tasks,” Senior design thesis, Engineering Department, Swarthmore College, Swarthmore, PA, May 2005.

## Invited Talks

- **Plenary Talk:** “Towards resident autonomous underwater robotic systems,” IFAC Conference on Control Applications in Marine Systems, Robotics and Vehicles, Blacksburg, VA, September 2024.
- “Decision making for marine robotics,”  
University of Massachusetts Amherst, MA, November 2023.  
Sheffield Hallam University (presented virtually), October 2023.  
Carnegie Mellon University AIRLab Seminar (presented virtually), April 2023.  
Oregon State University Faculty Lecture Series, March 2023.

- “Marine robotics: planning, decision making, and human-robot learning,”  
University of Hawaii at Manoa, April 2022.  
Applied Ocean Science Seminar, Scripps Institution of Oceanography (presented virtually), October 2020.  
West Virginia University (presented virtually), October 2020.  
MicroWorkshop on Robotics, Harvey Mudd College (presented virtually), May 2020.  
RSS Workshop on Robots in the Wild: Challenges in Deploying Robust Autonomy for Robotic Exploration, June 2019.  
ICRA Workshop on Approaching Residency of Marine Robots for Deep-Sea Research, Montreal, Canada, May 2019.  
University of Nebraska, Lincoln, NE, April 2019.  
University of Michigan, Ann Arbor, MI, February 2019.  
NSF-Sponsored Workshop on Integrating Science Needs with Advanced Seafloor Sensor Engineering to Provide Early Warning of Geohazards, Gleneden Beach, Oregon, July 2018.  
ICRA Workshop on Informative Path Planning and Adaptive Sampling, Brisbane, Australia, May 2018.  
MIT, Boston, MA, April 2018.  
Carnegie Mellon University, Pittsburgh, PA, February 2018.  
University of Texas Austin, Austin, TX, January 2018.  
University of Washington, Seattle, WA, October 2017.  
Naval Research Laboratory, Washington, DC, March 2017.
- “Taskable and adaptable autonomy for heterogeneous marine vehicles,” Marine Technology Summit, Newport, OR, October 2018.
- “Marine robotic inspection: perception, navigation, and shared autonomy,” IROS Workshop on Perception and Planning for Robotic Inspection, Vancouver, Canada, September 2017.
- “Active information gathering for teams of aerial and marine vehicles,” ICRA Workshop on Multi-robot Perception-Driven Control and Planning, Singapore, June 2017.
- “Information gathering with multi-robot teams: towards resilient shared autonomy with humans,” Workshop on Heterogeneity in Multi-Robot Systems, Arlington, VA, August 2016.
- “Learning uncertainty in ocean currents for reliable navigation of autonomous underwater vehicles,” Workshop on Material Transport in Geophysical Flows, Montclair, NJ, July 2016.
- “Sensing, perception, and estimation in multi-robot systems,” IEEE RAS Multi-robot Summer School, Singapore, June 2016.
- “Long-horizon robotic search and classification using sampling-based motion planning,” AAAI Robotics Early Career Spotlight Talk, Phoenix, AZ, Feb. 2016.
- “Risk-aware graph search,” Unmanned Maritime Systems Technology (UMST) Review, Destin, FL, Feb. 2016.
- “Autonomous monitoring and intervention,” Northwest National Marine Renewable Energy Center (NNMREC) Annual Meeting, Portland, OR, Sept. 2015–2017.
- “Multi-view aquatic information gathering,” Robotics: Science and Systems Workshop on Multi-view Geometry in Robotics, Rome, Italy, July 2015.
- “Cooperative decision making for multi-robot systems,” Robotics: Science and Systems Workshop on Principles of Multi-robot Systems, Rome, Italy, July 2015.
- “Aquatic exploration: human-robot teaming and efficient planning,” ICRA Workshop on Persistent Autonomy for Aquatic Robotics, Seattle, WA, May 2015.

