# Gregory L. Dudek

Academic Curriculum Vitae

## Contents

## Gregory Dudek

| | |
|---|---|
| School of Computer Science<br>McGill University<br>Montreal, Quebec<br>Canada H3A 2A7 | Office: (514) 398-4325<br>Home: (514) 935-1940<br>Email: dudek@cim.mcgill.ca<br>`http://www.cim.mcgill.ca/~dudek` |


## Status

- Professor, School of Computer Science, McGill University.
- Distinguished James McGill Professor (Chair).
- Associate Member, Department of Electrical and Computer Engineering, McGill University.

## Selected Honours, Awards, and Distinctions

- Elected Fellow of the IEEE (Institute of Electrical and Electronics Engineers) through the IEEE Robotics and Automation Society, 2025.
- CS-CAN Lifetime Achievement Award awarded in 2024 for "groundbreaking research, transformative contributions to Canadian robotics, impactful mentorship, and leadership roles within the academic community."
- Elected in 2023 to the administrative committee (AdCom) of the IEEE Robotics and Automation Society (RAS). The RAS, and hence the AdCom, administers all major international robotics conferences, IEEE technical journals, and other activities across the globe.
- Named Distinguished James McGill Professor (the title "Distinguished" is the change; it connotes "McGill's highest honour" according to the office of the Provost, 2022).
- IEEE ICON award for ICRA 2019 as the best IEEE conference of 2019, award ceremony deferred to 2022 due to pandemic.
- Best paper award for the paper "One for All: Traffic Prediction at Heterogeneous 5G Edge with Data-Efficient Transfer Learning." at the IEEE Globecom, 2021.
- Director of the NSERC Canadian Robotics Network, a national program with some 11 participating universities, roughly a dozen participating companies, and a budget of over $10M (2019-2024). Former director of the NSERC Canadian Field Robotics Network (2014-2018).
- Awardee, IEEE Gold Medal awarded by IEEE Montreal section, region 7, 2017.

- ICRA best paper award nominee for the paper "Learning legged swimming gaits from experience." at the IEEE International Conference on Robotics and Automation (ICRA '15), Seattle, USA, May 2015.
- Recipient of the 2010 prix J. Armand Bombardier for Technological Innovation Robotics from ACFAS, the Association francophone pour le savoir (the French learned society).
- Recipient of the 2010 award for Academic Achievement and also for the 2010 award for Service to the Community at the Conference on Computer and Robot Vision.
- Awarded the 2010 Fessenden Professorship for Science Innovation.
- Elected president of the Canadian Pattern Recognition and Image Processing Society (2006-2016)
- IT person of the month, November 2010, elected by ActionTI, a consortium of Information Technology companies and organizations with some 10,000 members.
- Awarded 2009 Fessenden Prize for achievements in innovative research with a commercialization potential.
- Award the 2009 CRV best robotics paper award, for the paper "A Vision-based Control and Interaction Framework for a Legged Underwater Robot," with my student J. Sattar (now on faculty at the University of Minnesota). Conference on Computer and Robot Vision, Kelowna, BC, Canada.
- James McGill Professor of McGill University, since 2008 (renewed 2016). Award process are based on those for used for CRC Tier 1.
- Recognized as Distinguished Lecturer to represent the research interests of the IEEE Robotics and Automation Society (IEEE RAS) in 2011, 2010, 2009, 2008 (of the 14 IEEE RAS distinguished lecturers that served across the world, 4 were from North America, and lecturers were re-appointed for more than 2 years "only in exceptional circumstances"). The Distinguished Lecturer program continues today, but now has a different and less selective structure.
- Co-recipient (with my co-authors) of the 2008 American Publishers Awards award for Excellence in Physical Science and Mathematics for co-authorship of the Springer Handbook of Robotics.
- Named William Dawson Scholar of McGill University, 2003. CRC tier 2 equivalent criteria.
- ICROS best application paper award (runner up) from 972 accepted papers for the paper "ONSUM: A System for Generating Online Navigation Summaries," with my student Yogesh Girdhar (now on faculty at Wood's Hole Oceanographic Inst.). IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2010), Taipei, Taiwan, October 2010.
- Winner of Best Robotics Paper Award at the Conference on Computer and Robot Vision, 2005 with my student co-author D. Marinakis.

## Work Experience

**2007- present**
Professor, School of Computer Science, Faculty of Science and Associate Member, Department of Electrical and Computer Engineering, Faculty of Engineering. McGill University, Montreal, Quebec, Canada. In addition to teaching at all levels and research, roles have included sitting on Senate and many administrative and advisory positions. (Full Honorific "Distinguished James McGill Professor".)

**2008-present**
Co-president and member of the Board of Directors, Bellairs Research Institute. This is a non-profit research institute.

**2018- December 2024**
Scientific director and lead PI, NSERC Canadian Robotics Network. A consortium of roughly 22 universities and industrial partners targeted at research on robotic systems and technologies. This is the extension of the NSERC Canadian Field Robotics Network (NCFRN), and was the only 2nd-term continuance ever given for any NSERC Strategic Network.

**2019-2024**
Lab head, Vice-President Research, Chief Scientist, Samsung AI Center Montreal. Founding lab head in charge of defining the mandate, guiding the research vision, hiring research staff and guiding almost all technical activities. While "chief scientist" and VP are a generic titles for very senior researchers, during this period there were only 6 Samsung AI Centers outside Korea, each with a single lab head (not all of them VPs).

**2017-2020**
Faculty fellow, ElementAI Inc., Montreal. ElementAI was acquired by ServiceNow.

**2008-2018**
President and co-founder, Independent Robotics Inc., Montreal, Quebec, Canada. Designs, makes and sells high-performance underwater and amphibious robots. Customers include Wood's Hole Oceanographic Institute, and academic institutions in the USA, Canada and Mexico.

**2012-2018**
Scientific director, NSERC Canadian Field Robotics Network. A consortium of roughly 20 universities and industrial partners targeted at research on outdoor robotic systems and technologies. The creation of this network was preceded by over a year of community-building and research planning.

**2015- 2017**
Co-founder, Zazz Mobility Inc. (incorporated 2016).

**2016-2017**
Visiting Professor, Stanford University, Department of Computer Science, Stanford, CA.

**2008-2016**
Director, School of Computer Science, McGill University. This academic unit has over 30 tenure-track faculty members, over 200 graduate students, and many hundreds of undergraduates. 3 back-to-back appointments

**2014-2014**
Member of the Board of Directors, Rozynski Center for the Fine Arts.

**2011-2014**
Acting member of the Board of Directors (delegate), Network on Engineering Complex Software Intensive Systems for Automotive Systems.

**2007**
Visiting Professor (on sabbatical leave), MIT Computer Science and Artificial Intelligence Laboratory (CSAIL).

**2004-2007**
Director, McGill Research Center for Intelligent Machines (CIM), (an inter-faculty research unit with roughly 20 faculty and 130 graduate students), McGill University, Montreal, Quebec, Canada.

**2000-2001**
Visiting Associate Professor, Stanford University, Department of Computer Science, Stanford, CA.

**2000-2001**
Full-Time Consultant, Xerox Palo Alto Research Center (PARC), Palo Alto, CA.

**1994-2007**
Assistant and then Associate Professor, School of Computer Science and Associate Member, Department of Electrical Engineering, McGill University, Montreal, Quebec, Canada.

## Education

- **Doctor of Philosophy,** Computer Science, University of Toronto, 1991.
  **Thesis topic:** "Shape Description Using Curvature." **Supervisor:** Professor John K. Tsotsos
  **Thesis committee:** Professors G. Hinton, A. Jepson, R. Mathon, A. Pentland (MIT), J. Scherk (Mathematics), D. Terzopoulos.
- **Master of Science,** Computer Science (computer systems), University of Toronto, 1982.
  **Thesis topic:** "The Design of a Microcomputer Based Distributed Processing System with Centralized File Service."
- **Bachelor of Science (Honours),** Computer Science and Physics, Queen's University, 1980.