- “Algorithmic field robotics,” Robotics: Science and Systems Area Chair Symposium: Frontiers in Robotics, New Brunswick, NJ, Mar. 2015.
- “Human-robot autonomous exploration and exploitation,” Unmanned Maritime Systems Technology (UMST) Review, Destin, FL, Jan. 2015.
- “Marine robotics: planning, decision making & learning,” Northwest Marine Technology Summit, Newport, OR, Oct. 2014.
- “Safe and reliable human-robot underwater data collection,” Robotics: Science and Systems Workshop on Autonomous Control, Adaptation and Learning for Underwater Vehicles, Berkeley, CA, July 2014.
- “Planning, decision making & learning for robotic information gathering,”
  - NSF-Sponsored Workshop on Robot Planning in the Real World, Arlington, VA, Oct. 2013.
  - Dept. of Electrical Engineering, Czech Technical University, Prague, Czech Republic, July 2013.
  - Dept. of Computer Science, University of Colorado at Boulder, Boulder, CO, Mar. 2013.
  - Dept. of Electrical, Computer & Systems Eng., Rensselaer Polytechnic Institute, Troy, NY, Mar. 2013.
  - Dept. of Electrical & Computer Engineering, Stevens Institute of Technology, Hoboken, NJ, Mar. 2013.
  - Robotics Institute, Carnegie Mellon Univ., Pittsburgh, PA, Feb. 2013.
  - Dept. of Electrical Eng. & Comp. Sciences, Univ. of California Berkeley, Berkeley, CA, Nov. 2012.
  - Willow Garage, Menlo Park, CA, Nov. 2012.
  - Anki Inc., San Francisco, CA, Nov. 2012.
  - Google, Mountain View, CA, Nov. 2012.
  - Dept. of Engineering Science, Univ. of Oxford, Oxford, United Kingdom, May 2012.
  - Dept. of Computer Science, Univ. of Massachusetts Amherst, Amherst, MA, Mar. 2012.
  - Computer Science Dept., Univ. of California Los Angeles, Los Angeles, CA, Mar. 2012.
  - Dept. of Computer Science, Rutgers University, Piscataway, NJ, Feb. 2012.
  - Mechanical, Industrial & Manufacturing Eng. Dept., Oregon State Univ., Corvallis, OR, Feb. 2012.
  - Dept. of Mechanical Engineering, Univ. of California Riverside, Riverside, CA, Jan. 2012.
- “Autonomous data collection in underwater sensor networks,” Mini-Symposium on TSP and its Applications, SIAM Conference on Control and its Applications, San Diego, CA, July 2013.
- “Robotic decision making for sensing in the natural world,”
  - Mechanical, Industrial & Manufacturing Eng. Dept., Oregon State Univ., Corvallis, OR, Feb. 2013.
  - CyPhy Lab Colloquium, Queensland University of Technology, Brisbane, Australia, July 2012.
  - Robotics and Intelligent Machines Seminar, Georgia Tech, Atlanta, GA, Feb. 2012.
  - Dept. of Computer Science, Univ. of California Santa Barbara, Santa Barbara, CA, Nov. 2011.
  - Dept. of Computer Science and Eng., Univ. of Washington, Seattle, WA, Nov. 2011.
  - Computer Science Dept., Univ. of Texas at Austin, Austin, TX, Nov. 2011.
  - CSAIL, Massachusetts Institute of Technology, Boston, MA, Oct. 2011.
  - Dept. of Computer Science and Eng., Univ. of California San Diego, La Jolla, CA, Oct. 2011.
- “Complexity and performance guarantees in robotic information gathering,” Robotics: Science and Systems Workshop on Stochastic Motion Planning and Information-based Control, Sydney, Australia, July 2012.
- “Autonomous robotic inspection and the benefit of adaptivity,” Field Robotics Center Seminar, Carnegie Mellon Univ., Pittsburgh, PA, Jan. 2012.

- “Underwater data collection using robotic sensor networks,” IEEE Underwater Acoustic Signal Processing Workshop, West Greenwich, RI, Oct. 2011.
- “Active classification: Theory and application to underwater inspection,” National Control Engineering Student Workshop, College Park, MD, Apr. 2011.
- “Multi-robot search in the physical world,”
  - Monterey Bay Aquarium Research Institute, Moss Landing, CA, Oct. 2010.
  - Operations Research Dept., Naval Postgraduate School, Monterey, CA, Oct. 2010.
  - Computer Science Dept., Worcester Polytechnic Institute, Worcester, MA, Mar. 2010.
  - Engineering Dept., Swarthmore College, Swarthmore, PA, Mar. 2010.
  - Computer Science Dept., George Washington Univ., Washington, DC, Feb. 2010.
  - Robotic Embedded Systems Lab, Univ. of Southern California, Los Angeles, CA, Dec. 2009.
  - Mobility and Robotic Systems Section, Jet Propulsion Laboratory, Pasadena, CA, Dec. 2009.
- “Careers in robotics,” Allen D. Nease High School Robotics Club, St. Augustine, FL, Dec. 2007.
- “Probabilistic techniques for solving the multi-robot coordinated search problem,”
  - Field Robotics Center Seminar, Carnegie Mellon Univ., Pittsburgh, PA, June 2007.
  - GRASP Laboratory SWARMS Group, Univ. of Pennsylvania, Philadelphia, PA, June 2006.

## Funding

32. Meshed Observations of THE Remote Subsurface with Heterogeneous Intelligent Platforms (MOTHERSHIP), NSF, PI: J. Garwood (OSU), Co-PIs: G. Hollinger (OSU), A. Muto (Temple), P. Lundrigan (BYU), N. Rypkema (WHOI), Y. She (WVU), X. Yu (Purdue), Amount: \$1,400,000, Funded for 2023–2026.
31. Underwater locomotion and distributed coordination, ONR, PI: G. Hollinger (OSU), Co-PIs (OSU): J. Davidson, R. Hatton, M. Johnston, K. Tumer, J. Adams, S. Saisubramanian, Other Co-PIs: K. Morgansen (UW) and K. Sutherland (UO), Amount: \$5,284,447 (my portion: \$1,866,460), Funded for 2023–2027.
30. Marine energy technology development, NAVFAC, PI: B. Robertson (OSU), Co-PIs (all OSU): Y. Cao, G. Hollinger, B. DuPont, S. Yim, and M. Wengrove, Amount: \$2,255,355 (my portion \$128,517), Funded for 2021–2024.
29. Coordinated robotic manipulation, Office of Naval Research, PI: G. Hollinger (OSU), Co-PIs (all OSU): J. Davidson, J. A. Adams, K. Tumer, H. Knight, S. Lee, M. Johnston, B. Batten, Amount: \$6,000,000 (my portion \$2,963,278), Funded for 2021–2025.
28. Co-design of marine energy converters for autonomous underwater vehicle docking and recharging, US Department of Energy, PI: G. Hollinger (OSU), Co-PIs: B. Robertson (OSU), D. Manalang (UW), P. Cross (UH), Amount: \$1,500,000 (my portion \$544,966), Funded for 2022–2025.
27. Adaptable and robust multi-robot decision making through generalized sequential stochastic task assignment, National Science Foundation, PI: G. Hollinger, Amount: \$496,065.00, Funded for 2021–2024.
26. The 2021 NRI/FRR principal investigator meeting, National Science Foundation, PI: W. Smart (OSU), Co-PI: G. Hollinger (OSU), Amount: \$50,000 (my portion \$25,000), Funded for 2021–2022.
25. Assistive child-robot interventions for infants with motor disabilities, National Science Foundation, PI: N. Fitter (OSU), Co-PIs: S. Logan (OSU), G. Hollinger (OSU), Amount: \$706,063.00 (my portion \$258,103), Funded for 2020–2023.