## Refereed Publications

Although fully-refereed conferences have become the primary method for research dissemination in my field, journals are listed first. All prior publications except one involve one or more student co-authors.

## Journals

1. H. Zhao, A. Pacheco, G. Beltrame, X. Liu, M. Dorigo and G. Dudek, "A Blockchain Framework for Equitable and Secure Task Allocation in Robot Swarms," in IEEE Robotics and Automation Letters, vol. 10, no. 10, pp. 10862-10869, Oct. 2025, doi: 10.1109/LRA.2025.3606349.

2. Ablett, Limoyo, Sigal, Jilani, Kelly, Siddiqi, Hogan, and Dudek] Trevor Ablett, Oliver Limoyo, Adam Sigal, Affan Jilani, Jonathan Kelly, Kaleem Siddiqi, Francois Hogan, and Gregory Dudek. Multimodal and force-matched imitation learning with a see-through visuotactile sensor. IEEE Transactions on Robotics, 2024.

3. Jilani, Hogan, Morissette, Dudek, Jenkin, and Siddiqi] Affan Jilani, François Hogan, Charlotte Morissette, Gregory Dudek, Michael Jenkin, and Kaleem Siddiqi. Visual- tactile inference of 2.5 d object shape from marker texture. IEEE Robotics and Automation Letters, 2024.

4. Rivkin, Hogan, Feriani, Konar, Sigal, Liu, and Dudek] Dmitriy Rivkin, Fran- cois Hogan, Amal Feriani, Abhisek Konar, Adam Sigal, Xue Liu, and Gregory Dudek. Aiot smart home via autonomous llm agents. IEEE Internet of Things Journal, 2024.

5. Zhao, Pacheco, Beltrame, Liu, Dorigo, and Dudek] Hanqing Zhao, Alexandre Pacheco, Giovanni Beltrame, Xue Liu, Marco Dorigo, and Gregory Dudek. A blockchain frame- work for equitable and secure task allocation in robot swarms. IEEE Robotics and Automation Letters, 2025.

6. Abhisek Konar, Amal Feriani, Di Wu, Seowoo Jang, Xue Liu, Gregory Dudek. “Accelerating Digital Twin Calibration with Warm-Start Bayesian Optimization,” Proc. ICC 2024-IEEE International Conference on Communications, Denver, CO, USA, 2024, pp. 2372-2377, doi: 10.1109/ICC51166.2024.10622967.

◁ 2023

7. Wang, J., X. Chen, X. Liu, and G. Dudek, “Eliminating Space Scanning: Fast mmWave Beam Alignment with UWB Radios, ”ACM Transactions on Sensor Networks, vol. 19, no. 4, pp. 1-20, 2023

8. Wu, D., J. Li, A. Feriani, Y.T. Xu, M. Jenkin, S. Jang, X. Liu, and G. Dudek, “Reinforcement learning for communication load balancing: approaches and challenges,” Frontiers in Computer Science, vol. 5,p. 1156064, 2023

9. Feriani, A., D. Wu, Y.T. Xu, J. Li, S. Jang, E. Hossain, X. Liu, and G. Dudek, “Multiobjective load balancing for multiband downlink cellular networks: A meta-reinforcement learning approach,” IEEE Journal on Selected Areas in Communications, vol. 40, no. 9, pp. 2614-2629, 2022, doi: 10.1109/JSAC.2022.3191114

10. Chen, X., H. Li, C. Zhou, X. Liu, D. Wu, and G. Dudek, “Fidora: Robust WiFi-based indoor localization via unsupervised domain adaptation,”IEEE Internet of Things Journal, 2022

11. Manjanna, S., A. Hsieh, and G. Dudek, “Scalable multirobot planning for informed spatial sampling,” Autonomous Robots (journal), vol. 46(7),pp. 817-829,2022

12. Hogan, F.R., J.-F. Tremblay, B.H. Baghi, M. Jenkin, K. Siddiqi, and G. Dudek, "Finger-STS: Combined proximity and tactile sensing for robotic manipulation," IEEE Robotics and Automation Letters, vol. 7, no. 4, pp. 10865-10872, 2022, doi: 10.1109/LRA.2022.3191812

13. Konar, A., B. H. Baghi, and G. Dudek. "Learning Goal Conditioned Socially Compliant Navigation From Demonstration Using Risk-Based Features." IEEE Robotics and Automation Letters 6, no. 2 (April 2021): 651-58. doi.org/10.1109/LRA.2020.3048657.

14. Holliday, A. and G. Dudek, "Scale-invariant localization using quasi-semantic object landmarks," Autonomous Robots (journal),vol. 45,pp. 407-420,Feb. 2021, doi.org/10.1007/s10514-021-09973-w

15. Sattar, J., Dudek, G. "Visual identification of biological motion for underwater human-robot interaction". Autonomous Robots, 42(1), 2018, pp. 111-124.

16. *Manderson, Travis*, *Jimmy Li*, Natasha Dudek, David Meger, and Gregory Dudek. "Robotic Coral Reef Health Assessment Using Automated Image Analysis." Journal of Field Robotics 34, no. 1, 2017, pp. 170-187.

17. D. St-Onge, P.-Y. Brèches, I. Sharf, N. Reeves, I. Rekleitis, P. Abouzakhm, *Y. Girdhar*, A. Harmat, G. Dudek, and P. Gigu'ere,"Control, localization and human interaction with an autonomous lighter-than-air performer,", Robotics and Autonomous Systems, vol. 88, , 2017, pp. 165–186.

◁ 2016

18. *A.Xu* and G.Dudek,"Towards modeling real-time trust in asymmetric human-robot collaborations", in Robotics Research Journal. Springer International Publishing, 2016, pp. 113"129.

19. *Girdhar, Yogesh*, and Gregory Dudek, "Modeling curiosity in a mobile robot for long-term autonomous exploration and monitoring," Autonomous Robots, vol. 40, no. 7, pp. 1267–1278, 2016. DOI: 10.1007/s10514-015-9500-x, URL: http://dx.doi.org/10.1007/s10514-015-9500-x. . Related preprint available as arXiv:1509.07975v1.

20. *Girdhar, Yogesh*, *Giguère*, Philippe and Gregory Dudek, "Autonomous adaptive exploration using realtime online spatiotemporal topic modeling," International Journal of Robotics Research (IJRR), Vol 33, No. 4, April 2014, Digital Object Identifier (DOI): 10.1177/0278364913507325, pp. 645-657.

21. Dudek, Gregory and Dieter Fox, "Special issue on robotics: science and systems" (editorial), Autonomous Robots, 37, 2014, DOI: 10.1007/s10514-014-9416-x, pp. 333-334.

22. Desai, Jaydev, Gregory Dudek, Oussama Khatib, Vijay Kumar, "Special Issue of the Thirteenth International Symposium on Experimental Robotics, 2012" (editorial), The International Journal of Robotics Research, Vol. 33(4), 2014. DOI: 10.1177/0278364913518697, pp. 487-488.

23. *G. Y. Chen*, Gregory Dudek Dudek and *L. A. Torres-Mendez*. "Scene reconstruction with sparse range data and intensity information," Optical Engineering, vol. 50, no. 9, 097002, 2011. http://dx.doi.org/10.1117/

24. *Giguère*, Philippe and Gregory Dudek, "A simple tactile probe for surface identification by mobile robots," IEEE Transaction on Robotics, 27(3) (June 2011, Digital Object Identifier: 10.1109/TRO.2011.2119910), 2011, pp. 534-544.

25. *Marinakis*, Dimitri and Gregory Dudek, "Pure Topological Mapping In Mobile Robotics," IEEE Transactions on Robotics, 2010, (document 10-0116), Pages 1051-1064.

26. *Giguère*, Philippe and Gregory Dudek, "Clustering sensor data for autonomous terrain identification using time-dependency," Autonomous Robots, March 2009, pp. 171-186.

27. *Sattar*, Junaed, *Giguère*, Philippe and Gregory Dudek, "Sensor-Based Behavior Control for an Autonomous Underwater Vehicle," International Journal of Robotics Research (IJRR). Volume 28, No. 6, June 2009, pp. 701-713.