24. Advancing subsea manipulation with an ROV-mounted robotic arm, Office of Naval Research, PI: G Hollinger (OSU), Co-PIs: A. Marburg (UW-APL), J. Lipton (UW), H. Chizeck (UW), K. Tumer (OSU), J. Adams (OSU), F. Li (OSU), J. Davidson (OSU), H. Knight (OSU), Amount: \$3,050,000 (my portion: \$1,473,264). Funded for 2020–2024.
23. Resident seabed autonomy, Office of Naval Research, PI: D. Manalang (UW-APL), CoPIs: G. Hollinger (OSU), A. Marburg (UW-APL), K. Tumer (OSU), J. Adams (OSU), F. Li (OSU), J. Davidson (OSU), H. Knight (OSU), Amount: \$7,000,000 (OSU portion \$3,300,000). Funded for 2020-2023.
22. Autonomous monitoring of geologic repositories, Pacific Northwest National Lab, PI: C. Palmer (OSU), Co-PI: G. Hollinger (OSU), Amount: \$120,000 (my portion \$69,342). Funded for 2020.
21. Topological planning in information space for intelligent robotic systems, NSF CAREER Award, PI: G. Hollinger (OSU), Amount: \$497,523. Funded for 2019–2024.
20. Precise, discriminating and robust mapping, DARPA, PI: S. Scherer (CMU), Co-PIs: M. Travers (CMU) and G. Hollinger (OSU), Amount: \$4,500,000 (my portion \$600,000). Funded for 2018–2021.
19. Optimization of marine hydrokinetic energy systems for naval applications at multiple scales, U.S. Navy, PI: B. Polagye (UW), Co-PIs: G. Hollinger (OSU) and A. Stewart (UW), Amount: \$7,300,000 (my portion \$300,000). Funded for 2018–2021.
18. Integrating science needs with advanced seafloor sensor engineering to provide early warning of geohazards: visioning workshop and roadmap for the future, National Science Foundation (NSF), PI: C. Parrish (OSU), Co-PIs: G. Hollinger (OSU), A. Trehu (OSU), B. Mason (OSU), J. Selker (OSU), Amount \$50,000. Funded for 2018.
17. Bioinspired design and shared autonomy for underwater robots with soft limbs, National Science Foundation (NSF) National Robotics Initiative (NRI) Program, PI: Y. Menguc (OSU), Co-PI: G. Hollinger (OSU), Amount: \$686,583 (my portion \$343,291). Funded for 2017–2020.
16. Taskable and adaptable autonomy for heterogenous marine vehicles, National Science Foundation (NSF) Smart & Autonomous Systems, PI: G. Hollinger (OSU), Co-PIs: J. A. Adams (OSU), J. Barth (OSU), J. Nash (OSU), K. Shearman (OSU), Amount: \$1,000,000 (my portion \$264,000). Funded for 2017–2020.
15. Autonomous ocean navigation, Naval Research Laboratory, PI: G. Hollinger (OSU), Amount: \$112,104. Funded for 2017–2018.
14. Information-aware decision making in teams of autonomous vehicles and humans, Office of Naval Research (ONR) Young Investigator Program (YIP), PI: G. Hollinger (OSU), Amount: \$510,000. Funded for 2017–2020.
13. Robotic emplacement of harsh environment tag on spent fuel assemblies, Idaho National Lab, PI: G. Hollinger (OSU), Co-PIs: Yigit Menguc (OSU), Amount: \$116,635 (my portion \$58,317). Funded for 2016–2018.
12. Joint mission planning (JMPS) autonomy algorithm integration, US Navy, PI: B. Smart (OSU), Co-PIs: G. Hollinger (OSU), K. Tumer (OSU), C. Grimm (OSU), Amount: \$400,000 (my portion \$100,000). Funded for 2016–2017.
11. Cooperative autonomous tunnel mapping, U.S. Air Force, PI: S. Singh (Near Earth Autonomy, Inc.), Co-PIs: G. Hollinger (OSU), N. Michael (CMU), S. Scherer (CMU), Amount: \$998,843 (my portion \$165,000). Funded for 2015-2017.
10. Advanced laboratory and field arrays (ALFA) for marine energy, U.S. Department of Energy, PIs: B. Batten (OSU), B. Polagye (UW), and Jeremy Kasper (Univ. Alaska Fairbanks), Co-PIs: G. Hollinger and others, Amount: \$4,000,000 (my portion \$233,427). Funded for 2015–2017.
9. Revolutionizing our understanding of ocean ecosystems, W. M. Keck Foundation, PI: J. Barth (OSU), Co-PIs: K. Benoit-Bird (OSU) and G. Hollinger (OSU), Amount: \$1,000,000 (my portion \$128,786). Funded for 2015-2017.