28. *Marinakis*, Dimitri and Gregory Dudek, "Self-calibration of a vision-based sensor network," Image and Vision Computing Volume 27, Issues 1-2, 1 January 2009, Pages 116-130.

29. Chen, Guangyi and Gregory Dudek, "Auto-correlation wavelet support vector machine," Image Vision Computing, Volume 27 (8), 2009, DOI: 10.1016/j.imavis.2008.09.006, pp. 1040-1046.

30. *Mills*, Alec, and Gregory Dudek: "Image stitching with dynamic elements," Image Vision Computing, 27(10), 2009, DOI: 10.1016/j.imavis.2009.03.004, pp. 1593-1602.

31. *Torres-Mendez*, Luz Abril and Gregory Dudek, "Inter-Image Statistics for 3D Environment Modeling," International Journal of Computer Vision, 79(2), Aug. 2008, pp. 137-158.

32. *Marinakis*, Dimitri and Gregory Dudek, "Occam's Razor Applied to Network Topology Inference," IEEE Transactions on Robotics, Vol. 24, No. 2, 2008, pp. 293-306.

◁ 2007

33. *Rao*, Malvika, Whitesides, Sue and Gregory Dudek, "Randomized Algorithms for Minimum Distance Localization," The International Journal of Robotics Research, Vol. 26, No. 9, 2007, pp. 917-933.

34. *Giguère*, P., *Prahacs*, C., *Saunderson*, S., *Sattar*, J., *Torres-Mendez*, L.-A., Jenkin, M., German, A., Hogue, A., Ripsman, A., Zacher, J., Milios, E., Liu, H., Zhang, P., Buehler, M., Georgiades, C. and Gregory Dudek, "Aqua: An Amphibious Autonomous Robot," IEEE Computer, V 40(1), January 2007, pp. 46-53.

35. *Rekleitis*, Ioannis, *Meger*, David and Gregory Dudek, "Simultaneous Planning, Localization, and Mapping in a Camera Sensor Network," *Robotics and Autonomous Systems Journal*, November 2006, pp. 921–932.

36. *Theberge*, Michelle and Gregory Dudek, "Gone Swimmin' [seagoing robots]," *IEEE Spectrum*, V 43(6), June 2006, pp. 38- 43.

37. *Chen*, G. Y. and Gregory Dudek, "Auto-Correlation Wavelet Support Vector Machines," Image and Vision Computing, 27(8), pp. 1040-1046, Oct. 2008, doi.org/10.1016/j.imavis.2008.09.006

38. *Sim*, Robert, and Gregory Dudek, "Learning generative models of scene features," *International Journal of Computer Vision*, 60 (1): October 2004, pp. 45-61.

39. *Roy*, N. and Gregory Dudek, "Collaborative Robot Exploration and Rendezvous: Algorithms, Performance Bounds and Observations," Autonomous Robots, 11(2), 2001, pp. 117-136.

40. *Sim*, Robert and Gregory Dudek, "Learning environmental features for pose estimation," *Image and Vision Computing*, 19, 11, Elsevier Press, 2001, pp. 733-739.

41. *Rekleitis*, Ioannis, Milios, Evangelos and Gregory Dudek, "Multi-Robot Collaboration for Robust Exploration," Annals of Mathematics and Artificial Intelligence, 1-4, 31, 2001, pp. 7-40.

42. *Bourque*, Eric and Gregory Dudek, "On the Automated Construction of Image-Based Maps," *Autonomous Robots*, 8,2, April 2000, pp. 103-104

◁ 1999 and before

43. *Sim*, Robert and Gregory Dudek, "Learning Visual Landmarks for Pose Estimation (journal version)," *Canadian Artificial Intelligence*, 43, 1999, pp. 13-17.

44. *Badra*, F., *Qumsieh*, Q., and Gregory Dudek, "Image Mosaicking Using Zernike Moments," *International Journal of Pattern Recognition and Artificial Intelligence (IJPRAI)*, 13, 4, August 1999, pp. 685-704.

45. *Lecours*, S., *Caille*, S., *Fontaine*, S., Arguin, M., Bub, D. and Gregory Dudek, "A semantic proximity effect on object recognition in visual agnosia for biological kinds," *Brain and Cognition*, 37, 1, June 1998, pp. 138-141.

46. *Romanik*, Kathleen, Whitesides, Sue and Gregory Dudek, "Localizing a Robot with Minimum Travel," *SIAM Journal on Computing*, 27, 2, April 1998, pp. 583-604.

47. Tsotsos, John K. and Gregory Dudek, "Shape representation and recognition from multiscale curvature," *Computer Vision, Graphics and Image Processing: Image Understanding*, 68, 2, 1997, pp. 170-189.

48. Jenkin, M., Milios, E., Wilkes, D., and Gregory Dudek, "Map Validation and Robot Self-Location in a Graph-Like World," Robotics and Autonomous Systems, Vol. 22(2), November 1997, pp. 159-178.

49. *Oore*, S., Hinton, G. E. and Gregory Dudek, "A mobile robot that learns its place," *Neural Computation*, 3, 9, April 1997, pp. 683-699.

50. *Hadjres*, Souad, Freedman, Paul and Gregory Dudek, "Using multiple models for environmental mapping," *Journal of Robotic Systems*, 13, 8, Aug 1996, pp. 539-559.

51. Jenkin, Michael, Milios, Evangelos, Wilkes, David and Gregory Dudek, "A Taxonomy for Multi-Agent Robotics," *Autonomous Robots*, 3, 4, 1996, pp. 375-397.

52. Dudek, Gregory "Environment mapping using multiple abstraction levels," Proceedings of the IEEE, 84, 11, Nov. 1996, pp. 1684-1704. (special issue on "Signals and Symbols").

53. *Arguin*, Martin, Bub, Daniel and Gregory Dudek, "Human Integration of Visual Object Recognition and its Implication in Category Specific Visual Agnosia," *Visual Cognition*, 3, 3, 1996, pp. 221-277.

54. Jenkin, Michael, Milios, Evangelos, Wilkes, David and Gregory Dudek, "Robotic Exploration as Graph Construction," *IEEE Transactions on Robotics and Automation*, 7, 6, 1991, pp. 859-865.

## Refereed Conference Papers

"... CS, as a discipline, values conferences as a publication venue more highly than any other academic field of study."
Vrettas and Sanderson, Conferences versus journals in computer science, Journal of the Association for Information Science and Technology, April 2015, DOI: 10.1002/asi.23349.

The Computing Research Association (a major US non-profit public policy organization which has numerous North American member universities including MIT, Stanford and the University of Toronto) suggests "For experimentalists conference publication is preferred to journal publication, and the premier conferences are generally more selective than the premier journals [Academic Careers, 94]." (first published in Computing Research News, Sept 1999, Special Insert page A)

> "The ECSE research community depends heavily on conferences to communicate knowledge, and conferences are widely regarded as the preferred medium for maximizing the effect of ECSE research."
> – "Academic Careers for Experimental Computer Scientists and Engineers" published in the April 1994 issue of the Communications of the ACM.

55. Tremblay, Meger, Hogan, and Dudek] Jean-François Tremblay, David Meger, Francois R Hogan, and Gregory Dudek. Learning active tactile perception through belief-space control. In 2025 IEEE International Conference on Robotics and Automation (ICRA), pages 87028708. IEEE, 2025.

56. W. -D. Chang, F. Hogan, S. Fujimoto, D. Meger and G. Dudek, "Generalizable Imitation Learning Through Pre-Trained Representations," 2025 IEEE International Conference on Robotics and Automation (ICRA), Atlanta, GA, USA, 2025, pp. 1-8, doi: 10.1109/ICRA55743.2025.11127800.

57. Xu, Wu, Jenkin, Jang, Liu, and Dudek] Yi Tian Xu, Di Wu, Michael Jenkin, Se- owoo Jang, Xue Liu, and Gregory Dudek. Optimizing energy saving for wireless networks via offline decision transformer. In ICC 2024-IEEE International Conference on Communications, pages 409414. IEEE, 2024.