8. Intelligent in-orchard bin managing system for tree fruit production, USDA National Robotics Initiative (NRI) Program, PI: Q. Zhang (WSU), Co-PIs: M. Taylor (WSU) and G. Hollinger (OSU), Amount: \$1,010,168 (my portion \$283,487). Funded for 2014–2017.
7. Typecasting agents for managing human-system interactions in the National Airspace System, NASA SSAT Program, PI: K. Tumer (OSU), Co-PI: G. Hollinger (OSU), Amount: \$917,843 (my portion \$458,921). Funded for 2014–2017.
6. Defect detection and characterization in cast metal parts, PCC Structural, Inc. with Oregon Metals Initiative cost matching, PI: R. Hatton (OSU), Co-PI: G. Hollinger (OSU), Amount: \$100,000 (my portion \$50,000). Funded for 2014–2015.
5. Complex system planning to improve global product flow, PCC Structural, Inc. with Oregon Metals Initiative cost matching, PI: G. Hollinger (OSU), Co-PIs: B. Smart (OSU) and K. Tumer (OSU), Amount: \$200,000 (my portion \$83,333). Funded for 2014–2017.
4. Automatic detection of visual defects in metal parts, DWFritz Automation, Inc. with Oregon Metals Initiative cost matching, PI: B. Smart (OSU), Co-PI: G. Hollinger (OSU), Amount: \$100,000 (my portion \$50,000). Funded for 2014–2015.
3. Autonomous exploration and exploitation: the role of adaptive decision making, Office of Naval Research (ONR) Science of Autonomy Program, PI: G. Hollinger (OSU), Amount: \$510,000. Funded for 2014–2017.
2. Collaborative planning for human-robot science teams, National Science Foundation (NSF) National Robotics Initiative (NRI) Program, PI: G. Sukhatme (USC), Subcontracted Co-PI: G. Hollinger (OSU), Amount: \$482,252 (my portion \$228,000). Funded for 2013–2016.
1. Multi-UAV cooperative tunnel mapping, U.S. Air Force Phase 1 SBIR, G. Hollinger consulting with Near Earth Autonomy, Inc., Status: Funded for 2013. Amount: \$100,000 (my portion \$24,000).

## Teaching and Mentoring Experience

<b>Instructor, Graduate Course</b> Robotics and Society (new course)	Winter 2018–2025 (taught every other year) Oregon State University
<b>Instructor, Graduate Course</b> Sequential Decision Making in Robotics (new course)	Winter 2015–2025 (taught every other year) Oregon State University
<b>Instructor, Undergraduate Course</b> Dynamics, Systems and Control (Regular and Honors sections)	Fall 2013–2024 (taught every year) Oregon State University
<b>Instructor, Graduate Course</b> Sequential Decision Making in Robotics (new course)	Spring 2011 University of Southern California
<b>Teaching Assistant, Undergraduate Course</b> Introduction to Mobile Robot Programming	Fall 2009 Carnegie Mellon University
<b>Teaching Assistant, Graduate Course</b> Graduate Artificial Intelligence	Fall 2007 Carnegie Mellon University
<b>Reading Group Founder</b> Philosophy of Robotics Reading Group	Spring 2006–Spring 2010 Carnegie Mellon University
<b>Student Tutor</b> Upward Bound Program	Fall 2001–Spring 2005 Swarthmore College

## Mentoring

- Current postdoctoral advisees (OSU): Ishani Chatterjee (Ph.D., Carnegie Mellon University), Brian Van Stratum (Ph.D., Florida State University)
- Current graduate advisees (OSU): Conor Gagliardi (Ph.D.), Colin Mitchell (Ph.D.), Emily Scheide (Ph.D.), Ian Rankin (Ph.D.), Rakesh Vivekanandan (Ph.D.), Akshaya Agrawal (Ph.D.), Noah Boehme (Ph.D.), Nathan Butler (M.S.), Gavin Andres (M.S.)
- Past postdoctoral advisees (OSU): Graeme Best (Ph.D., University of Sydney), Dongsik Chang (Ph.D., Georgia Tech), Jen Jen Chung (Ph.D., University of Sydney), Nicholas Lawrance (Ph.D., University of Sydney)
- Past graduate advisees (OSU):
  - Robin Singh (M.S., Robotics, graduated 2025), Topic: Motion-Aware Underwater Robotic Grasping
  - Scott Chow (Ph.D., Robotics, graduated 2024), Topic: Learning-based Techniques for Fast and Robust Motion Planning
  - Priti Singh (M.S., Robotics, graduated 2023), Topic: Mission Planning for Multiple Autonomous Underwater Vehicles with Constrained In Situ Recharging
  - Tim Player (M.S., Robotics, graduated 2022), Topic: Real-Time Generative Grasping with Spatio-Temporal Sparse Convolution
  - Kavinda Senewiratne (M.S., Robotics, graduated 2022), Topic: Decentralized multi-robot exploration with sparse communication through deep imitation learning
  - Thane Somers (M.S., Robotics, graduated 2022), Topic: Efficiently learning human preferences for robot autonomy
  - Robert Debortoli (Ph.D., Robotics, graduated 2021), Topic: Deep perception without a camera: enabling 3D reconstruction and object recognition using lidar and sonar sensing
  - Chris Lee (MS, Robotics, graduated 2021), Topic: Deployment planning for multiple marsupial robots
  - Seth McCammon (Ph.D., Robotics, graduated 2020), Topic: Topologically-guided robotic information gathering
  - Jacob Anderson (M.S., Robotics, graduated 2020), Topic: Communication planning for cooperative terrain-based underwater localization
  - Dylan Jones (Ph.D., Robotics, graduated 2020), Topic: Realizable path planning and execution for robotic systems, Awards: NSF GRFP Honorable Mention
  - Manish Saroya (M.S., Robotics, graduated 2020), Topic: Topological learning for robotic exploration and navigation in uncertain environments
  - Matthew Frantz (M.S., Robotics, graduated 2019), Topic: Incorporating Preferences through Linear Programming Constraints for Autonomous Ocean Planning
  - Austin Nicolai (Ph.D., Robotics, graduated 2019), Topic: Augmented Deep Learning Techniques for Robotic State Estimation
  - Jeff Caley (Ph.D., Robotics, graduated 2019), Topic: Deep Learning for Robotic Exploration
  - Andrew Smith (Ph.D., Robotics and Mechanical Engineering, graduated 2018), Topic: Non-Myopic Distributed Planning and Coordination for Multi-Robot Teams
  - Carrie Rebhuhn (Ph.D., Robotics and Mechanical Engineering, co-advised with Kagan Tumer, graduated 2017), Topic: Adaptive Multiagent Traffic Management for Autonomous Robotic Systems
  - Lauren Milliken (M.S., Robotics, graduated 2017), Topic: Modeling User Expertise for Choosing Levels of Shared Autonomy
  - Ryan Skeeel (M.S., Robotics, graduated 2016), Topic: Planning Under Uncertainty for Unmanned Aerial Vehicles