58. Wei-Di Chang, Scott Fujimoto, David Meger, Gregory Dudek, "Imitation Learning from Observation through Optimal Transport." Proceedings of the Reinforcement Learning Conference (RLC) 2024, August 2024 (to appear). Also available as: https://openreview.net/pdf?id=RI5frp6she.

59. Holliday, A. and G. Dudek, "A Neural-Evolutionary Algorithm for Autonomous Transit Network Design." Proc. International Conference on Robotics and Automation, May, 2024, Also available as: http://arxiv.org/abs/2403.07917

60. Lotfi, Faraz, Virji, Khalil , Faraji, Farnoosh, Berry, Lucas, Holliday, Andrew, Meger, David Paul, Dudek, Gregory, "Uncertainty-Aware Hybrid Paradigm of Nonlinear MPC and Model-Based RL for Offroad Navigation: Exploration of Transformers in the Predictive Model." Proc. International Conference on Robotics and Automation, May, 2024.

61. Rivkin, Dmitriy, Kakodkar, Nikhil Rajiv, Hogan, Francois, Hamed Baghi, Bobak, Dudek, Gregory. "CARTIER: Cartographic lAnguage Reasoning Targeted at Instruction Execution for Robots." Model." Proc. International Conference on Robotics and Automation, May, 2024.

62. Luo, Junliang, Yi Tian Xu, Di Wu, Michael Jenkin, Xue Liu, and Gregory Dudek. "Adaptive dynamic programming for energy-efficient base station cell switching." In 2024 IEEE International Conference on Communications Workshops (ICC Workshops), pp. 1365-1370. IEEE, 2024.

63. Lajoie, Pierre-Yves, Bobak Hamed Baghi, Sachini Herath, Francois Hogan, Xue Liu, and Gregory Dudek. "PEOPLEx: PEdestrian Opportunistic Positioning LEveraging IMU, UWB, BLE and WiFi." In ICC 2024-IEEE International Conference on Communications, pp. 3518-3523. IEEE, 2024. **ICC 2024 best paper award.**

64. O. Limoyo, A. Konar, T. Ablett, J. Kelly, F. Hogan, and G. Dudek. "Working backwards: Learning to Place by Picking," Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2024

65. Jenkin, Michael, Francois R. Hogan, Kaleem Siddiqi, Jean-Francois Tremblay, Bobak Baghi, and Gregory Dudek. "Interacting with a Visuotactile Countertop." In International Conference on Robotics, Computer Vision and Intelligent Systems, pp. 361-374. Cham: Springer Nature Switzerland, 2024.

66. Lotfi, F., K. Virji, N. Dudek, and G. Dudek, "A comparison of RL-based and PID controllers for 6-DOF swimming robots: hybrid underwater object tracking." To appear, Proc Intelligent Robotics and Systems 2024. Preprint on ArXiv, Jan. 29, 2024, Accessed: Apr. 11, 2024. Available: http://arxiv.org/abs/2401.16618

67. Limoyo, O., J. Li, D. Rivkin, J. Kelly, and G. Dudek, "PhotoBot: Reference-Guided Interactive Photography via Natural Language." Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2024. Also arXiv, Mar. 20, 2024, http://arxiv.org/abs/2401.11061

68. Al Lahham, Saria, Di Wu, Ekram Hossain, Xue Liu, and Gregory Dudek. "Probabilistic Mobility Load Balancing for Multi-Band 5G and Beyond Networks." In 2024 IEEE International Conference on Communications Workshops (ICC Workshops), pp. 1673-1678. IEEE, 2024.. Also available: http://arxiv.org/abs/2401.13792

69. Li, Jimmy, Igor Kozlov, Di Wu, Xue Liu, and Gregory Dudek. "Anomaly Detection for Scalable Task Grouping in Reinforcement Learning-based RAN Optimization." In 2024 IEEE International Conference on Communications Workshops (ICC Workshops), pp. 1395-1400. IEEE, 2024.

◁ 2023

70. Lotfi, F., F. Faraji, N. Kakodkar, T. Manderson, D. Meger, and G. Dudek, "Constrained Robotic Navigation on Preferred Terrains Using LLMs and Speech Instruction: Exploiting the Power of Adverbs." Proc International Conference on Experimental Robotics (ISER), Dec. 2023, also available as arXiv, Apr. 02, 2024, Available: http://arxiv.org/abs/2404.02294

71. Rivkin, D., G. Dudek, N. Kakodkar, D. Meger, O. Limoyo, M. Jenkin, X. Liu, and F. Hogan, "ANSEL Photobot: A Robot Event Photographer with Semantic Intelligence," in 2023 IEEE International Conference on Robotics and Automation (ICRA), 2023, pp. 8262-8268, also available as https://arxiv.org/abs/2302.07931

72. Rezaei-Shoshtari, S., C. Morissette, F.R. Hogan, G. Dudek, and D. Meger, "Hypernetworks for zero-shot transfer in reinforcement learning," in Proceedings of the AAAI Conference on Artificial Intelligence, 2023, vol. 37, no. 8, pp. 9579-9587

73. Faraz Lotfi, Khalil Virji, and Gregory Dudek, "Robust Scuba Diver Tracking and Recovery in Open Water Using YOLOv7, SORT, and Spiral Search," Proceedings of CRV 2023, June 2023, pp. 233-240, doi : 10.1109/CRV60082.2023.00037

74. Changing (Benny) Hu, Ju Wang, Di Wu, Yan Xin, Charlie Zhang, Xue Liu, Greg Dudek "AdaTeacher: Adaptive Multi-Teacher Weighting for Communication Load Forecasting," IEEE Global Communications Conference (GlobeCom), Dec. 2023. (to appear)

75. Di Wu, Yi Tian Xu, Jimmy Li, Michael Jenkin, Ekram Hossain, Seowoo Jang, Yan Xin, Charlie Zhang, Xue Liu, Greg Dudek. "Learning to Adapt: Communication Load Balancing via Adaptive Deep Reinforcement Learning," IEEE Global Communications Conference (GlobeCom), Dec. 2023. (to appear)

76. Di Wu, Yi Tian Xu ,Michael Jenkin, Seowoo Jang, Ekram Hossain, Xue Liu, Greg Dudek, "Energy Saving in Cellular Wireless Networks via Transfer Deep Reinforcement Learning," IEEE Global Communications Conference (GlobeCom), Dec. 2023.

77. Hanqing Zhao, Alexandre Pacheco, Volker Strobel, Andreagiovanni Reina, Xue Liu, Gregory Dudek, Marco Dorigo. A Generic Framework for "Byzantine-tolerant Consensus Achievement in Robot Swarms," Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Oct. 2023, 8 pages

78. Hanqing Zhao, Xue Liu, Gregory Dudek. "Zero-shot Fault Detection for Manipulators through Bayesian Inverse Reinforcement Learning," Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Oct. 2023, 8 pages

79. Kang, Jikun and Wu, Di and Wang, Ju and Hossain, Ekram and Liu, Xue and Dudek, Gregory, "Multi-agent Attention Actor-Critic Algorithm for Load Balancing in Cellular Networks," IEEE International Conference on Communications (ICC) 2023, Rome, Italy, Also as https://doi.org/10.48550/arXiv.2303.080

80. Abhisek Konar, Di Wu, Yi Tian Xu, Seowoo Jang, Steve Liu, Gregory Dudek. "Communication Load Balancing via Efficient Inverse Reinforcement Learning", IEEE International Conference on Communications (ICC) 2023, Rome, Italy,

81. Igor Kozlov, Dmitriy Rivkin, Wei-Di Chang, Di Wu, Xue Liu, Gregory Dudek. "Self-Supervised Transformer Architecture for Change Detection in Radio Access Networks", Proc. IEEE International Conference on Communications (ICC), 2023, also DOI:10.48550/arXiv.2302.02025.

82. Dun Yuan, Yujin Nam, Amal Feriani, Abhisek Konar, Di Wu, Seowoo Jang, Xue Liu, Greg Dudek. "Mixed-Variable PSO with Fairness on Multi-Objective Field Data Replication in Wireless Networks", Proc. IEEE International Conference on Communications (ICC), 2023..

◁ 2022

83. Tian Xu, Y., J. Li, D. Wu, M. Jenkin, S. Jang, X. Liu, and G. Dudek, "Policy Reuse for Communication Load Balancing in Unseen Traffic Scenarios," Proc. IEEE International Conference on Communications (ICC) 2022, Rome, Italy, pp. 619-624, 2022.

84. Baghi, Bobak H, Abhisek Konar, Francois Hogan, Michael Jenkin and Gregory Dudek (2022). "SESNO: Sample Efficient Social Navigation from Observation". In: 2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). IEEE, pp. 9164-9171.

85. Hu, Chengming, Ju Wang, Di Wu, Xue Liu and Gregory Dudek (2022). "Accurate Communication Traffic Forecasting with Multi-Source Adaptive Feature Boosting". In: GLOBECOM 2022-2022 IEEE Global Communications Con- ference. IEEE, pp. 2316-2321.

86. Hussien, Mostafa, Yi Tian Xu, Di Wu, Xue Liu and Gregory Dudek (2022). "Efficient Neural Data Compression for Machine Type Communications via Knowledge Distillation". In: GLOBECOM 2022-2022 IEEE Global Communications Conference. IEEE, pp. 1169-1174.

87. Kang, Jikun, Ju Wang, Chengming Hu, Xue Liu and Gregory Dudek (2022). "A Generalized Load Balancing Policy With Multi-Teacher Reinforcement Learning". In: Proceedings of GLOBECOM 2022-2022 IEEE Global Communications Con- ference. IEEE, pp. 3096-3101.

88. Li, Hang, Ju Wang, Xi Chen, Xue Liu and Gregory Dudek (2022). "Data-Efficient Communication Traffic Prediction With Deep Transfer Learning". In: Proc ICC 2022-IEEE International Conference on Communications. IEEE, pp. 3190- 3195.

89. Wu, Di, Michael Jenkin, Yi Tian Xu, Xue Liu and Gregory Dudek (2022). "Attentive Knowledge Transfer for Short-term Load Forecasting". In: Proc GLOBECOM 2022-2022 IEEE Global Communications Conference. IEEE, pp. 5285- 5291.

90. Zhao, Hanging, Travis Manderson, Hao Zhang, Xue Liu and Gregory Dudek (2022). "Behaviour Learning with Adaptive Motif Discovery and Interacting Multiple Model". In: 2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). IEEE, pp. 10788-10794.

91. Wu, D., Y.T. Xu, M. Jenkin, J. Wang, H. Li, X. Liu, and G. Dudek, "Short-term load forecasting with deep boosting transfer regression," IEEE international conference on communications, Proc International Conference on Communications. (ICC) 2022, 2022, pp. 5530-5536, doi: 10.1109/ICC45855.2022.9838983

92. Wu, D., M. Jenkin, X. Liu, and G. Dudek, "Active deep multi-task learning for forecasting short-term loads," IEEE international conference on communications, ICC 2022, 2022, pp. 5523-5529, doi: 10.1109/ICC45855.2022.9838341

93. Ma, M., D. Wu, Y.T. Xu, J. Li, S. Jang, X. Liu, and G. Dudek, "Coordinated load balancing in mobile edge computing network: a multi-agent DRL approach," Proc. IEEE international conference on communications (ICC), 2022, 2022, pp. 619-624, doi: 10.1109/ICC45855.2022.9838615

94. Li, Jimmy, Di Wu, Yi Tian Xu, Tianyu Li, Seowoo Jang, Xue Liu and Gregory Dudek, "Traffic scenario clustering and load balancing with distilled reinforcement learning policies," Proc. IEEE international conference on communications, ICC 2022, 2022, pp. 1536-1541, doi: 10.1109/ICC45855.2022.9838370

95. Li, Hand, Ju Wang, C. Hu, X. Chen, X. Liu, S. Jang, and G. Dudek, "Communication traffic prediction with continual knowledge distillation," Proc. IEEE international conference on communications (ICC 2022), 2022, pp. 5481-5486, doi: 10.1109/ICC45855.2022.9838521

96. Li, H., J. Wang, X. Chen, X. Liu, and G. Dudek, "Data-efficient communication traffic prediction with deep transfer learning," IEEE international conference on communications, ICC 2022, 2022, pp. 3190-3195, doi: 10.1109/ICC45855.2022.9838413

97. Hansen, J., F. Hogan, D. Rivkin, D. Meger, M. Jenkin, and G. Dudek, "Visuotactile-RL: Learning multimodal manipulation policies with deep reinforcement learning," in 2022 international conference on robotics and automation (ICRA), 2022, pp. 8298-8304, doi: 10.1109/ICRA46639.2022.9812019

◁ 2021

98. Xi Chen, Ju Wang, Hang Li, Yi Tian Xu, Di Wu, Xue Liu, Gregory Dudek, Taeseop Lee, Intaik Park. "One for All: Traffic Prediction at Heterogeneous 5G Edge with Data-Efficient Transfer Learning," Proc. IEEE Global Communications Conference (Globecom 2021). Madrid, Spain, Dec. 2021, 6 pages. **Best paper award**.

99. Di Wu, Jikun Kang, Yi Tian Xu, Hang Li, Jimmy Li, Xi Chen, Dmitriy Rivkin ,Michael Jenkin, Taeseop Lee, Intaik Park, Xue Liu , Gregory Dudek. "Load Balancing for Communication Networks via Data-Efficient Deep Reinforcement Learning," Proc. IEEE Global Communications Conference (Globecom 2021). Madrid, Spain, Dec. 2021, 6 pages.

100. Chang, Wei-Di, Juan Camilo Gamboa Higuera, Scott Fujimoto, David Meger and Gregory Dudek (2022). "Il-flow: Imitation learning from observation us- ing normalizing flows". 4th Robot Learning Workshop: Self-Supervised and Lifelong Learning, NeurIPS 2021, IL-FlOw: Imitation Learning from Observation using Normalizing Flows In: arXiv preprint arXiv:2205.09251.

101. Dmitriy Rivkin, David Meger, Di Wu and Xi Chen, ue Liu, Gregory Dudek. "Learning Assisted Identification of Scenarios Where Network Optimization Algorithms Under-Perform," Proc. IEEE Global Communications Conference (Globecom 2021). Madrid, Spain, Dec. 2021, 6 pages.

102. Konar, A., B.H. Baghi, F.R. Hogan, and G. Dudek, "Toy Story1 Method for Multi-Policy Social Navigation,"RSS Workshop on Social Robot Navigation,p. 5,Jul. 2021

103. Tremblay, J.-F., T. Manderson, A. Noca, G. Dudek, and D. Meger, "Multimodal dynamics modeling for off-road autonomous vehicles," in 2021 IEEE International Conference on Robotics and Automation (ICRA), May 2021, pp. 1796-1802,
doi: 10.1109/ICRA48506.2021.9561910.

104. Girdhar, Y., D. Rivkin, D. Wu, M. Jenkin, X. Liu, and G. Dudek, "Optimizing Cellular Networks via Continuously Moving Base Stations on Road Networks," in 2021 IEEE International Conference on Robotics and Automation (ICRA), May 2021, pp. 4020-4025, doi: 10/gntw2n

105. Rezaei-Shoshtari, S., F.R. Hogan, M. Jenkin, D. Meger, and G. Dudek, "Learning Intuitive Physics with Multimodal Generative Models," in Proc AAAI Conference on Artificial Intelligence, Feb. 2021, vol. 2101, preprint as doi:arXiv:2101.04454, Available: http://adsabs.harvard.edu/abs/2021arXiv210104454R

106. Wang, J., X. Chen, X. Liu, and G. Dudek, "UWB-Assisted fast mmWave beam alignment," in Proc IEEE International Conference on Communications (ICC), 2021, 6 pages,
doi: 10.1109/ICC42927.2021.9500352..