- Yawei Zhang (M.S., Robotics, graduated 2015), Topic: Multi-robot Coordination: Applications in Orchard Bin Management and Informative Path Planning
- Daniel Fernandez (M.S., Robotics, graduated 2015), Topic: Model Predictive Control for Underwater Robots in Ocean Waves
- Atil Iscen (Ph.D., Mechanical Engineering and Computer Science, co-advised with Kagan Tumer, graduated 2014), Topic: Multiagent Learning for Locomotion and Coordination in Tensegrity Robotics
- Past undergraduate research assistants (OSU): Evan Gonnerman, Ryan Skeelee, Brandon Lee, Kyle Cesare, Soohyun Yoo, Heather Vermilyea, Alex Mikes, Parker Mayer
- Past summer undergraduate REU students (OSU): Andrew Stuntz (2014), Nikki Gantos (2015), Veronica Gruning (2016), Juan Diaz (2016), Javier Yu (2017), Trevor Greenside (2017), Gretchen Rice (2018), Sevval Sare Gulduren (2019), Abigail Rafter (2019), Lucy Griswold (2021), Lauren Gayle (2023), John Ryu Adams (2024), Braden Brooker (2024)
- Thesis review committees (Ph.D.):
  - Andre Nunez (Engineering and Information Technology, University of Technology Sydney), 2025  
Topic: Adaptive Tree-Search Methods for Risk-Aware Stochastic Ship Routing
  - Brady Moon (Robotics, Carnegie Mellon University), 2025  
Topic: Informative Path Planning Toward Autonomous Real-World Applications
  - Dae Kun Kang (Civil Engineering, Oregon State University), 2025  
Topic: Disaster Response and Damage Assessment Using Remote Sensing and Deep Learning Technologies
  - Johanna Hansen (Computer Science, McGill University), 2024  
Topic: Structured Modeling for Robot Decision-Making
  - Joshua Cook (Robotics, Oregon State University), 2024  
Topic: Multiagent Learning of Robust Teaming
  - Ameer Helmi (Robotics, Oregon State University), 2024  
Topic: Mediating Child Physical Activity and Motor Skill Development with Assistive Robots
  - Jialin Yuan (Computer Science, Oregon State University), 2023  
Topic: Visual Object Discovery and Understanding
  - Abrar Fallatah (Computer Science, Oregon State University), 2023  
Topic: Inclusive Software Design and Its Methods for Beyond-WIMP User Interfaces
  - Alexander You (Robotics, Oregon State University), 2023  
Topic: Pruning the Third Dimension: Using 2D Images for Perception and Control in Outdoor Environments
  - Gaurav Dixit (Robotics), Oregon State University, 2023  
Topic: Learning to Coordinate in Sparse Asymmetric Multiagent Systems
  - Grace Diehl (Robotics and Computer Science, Oregon State University), 2023  
Topic: Collective Coalition Formation
  - Alexandra Bacula (Robotics, Oregon State University, 2023)  
Topic: Socially Communicative Multi-Robot Motion and Formation: Algorithm Development and Validation
  - Brian Zhang (Robotics, Oregon State University, 2023)  
Topic: Nonverbal Sound in Human-Robot Interaction: What, How, and Most of All Why
  - Connor Yates (Robotics, Oregon State University, 2022)  
Topic: Robust Long Term Autonomy Through Local Behaviors
  - Golden Rockefeller (Robotics, Oregon State University), 2021  
Topic: Providing Informative Feedback for Learning in Tightly Coupled Multiagent Domains
  - Neale Ratzlaff (Computer Science, Oregon State University), 2021  
Topic: Uncertainty in Deep Learning with Implicit Neural Networks

- Asif Arain (Computer Science, Orebro University), expected 2020  
Topic: Efficient Remote Gas Inspection with an Autonomous Mobile Robot
- Gina Olson (Robotics, Oregon State University), 2020  
Topic: Structure and Actuation of Cephalopod-Inspired Soft Robots
- Gilberto Marcon dos Santos (Robotics, Oregon State University), 2020  
Topic: Coalition Formation for Scalable Multiple Robot Planning Under Uncertainty
- Shauharda Khadka (Robotics, Oregon State University), 2019  
Topic: Tackling Credit Assignment Using Memory and Multilevel Optimization for Multiagent Reinforcement Learning
- Akash Arora (Engineering and Information Technologies, University of Sydney), 2018  
Topic: Multi-Modal Active Perception for Robotic Information Gathering in Science Missions
- Troy Wilson (Engineering and Information Technologies, University of Sydney), 2017  
Topic: Adaptive Sampling for Efficient Online Modelling
- William Curran (Robotics, Oregon State University), 2017  
Topic: High-Dimensional Reinforcement Learning with Human Feedback
- Gonzalo Saldias (Oceanography, Oregon State University), 2017  
Topic: Optics, Structure, and Variability of the Offshore Columbia River Plume
- Maani Ghaffari Jadidi (Engineering and Information Technology, University of Technology Sydney), 2016  
Topic: Gaussian Processes for Information-Theoretic Robotics Mapping and Exploration
- Timothy Patten (Engineering and Information Technologies, University of Sydney), 2016  
Topic: Active Object Classification from 3D Range Data with Mobile Robot
- Lim Zhan Wei (Computer Science, National University of Singapore), 2015  
Topic: Planning Under Uncertainty: From Informative Path Planning to Partially Observable Semi-MDPs
- Roman Marchant Matus (Machine Learning, University of Sydney), 2015  
Topic: Bayesian Optimisation for Planning in Dynamic Environments
- Daniel Lazewatsky (Robotics, Oregon State University), 2015  
Topic: Making the Unconscious Unconscious: Reclaiming Microinteractions for People with Motor Disabilities
- Arash Abbasi (Electrical and Computer Engineering, Oregon State University), 2015  
Topic: Ultra-wideband Relay Communication Systems
- Logan Yliniemi (Robotics, Oregon State University), 2015  
Topic: Multi-objective Optimization in Adaptive Multiagent Systems
- Christian Hubicki (Robotics, Oregon State University), 2015  
Topic: From Running Birds to Running Robots: Optimization as a Unifying Framework for Dynamic Bipedal Locomotion
- Chen Jie (Computer Science, National University of Singapore), 2013  
Topic: Towards Large-scale Modeling and Prediction of Spatiotemporal Environmental Phenomena
- Thesis review committees (M.S.):
  - Rafael Morales Mayoral (Robotics, Oregon State University, 2024)  
Topic: Evaluating The Benefits Of Tailoring Assistive Robotics Toward Children
  - Andrew Festa (Robotics, Oregon State University, 2023)  
Topic: Influence-Focused Asymmetric Islands
  - Nathan Hewitt (Robotics, Oregon State University, 2023)  
Topic: Multi Objective Model Predictive Control for Sparsely Rewarded Manipulation
  - Ali Behnoudfar (Computer Science, Oregon State University, 2022)  
Topic: Individual Fairness Optimization in Machine Learning with Minimax Loss and an Abstain Option
  - Matthew Leary (Civil Engineering, Oregon State University, 2021)  
Topic: Comparison and Validation of Hydrodynamic Theories for Wave Energy Converter Modelling

- Reid Christopher (Robotics, Oregon State University, 2021)  
Topic: Multi-Reward Learning and Sparse Rewards
- Connor Kurtz (Computer Science, Oregon State University, 2021)  
Topic: Fair Trajectory Planning of Autonomous Systems
- Patrick Clary (Robotics, Oregon State University, 2019)  
Topic: Sim-to-Real Policy Transfer for the Bipedal Robot Cassie
- Austin Whitesell (Robotics, Oregon State University, 2019)  
Topic: Predicting Autonomous Navigation Behaviors and Failures from Features in the Environment
- Michael Hector (Robotics, Oregon State University, 2019)  
Topic: Why Use Ankles? An Optimization Approach to Discover Energetic Benefits of Ankles in Steady Locomotion
- Wylie Ferron (Civil and Construction Engineering, Oregon State University, 2018)  
Topic: Roadmap for BIM Adoption and Implementation by Small-Sized Construction Companies
- Neale Ratzlaff (Computer Science, Oregon State University, 2018)  
Topic: Methods for Detection and Recovery of Out-of-Distribution Examples
- Taylor Courier (Robotics, Oregon State University, 2018)  
Topic: Perception System for a Formula SAE Driverless Car
- Erik Klinkhammer (Robotics, Oregon State University), 2018  
Topic: Learning in Complex Domains: Leveraging Multiple Rewards through Alignment
- Chloe Fleming (Robotics, Oregon State University), 2018  
Topic: Recruitment-Based Robotic Colony Allocation
- Ovunc Tuzel (Robotics, Oregon State University), 2018  
Topic: Artificial Swarm Control Through Learning Based Leadership
- Matthew Gillins (Civil Engineering, Oregon State University), 2016  
Topic: Unmanned Aircraft Systems for Bridge Inspection: Testing and Developing End-to End Operational Workflow.
- Alexandra Simpson (Civil Engineering, Oregon State University), 2016  
Topic: Wave-by-Wave Forecasting via Assimilation of Marine Radar Data
- Aida Rahmattalabi (Robotics, Oregon State University), 2016  
Topic: D++: Structural Credit Assignment in Tightly Coupled Multiagent Domains
- Andrew Gabler (Robotics, Oregon State University), 2015  
Topic: Learning-based Control of Experimental Hybrid Fuel Cell Power Plant
- Sepideh Kharaghani (Robotics, Oregon State University), 2015  
Topic: History-based Local Reward Shaping in Multiagent Systems
- Richard Meier (Electrical and Computer Engineering, Oregon State University), 2015  
Topic: Toward Automated Decision-making in Power Systems Wide-area Protection
- Bradley Ling (Mechanical Engineering, Oregon State University), 2015  
Topic: Real-time Estimation and Prediction of Wave Excitation Forces for Wave Energy Control Applications
- Teresa Tjahja (Computer Science, Oregon State University), 2015  
Topic: Supervised Hierarchical Segmentation for Bird Bioacoustics
- Michael Dille (Robotics, Carnegie Mellon University), 2010  
Topic: Target Tracking, Geolocation, and Search with Small Unmanned Aerial Vehicles
- Thesis review committees (Honors B.S.):
  - Joshua Cook (Mechanical Engineering, Oregon State University), 2019  
Topic: Q-Network Selection in Multiagent Settings
  - Jacob Shryer (Mechanical Engineering, Oregon State University), 2019  
Topic: Design and Testing of a Tethered, Coaxial Rotor Micro Air Vehicle

- Mitchell Bernards (Mechanical Engineering, Oregon State University), 2018  
Topic: Utilizing Robot Ankle Torques to Account for Foot Placement Error
- John Diebold (Mechanical Engineering, Oregon State University), 2016  
Topic: Unmanned Aerial Vehicle Black Box
- Cameron Bowie (Computer Science, Oregon State University), 2016  
Topic: Robotic Path-Planning Through Dynamic Maps
- Ryan Skeeel (Mechanical Engineering, Oregon State University), 2014  
Topic: Autonomous Quadcopter Research, Systems, and Global Impacts to Come