107. Kang, J., X. Chen, D. Wu, Y.T. Xu, X. Liu, G. Dudek, T. Lee, and I. Park, "Hierarchical policy learning for hybrid communication load balancing," in Proc IEEE International Conference on Communications (ICC), 2021, 2021, 6 pages,
doi: 10.1109/ICC42927.2021.9500379..

108. Hogan, F.R., M. Jenkin, S. Rezaei-Shoshtari, Y. Girdhar, D. Meger, and G. Dudek, "Seeing Through your Skin: Recognizing Objects with a Novel Visuotactile Sensor," in Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision, 2021, pp. 1218-1227

◃ 2020

109. Xu, Y.T., X. Chen, X. Liu, D. Meger, and G. Dudek, "PresSense: Passive Respiration Sensing via Ambient WiFi Signals in Noisy Environments," in 2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Oct. 2020, pp. 4032-4039, doi: 10/gntw35

110. Friedman, N., D. Goedicke, V. Zhang, D. Rivkin, M. Jenkin, Z. Degutyte, A. Astell, X. Liu, and G. Dudek, "Out of my way! Exploring Different Modalities for Robots to Ask People to Move Out of the Way,"Workshop on Active Vision and Perception in Human(-Robot) Collaboration. Held in conjunction with the 29th IEEE Int. Conf. on Robot and Human Interactive Communication.,p. 9 [best paper award],Sep. 2020,Available: https://vgrserver.eecs.yorku.ca/ jenkin/papers/2020/AVHRC2020-out-of-my-way.pdf

111. Friedman, N., D. Goedicke, V. Zhang, D. Rivkin, M. Jenkin, Z. Degutyte, A. Astell, X. Liu, and G. Dudek, "Capturing attention with wind," in Workshop on Approaches to Advance Physical Human-Robot Interaction (AVHC)., May 2020, p. 2, Available: https://vgrserver.eecs.yorku.ca/ jenkin/papers/2020/2020I

112. Chen, Xi and Li, Hang and Zhou, Chenyi and Liu, Xue and Wu, Di and Dudek, Gregory. "FiDo: Ubiquitous Fine-Grained WiFi-Based Localization for Unlabelled Users via Domain Adaptation," Proceedings of The Web Conference 2020 (WWW '20), Taipei, Taiwan, Association for Computing Machinery, pp. 23-33, 2020. https://doi.org/10.1145/3366423.3380091

113. Cheng, Ran, Christopher Agia, David Meger, and Gregory Dudek. "Depth Prediction for Monocular Direct Visual Odometry." In 2020 17th Conference on Computer and Robot Vision (CRV), 70-77. IEEE Computer Society, 2020

114. Di Vito, Daniele, Mathieux Bergeron, David Meger, Gregory Dudek, and Gianluca Antonelli. "Dynamic Planning of Redundant Robots within a Set-Based Task-Priority Inverse Kinematics Framework." In 2020 IEEE Conference on Control Technology and Applications (CCTA), 549-54. IEEE, 2020.

115. Holliday, Andrew, and Gregory Dudek. "Pre-Trained CNNs as Visual Feature Extractors: A Broad Evaluation." In 2020 17th Conference on Computer and Robot Vision (CRV), 78-84. IEEE, 2020.

116. Joshi, Bharat, Md Modasshir, Travis Manderson, Hunter Damron, Marios Xanthidis, Alberto Quattrini Li, Ioannis Rekleitis, and Gregory Dudek. "DeepURL: Deep Pose Estimation Framework for Underwater Relative Localization." In Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2020.

117. Koreitem, Karim, Florian Shkurti, Travis Manderson, Wei-Di Chang, Juan Camilo Gamboa Higuera, and Gregory Dudek. "One-Shot Informed Robotic Visual Search in the Wild." In Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2020), 2020.

118. Jimmy, Karim Koreitem, David Meger, and Gregory Dudek. "View-Invariant Loop Closure with Oriented Semantic Landmarks." In 2020 IEEE International Conference on Robotics and Automation (ICRA), 7943-49. IEEE, 2020.

119. Manderson, Travis, Juan Camilo Gamboa Higuera, Stefan Wapnick, Jean-Francois Tremblay, Florian Shkurti, David Meger, and Gregory Dudek. "Vision-Based Goal-Conditioned Policies for Underwater Navigation in the Presence of Obstacles." In Proceeding of Robotics Science and Systems, Vol. 16, 2020.

120. Manderson, Travis, Stefan Wapnick, Dave Meger, and Gregory Dudek. "Learning to Drive Off-Road on Smooth Terrains in Unstructured Environments Using an Onboard Camera and Sparse Aerial Images." In Proceedings of the 2020 IEEE International Conference on Robotics and Automation, 2020.

121. Manderson, Travis, Juan Camilo Gamboa Higuera, Stefan Wapnick, Jean-Francois Tremblay, Florian Shkurti, David Meger, and Gregory Dudek. "Self-Supervised, Goal-Conditioned Policies for Navigation in Unstructured Environments", Robotics Science and Systems (RSS) Workshop on Self-Supervised Robot Learning, 2020. **Best Paper Award.**

122. Hogan, F. R., S. Rezaei-Shoshtari, M. Jenkin, Y. Girdhar, D. Meger, and G. Dudek. "Seeing Through Your Skin: A Novel Visuo-Tactile Sensor for Robotic Manipulation." In Visual Learning and Reasoning for Robotic Manipulation (Workshop of RSS 2020). Corvallis, Oregon, USA, 2020.

123. Juan Camilo Gamboa Higuera, Travis Manderson, Karim Koreitem, Wei-Di Chang, Florian Shkurti, David Meger, Gregory Dudek. "Collaborative Human-Robot Exploration for Marine Environments," RSS "20 Workshop on Assistive and Collaborative Robotics: Decoding Intent, 2020.

124. Manderson, Travis, Stefan Wapnick, David Meger, and Gregory Dudek. "Learning to Drive Off Road on Smooth Terrain in Unstructured Environments Using an On-Board Camera and Sparse Aerial Images." In Proceedings of the 2020 IEEE International Conference on Robotics and Automation, 2020.

◁ 2019

125. Sandeep Manjanna, Herke van Hoof, Gregory Dudek. "Policy Search with Non-uniform State Representations for Environmental Sampling", 2019. International Conference on Machine Learning, workshop on Climate Change, in association with NeurIPS 2019 (formerly IPS 2019). https://s3.us-east-1.amazonaws.com/climate-change-ai/papers/icml2019/1/paper.pdf

126. Dudek, Gregory, Lucas Joppa, Valliappa Lakshmanan, Vipin Kumar, and Surya Karthik Mukkavilli. "EnviroNet: ImageNet Analog for Environment and Global AI Challenge." In 99th American Meteorological Society Annual Meeting. AMS, 2019.

127. Abeysirigoonawardena, Yasasa, Florian Shkurti, and Gregory Dudek. "Generating Adversarial Driving Scenarios in High-Fidelity Simulators." In 2019 International Conference on Robotics and Automation (ICRA), 8271-77. IEEE, 2019.

128. Koreitem, Karim and Li, Jimmy and Karp, Ian and Manderson, Travis and Dudek, Gregory. "Underwater Communication Using Full-Body Gestures and Optimal Variable-Length Prefix Codes." In Proceedings of the 2019 IEEE International Conference on Robotics and Automation, 2019.

129. Kumar, Vipin, Valliappa Lakshmanan, Lucas Joppa, Gregory Dudek, Surya Karthik Mukkavilli, and Amy McGovern. "Physics Guided ML: Emerging AI Opportunities for Weather and Climate." In 99th American Meteorological Society Annual Meeting. AMS, 2019. Side panel: "Side Panel Towards Planetary Intelligence: On the Synergistic Future of AI, Weather and Climate"

130. Li, Jimmy, David Meger, and Gregory Dudek. "Semantic Mapping for View-Invariant Relocalization." In 2019 International Conference on Robotics and Automation (ICRA), 7108-15. IEEE, 2019.

131. Manderson, Travis, Sandeep Majanna, and Gregory Dudek. "Heterogeneous Robot Teams for Informative Sampling." In 2019 Workshop on Informative Path Planning and Adaptive Sampling at Robotics Science and Systems, 2019. https://arxiv.org/abs/1906.07208.

132. Wong, Alex, Anqi Xu, and Gregory Dudek. "Investigating Trust Factors in Human-Robot Shared Control: Implicit Gender Bias Around Robot Voice." In 2019 16th Conference on Computer and Robot Vision (CRV), 195-200. IEEE, 2019.

◁ 2018

133. *Hansen, Johanna*, Kyle Kastner, Aaron Courville, and Gregory Dudek. "Planning in Dynamic Environments with Conditional Autoregressive Models." arXiv preprint arXiv:1811.10097 (2018).

134. *Travis Manderson*, *Ran Cheng,* David Meger Gregory Dudek. "Navigation in the Service of Enhanced Pose Estimation." Proceedings of the 2018 International Symposium on Experimental Robotics. The 2018 International Symposium on Experimental Robotics (ISER 2018), Buenos Aires, Argentina 2018.

135. *Hansen, J., Manjanna, S.*, Li, A. Q., Rekleitis, I., Dudek, G. "Autonomous Marine Sampling Enhanced by Strategically Deployed Drifters in Marine Flow Fields." In OCEANS 2018 MTS/IEEE Charleston (pp. 1-7). 2018.

136. *Travis Manderson* and Gregory Dudek. "GPU-Assisted Learning on an Autonomous Marine Robot for Vision-Based Navigation and Image Understanding." In Proceedings of Oceans Conference and Exposition 2018. The 2018 Oceans Conference and Exposition, Charleston, United States, 2018.

137. *Travis Manderson, Juan Camilo Gamboa Higuera, Ran Cheng,* Gregory Dudek. "Vision-based Autonomous Underwater Swimming in Dense Coral for Combined Collision Avoidance and Target Selection." Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2018). The 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2018), Madrid, Spain, 2018, pp. 1885-1891.

138. *Sandeep Manjanna,* Alberto Quattrini Li, Ryan N. Smith, Ioannis Rekleitis, Gregory Dudek. (2018). "Adaptive exploration and sampling by heterogeneous robotic team". In Proc of the IEEE International Conference on Robotics and Automation (ICRA 2018). The 2018 IEEE International Conference on Robotics and Automation (ICRA 2018), Sydney, Australia, 2018.

139. *Manjanna, S.*, Li, A. Q., Smith, R. N., Rekleitis, I., and Dudek, G. (2018, May). "Heterogeneous Multi-Robot System for Exploration and Strategic Water Sampling". In 2018 IEEE International Conference on Robotics and Automation (ICRA) (pp. 1-8).

140. *Higuera, J. C. G.*, Meger, D., and Dudek, G. (2018, October). "Synthesizing Neural Network Controllers with Probabilistic Model-Based Reinforcement Learning". In 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) (pp. 2538-2544).

141. *Hansen, J.*, and Dudek, G. "Coverage optimization with non-actuated, floating mobile sensors using iterative trajectory planning in marine flow fields". In 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) (pp. 1906-1912).

142. *Koreitem, K., Li, J., Karp, I., Manderson, T.*, Shkurti, F., and Dudek, G. (2018, October). "Synthetically trained 3d visual tracker of underwater vehicles". In OCEANS 2018 MTS/IEEE Charleston (pp. 1-7). IEEE.

143. *Holliday, A.*, Dudek, G. "Scale-Robust Localization Using General Object Landmarks." In 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) (pp. 1688-1694). 2018

144. *Travis Manderson, Andrew Holliday,* Gregory Dudek. (2018). "Gaze Selection for Enhanced Visual Odometry During Navigation". In Proceedings of the Conference on Computer and Robot Vision (CRV 2018). The 2018 Conference on Computer and Robot Vision (CRV 2018), Toronto, Canada, 2018, pp. 110-117.

145. *Jimmy Li, Zhaoqi Xu,* David Meger, Gregory Dudek. (2018). "Semantic Scene Models for Visual Localization Under Large Viewpoint Changes". In Proceedings of the 15th Conference on Computer and Robot Vision (CRV 2018). The 2018 Conference on Computer and Robot Vision (CRV 2018), Toronto, 2018/5

146. *Florian Shkurti, Nikhil Kakodkar,* Gregory Dudek. (2018). "Model-Based Probabilistic Pursuit via Inverse Reinforcement Learning". In Proceedings of the IEEE International Conference on Robotics and Automation (ICRA 2018). The 2018 IEEE International Conference on Robotics and Automation (ICRA 2018), Sydney, Australia, 2018/5

147. *Manjanna, S., van Hoof, H.*, Dudek, G. (2018, August). "Reinforcement Learning with Non-uniform State Representations for Adaptive Search". In 2018 IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR) (pp. 1-7).

◁ 2017

148. *J. Li*, D. Meger, and G. Dudek,"Context-coherent scenes of objects for camera pose estimation," Robots and Systems (IROS), 2017 IEEE/RSJ International Conference on Intelligent Robotics and Systems, September 2017, DOI:10.1109/IROS.2017.8202221.

149. *F. Shkurti, W.-D. Chang, P. Henderson*, M. J. Islam, *J. C. G. Higuera, J. Li, T. Manderson, A. Xu*, G. Dudek, and J. Sattar ¿'Underwater multi-robot convoying using visual tracking by detection,?" Robots and Systems (IROS), 2017 IEEE/RSJ International Conference on, September 2017 (also available as arXiv preprint arXiv:1709.08292,). (M.J. Islam is a graduate student supervised by my former graduate student and co-author J. Sattar.)

150. *F. Shkurti* and G. Dudek,"Topologically distinct trajectory predictions for probabilistic pursuit," Robots and Systems (IROS), 2017 IEEE/RSJ International Conference on, September 2017.

151. *S. Manjanna* and G. Dudek,"Data-driven selective sampling for marine vehicles using multi-scale paths," Robots and Systems (IROS), 2017 IEEE/RSJ International Conference on, September 2017.

152. *J. C. G. Higuera*, D. Meger, and G. Dudek,"From simulation to the field: Learning to swim with the aqua robot," ROSCon 2017, September 2017.

153. *J. C. G. Higuera*, D. Meger, and G. Dudek,"Adapting learned robotics behaviours through policy adjustment," in IEEE International Conference on Robotics and Automation (ICRA), 2017, 2017, pp. 5837–5843.

154. *A. Kalmbach*, Yogesh Girdhar, Heidi M. Sosik, Gregory Dudek,"Phytoplankton hotspot prediction with an unsupervised spatial community model," IEEE ICRA 2017, also arXiv preprint arXiv:1703.07309, 2017.

155. *A. Kalmbach*, Heidi M. Sosik, Gregory Dudek, Yogesh Girdhar,"Learning Seasonal Phytoplankton Communities with Topic Models," IEEE Oceans 2017, also arXiv preprint arXiv:1711.09013 **Award winner**

156. P. Henderson, *W.-D. Chang*, *F. Shkurti*, *J. Hansen*, D. Meger, and G. Dudek,"Benchmark environments for multitask learning in continuous domains," 2017 (also appears as referred publication in IROS 2017).

◁ 2016

157. Quattrini Li, A, I. Rekleitis, *S. Manjanna*, *N. Kakodkar*, *J. Hansen*, G. Dudek, L. Bobadilla, J. Anderson, and R. Smith, "Data correlation and comparison from multiple sensors over a coral reef with a team of heterogeneous aquatic robots," International Symposium of Experimental Robotics (ISER), 2016.

158. *Li, Jimmy*, D. Meger, and G. Dudek, "Learning to generalize 3d spatial relationships," in Robotics and Automation (ICRA), 2016 IEEE International Conference on. IEEE, 2016, pp. 5744-5749.

159. *Manderson, T., F. Shkurti*, and G. Dudek, "Texture-aware slam using stereo imagery and inertial information," in Computer and Robot Vision (CRV), 2016 13th Conference on. IEEE, 2016, pp. 456"463.