## Service and Affiliations

### Editorships, Program Committees, and Review Service

- Co-Organizer: National Science Foundation National Robotics Initiative & Foundational Research in Robotics PI Meeting, 2021
- Local Arrangements Co-Chair: ACM/IEEE Int. Conf. on Human-Robot Interaction (HRI) 2015
- Area Chair: Robotics: Science and Systems Conf. (RSS) 2015
- Associate Editor (journals): *IEEE Robotics and Automation Letters* (RA-L) 2017–2020, *Autonomous Robots* (AURO) 2018–2021
- Associate Editor (conferences): IEEE Int. Conf. on Robotics and Automation (ICRA) 2012–2017, 2024; IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS) 2014–2016
- Senior Program Committee: Int. Joint Conf. on Artificial Intelligence (IJCAI) 2013; AAAI 2014
- Guest Editor: *Autonomous Robots: Special Issue on Search and Pursuit-evasion with Mobile Robots*, vol. 31, no. 4, Nov. 2011; *Autonomous Robots: Special Issue on Online Decision Making in Multi-Robot Coordination*, vol. 42, no. 4, Apr. 2018.,
- Program Committees: AAAI 2012–2015; Robotics: Science and Systems Conf. (RSS) 2010–2024; Int. Workshop on Cooperative Robots and Sensor Networks (RoboSense) 2012–2013; Autonomous Agents and Multiagent Systems (AAMAS) 2013–2014; Int. Conf. on Intelligent Autonomous Systems (IAS) 2014; Int. Symp. on Distributed Autonomous Robotic Systems (DARS) 2014–2016; Int. Symp. on Experimental Robotics (ISER) 2014; Int. Workshop on Wireless Networking for Unmanned Autonomous Vehicles (Wi-UAV) 2014; Workshop on Algorithmic Foundations of Robotics (WAFR) 2016–2024; International Symposium on Multi-Robot and Multi-Agent Systems (MRS) 2019
- Awards Committee: Int. Workshop on Wireless Networking for Unmanned Autonomous Vehicles (Wi-UAV) 2014
- Session Chair: Robotics: Science and Systems Conf. 2015 and 2018; IEEE Int. Conf. on Robotics and Automation 2013, 2015, 2021, 2024; IEEE/RSJ Int. Conf. on Intelligent Robots and Systems 2011, 2020, 2023
- Reviewer (Journals): *ACM Trans. on Sensor Networks*; *Computational Intelligence*; *IEEE Trans. on Robotics*; *IEEE Trans. on Mobile Computing*; *Journal of Field Robotics*; *Journal of Social Robotics*; *Robotics and Autonomous Systems*; *Artificial Intelligence Journal*; *Robotics and Automation Mag.*; *Autonomous Robots*; *Autonomous Agents and Multi-Agent Systems*; *Philosophy and Technology*; *Robotica*; *Int. Journal on Artificial Intelligence Tools*; *Applied Mathematics and Computation*; *Journal of Robotics*; *Int. Journal on Advanced Robotic Systems*; *IEEE Access*; *IET Control Theory & Applications*; *IEEE Trans. on Vehicular Technology*; *IEEE Trans. Aerospace and Electronic Systems*; *Computers & Operations Research*; *Journal of Atmospheric and Oceanic Technology*; *IEEE Journal of Oceanic Engineering*; *Machine Learning*; *Ocean Engineering*; *IEEE Trans. Human-Machine Systems*

- Reviewer (Conferences and Workshops): Int. Symp. on Robotics Research; IEEE Int. Conf. on Robotics and Automation; Int. Conf. on Intelligent Autonomous Systems; Int. Symp. on Experimental Robotics; IEEE/RSJ Int. Conf. on Intelligent Robots and Systems; Int. Conf. on Field and Service Robotics; Int. Symp. on Distributed Autonomous Robotic Systems; IEEE Int. Workshop on Safety, Security, and Rescue Robots; Mediterranean Conf. on Control and Automation; Conf. Towards Autonomous Robotic Systems; Workshop on the Algorithmic Foundations of Robotics; IEEE Conf. on Decision and Control, American Control Conf.; Int. Symp. on Multi-robot and Multi-Agent Systems; IEEE Int. Conf. on Multisensor Fusion and Integration for Intelligent Systems
- Proposal Review Panels: Maryland Industrial Partnerships Program, 2014; Strategic Environmental Research and Development Program (SERDP), 2016; Interdisciplinary Research Initiation Award Program, 2016; Research Council of Norway, 2018; National Science Foundation panels, 2016–2017, 2019, 2021–2023; NASA Early Stage Innovation, 2018; NSF Graduate Research Fellowship Program (GRFP), 2020–2021; University of Tennessee Center of Excellence in Computational Science and Engineering (CEACSE), 2022; DoE Water Power Technologies Office (WPTO), 2024; NASA Space Technology Graduate Research Opportunities (NSTGRO), 2023–2025; North Pacific Research Board (NPRB), 2025

### Workshop Organization

- “Debates on the future of robotics research,” debater, IEEE Int. Conf. on Robotics and Automation (ICRA) Workshop, Tokyo, Japan, 2024.
- “Communication challenges in multi-robot systems: perception, coordination, and learning,” co-organized with R. Parasuraman, M. Otte, K. Dantu, R. Fitch, D. Sofge, IEEE Int. Conf. on Robotics and Automation (ICRA) Workshop, London, UK, 2023.
- “Explainable and trustworthy robot decision making for scientific data collection,” co-organized with M. Furlong, N. Ahmed, and S. McCammon, Robotics: Science and Systems Conf. (RSS) Workshop, virtual, 2020
- “NSF-sponsored workshop on integrating science needs with advanced seafloor sensor engineering to provide early warning of geohazards,” co-organized with C. Parrish, A. Trehu, J. Selker, and B. Mason, Gleneden Beach, OR, 2018
- “Robot communication in the wild: meeting the challenges of real-world systems,” co-organized with M. Otte, D. Sofge, R. Fitch, and K. Dantu, Robotics: Science and Systems Conf. (RSS) Workshop, Boston, MA, 2017
- “Second workshop on on-line decision-making in multi-robot coordination,” co-organized with J. Faigl, O. Simonin, J. J. Chung, and F. Charpillet, Robotics: Science and Systems Conf. (RSS) Workshop, Ann Arbor, MI, 2016
- “Panel discussion on the future of long-duration autonomy,” panelist, MTS/IEEE OCEANS Conf., Washington, DC, 2015
- “Workshop on on-line decision-making in multi-robot coordination,” co-organized with J. Faigl, O. Simonin, and F. Charpillet, IEEE Int. Conf. on Intelligent Robots and Systems (IROS) Workshop, Hamburg, Germany, 2015
- “Persistent autonomy for aquatic robotics: the role of control and learning in single and multi-robot systems,” co-organized with F. Maurelli, D. Lane, R. N. Smith, M. A. Hsieh, L. Marques, K. Kyriakopoulos, M. Carreras, P. Kormushev, and M. Fox, IEEE Int. Conf. on Robotics and Automation (ICRA) Workshop, Seattle, WA, 2015
- “Workshop on human-robot teaming,” panelist, ACM/IEEE Int. Conf. on Human-robot Interaction (HRI), Portland, OR, 2015
- “Autonomous control, adaptation and learning for underwater vehicles,” co-organized with R. Smith, A. Hsieh, and F. Hover, Robotics: Science and Systems Conf. (RSS) Workshop, Berkeley, CA, 2014
- “Multi-agent coordination in robotic exploration,” program committee member, European Conf. on Artificial Intelligence (ECAI) Workshop, Prague, Czech Republic, 2014

- “NSF-sponsored workshop on robot planning in the real world: research challenges and opportunities,” session chair, Washington, DC, 2013
- “Robotic exploration, monitoring, and information collection: nonparametric modeling, information-based control, and planning under uncertainty,” co-organized with S. Karaman, M. Vitus, M. Schwager, C. Tomlin, F. Ramos, S. Williams, and C. Stachniss, Robotics: Science and Systems Conf. (RSS) Workshop, Berlin, Germany, 2013
- “Combining task and motion planning for real-world applications,” program committee member, Int. Conf. on Automated Planning and Scheduling (ICAPS) Workshop, Sao Paulo, Brazil, 2012
- Search in the physical world: efficiency, scalability, and guarantees,” co-organized with T. Chung and V. Isler, IEEE Int. Conf. on Robotics and Automation (ICRA) Workshop, Anchorage, Alaska, 2010

### **Society Memberships**

- IEEE (Robotics and Automation Society) Member 2002–2018, Senior Member 2018–present
- Member of Phi Beta Kappa Honors Society, inducted 2005
- Tau Beta Pi Engineering Honors Society, inducted 2004 (Swarthmore Chapter Vice-President 2004–05)

### **University Service**

- Research Advancement Academy (RAA) Advisory Committee, Oregon State University, 2023–2025
- Collaborative Innovation Complex (CIC) Steering Committee, Oregon State University, 2022
- Graduate Program Committee, Robotics, Oregon State University, 2014–present (Chair, 2019–2022)
- Faculty Advisor, Robotics Graduate Student Association, Oregon State University, 2019–2022
- Graduate Program Committee, Mechanical Engineering, Oregon State University, 2014–2019
- Chair, Graduate Admissions Committee, Robotics, Oregon State University, 2013–2019
- Faculty Hiring Committee, Robotics (2016 and 2018), Industrial Engineering (2024), Gaulke Center Executive Director (2024), Huang Collaborative Innovation Complex Director (2025), Oregon State University
- Autonomous Systems Research Group Steering Committee, Oregon State University, 2015–2016
- Search Committee, Grants & Contracts Coordinator, College of Engineering, Oregon State University, 2013
- Robotics Institute Graduate Admissions Committee, Carnegie Mellon University, 2009–2010
- Robotics Institute Summer Scholars Selection Committee, Carnegie Mellon University, 2007–2010

### **Outreach**

- Webinar for Arizona First Lego League teams (400 elementary school students attended), November, 2024
- Research presentation and judging support at Oregon Regional MATE Remotely Operated Vehicle Competition, Lincoln City, OR, 2018–2024
- ASE High School Intern Faculty Mentor: Remy Noble (2015), Apoorva Prakash (2016), Arashvir Sidhu (2019), Micah Matthews (2022), Joshua Fan (2022), Baker Celis (2023), Richard Chen (2023)
- Underwater robot demo at OSU Hatfield’s Marine Science Day, Newport, OR, 2015
- Oregon Robotics Kit software and hardware release for freshman and sophomore students, 2014
- Oregon State University MECOP co-op program faculty ambassador, 2014



- Consultant for elementary school robotics program at Teach Academy in South Los Angeles, 2011
- Judge for FIRST Lego League Robotics Competition, 2010
- Mentor for “100 Robots for 100 Kids” outreach program in Pittsburgh, 2007–2010
- Student representative for Robotics Institute Student Organization, 2005–2010
- Underwater manipulation tours for Elevate Oregon Camp and Building Blocks Camp at OH Hinsdale Wave Lab, 2022–2023

## **Personal**

- Citizenship: United States
- Languages: English (native), Spanish (basic)
- NCAA Athlete at Swarthmore (golf team)
- Swarthmore College Parliamentary Debate Society (Vice-President 2004–2005)