160. *Manjanna, S., N. Kakodkar, M. Meghjani*, and G. Dudek, "Efficient terrain driven coral coverage using gaussian processes for mosaic synthesis," in Computer and Robot Vision (CRV), 2016 13th Conference on. IEEE, 2016, pp. 448-455.

161. *Xu, A,* and G. Dudek, "Maintaining efficient collaboration with trust-seeking robots," in Intelligent Robots and Systems (IROS), 2016 IEEE/RSJ International Conference on. IEEE, 2016, pp. 3312-3319. **Nominee for best-paper award from over 2000 submitted papers**.

162. *Meghjani, M, S. Manjanna*, and G. Dudek, "Multi-target search strategies," in Proc. IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR), IEEE, 2016, pp. 328-333. **Finalist for best paper award.**

163. *Meghjani, M* and G. Dudek, "Multi-target rendezvous search," Proc. International Conference on Intelligent Robots and Systems (IROS). IEEE, 2016, pp. 2596-2603. **Nominee for best-paper award in the Search and Rescue category, from over 2000 submitted papers.**

164. *Meghjani, M* and G. Dudek , "Fast and efficient rendezvous in street networks," in Intelligent Robots and Systems (IROS), 2016 IEEE/RSJ International Conference on. IEEE, 2016, pp. 1887-1893.

165. *K. Koreitem, Y. Girdhar,* W. Cho, H. Singh, J. Pineda, and G. Dudek, "Subsea fauna enumeration using vision-based marine robots," in Computer and Robot Vision (CRV), 2016 13th Conference on. IEEE, 2016, pp. 101-108.

◁ 2015

166. Rezanejad, Morteza, Samari, Babak, Rekleitis, Ioannis, Siddiqi, Kaleem Dudek, Gregory, "Robust Environment Mapping Using Flux Skeletons," 2015 IEEE/RSJ International Conference on Intelligent Robots and Systems, Sept 28 - Oct 03, 2015, Hamburg, Germany.

167. *Manderson*, T., *Meger*, D., *Li*, J., *Cortes Poza*, D., Dudek, N. and G. Dudek, "Towards Autonomous Robotic Coral Reef Health Assessment," Proceedings of Field and Service Robotics (FSR). Toronto, Canada, 24-26 June 2015.

168. *Manjanna, Sandeep* and Gregory Dudek, "Autonomous gait selection for energy efficient walking," In Proceedings of the IEEE International Conference on Robotics and Automation (ICRA '15), pages 5155-5162, Seattle, USA, May 2015.

169. St-Onge, David, Reeves, Nicolas, *Giguère*, Philippe, Sharf, Inna, Dudek, Gregory, Rekleitis, Ioannis, Brèches, Pierre-Yves, Abouzakhm, Patrick, Babin, Philippe "AEROSTABILES: A new approach to HRI research," Proceedings of the Tenth Annual ACM/IEEE International Conference on Human-Robot Interaction (Extended Abstracts), March 2015, p. 277-277.

170. *Meger, D.*, *J. C. Gamboa Higuera*, *A. Xu*, P. Giguere, G. Dudek, "Learning legged swimming gaits from experience," Proceedings of the IEEE International Conference on Robotics and Automation (ICRA '15), pages 5155-5162, Seattle, USA, May 2015. **(best paper nominee)**

171. *Q. Zhang*, I. Rekleitis, and G. Dudek, "Uncertainty Reduction via Heuristic Search Planning on Hybrid Metric/Topological Map," Proceedings of Conference on Computer and Robot Vision, Halifax, NS, June 2015.

172. *Xu*, Anqi and Gregory Dudek, "Towards Efficient Collaborations with Trust-Seeking Adaptive Robots," Proceedings of the 10th Human-Robot Interaction Pioneers Workshop (HRI Pioneers '15), 2 pages, Portland, USA, March 2015.

173. *Xu*, Anqi and Gregory Dudek, "OPTIMo: Online Probabilistic Trust Inference Model for Asymmetric Human-Robot Collaborations," Proceedings of the 10th ACM/IEEE International Conference on Human-Robot Interactions (HRI '15), 7 pages, Portland, USA, March 2015.

◁ 2014

174. *Girdhar,* Yogesh and Gregory Dudek, "Exploring Underwater Environments with Curiosity," Proc. Conference on Computer and Robot Vision (CRV 2014), 7 pages, Montreal, Canada, June 2014.

175. *Girdhar,* Yogesh, *Whitney*, David and Gregory Dudek, "Curiosity Based Exploration for Learning Terrain Models," Proc. IEEE International Conference on Robotics and Automation (ICRA 2014), 7 pages, Hong Kong, May 2014. (also appears as a preprint on arXiv.org, arXiv:1310.6767).

176. *Meghjani*, Malika and Gregory Dudek, "Multi-agent rendezvous on street networks," Proc. IEEE International Conference on Robotics and Automation (ICRA 2014), 7 pages, Hong Kong, May 2014, pp. 5792-5797.

177. *Xu*, Anqi and *Kalmbach*, Arnold and Gregory Dudek, "Adaptive Parameter EXploration (APEX): Adaptation of robot autonomy from human participation," Proc. IEEE International Conference on Robotics and Automation (ICRA 2014), 7 pages, Hong Kong, May 2014, pp. 3315-3322.

178. *Shkurti*, Florian and Gregory Dudek, "Maximizing visibility in collaborative trajectory planning," Proc. IEEE International Conference on Robotics and Automation (ICRA 2014), 7 pages, Hong Kong, May 2014, pp. 3315-3322.

179. *Meghjani,* Malika and *Shkurti*, Florian and *Higuera*, Juan Camilo Gamboa and *Kalmbach*, Arnold and *Whitney*, David and Gregory Dudek, "Asymmetric Rendezvous Search at Sea" Proc. Conference on Computer and Robot Vision (CRV 2014), 7 pages, Montreal, Canada, June, 2014.

180. *Meger,* David and *Shkurti*, Florian and *Cortes Poza,* David and Giguere, Philippe and Gregory Dudek, "3D trajectory synthesis and control for a legged swimming robot." Proc IEEE/RSJ International Conference on. Intelligent Robots and Systems (IROS 2014), Chicago, IL, Sept., 2014, pp. 2257-2264.

◁ 2013

181. *Dey*, Bir Bikram, *Manjanna*, Sandeep and Gregory Dudek, "Ninja Legs: Amphibious One Degree of Freedom Robotic Legs," In Proceedings of the 2013 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS '13), Tokyo, Japan. November 2013.

182. *Girdhar,* Yogesh and Giguere, Philippe and Gregory Dudek, "Autonomous Adaptive Underwater Exploration using Online Topic Modeling", Experimental Robotics, pp. 789-802, 2013. (This paper was also presented at the International Symposium on Experimental Robotics (ISER).)

183. *Manjanna*, Sandeep, *Giguère*, Philippe and Gregory Dudek, "Using Gait Change for Terrain Sensing by Robots," In Proceedings of the 10th International Conference on Computer and Robot Vision (CRV '13), 7 pages, Regina, Canada. May 2013.

184. *Giguère*, Philippe, *Girdhar*, Yogesh and Gregory Dudek, "Wide-Speed Autopilot System for a Swimming Hexapod Robot," In Proceedings of the 10th International Conference on Computer and Robot Vision (CRV '13), 7 pages, Regina, Canada. May 2013.

185. *Shkurti*, Florian and Gregory Dudek, "On the complexity of searching for an evader with a faster pursuer," In Proceedings of the IEEE International Conference on Robotics and Automation (ICRA2013), 6 pages, Karlsruhe, Germany. May 2013.

186. *Gamboa Higuera*, Juan Camilo and Gregory Dudek, "Fair Subdivision of Multirobot Tasks," In Proceedings of the IEEE International Conference on Robotics and Automation (ICRA2013), 6 pages, Karlsruhe, Germany. May 2013.

187. *Kalmbach*, Arnold, *Girdhar*, Yogesh and Gregory Dudek, "Unsupervised Environment Recognition and Modeling using Sound Sensing," In Proceedings of the IEEE International Conference on Robotics and Automation (ICRA2013), 6 pages, Karlsruhe, Germany. May 2013.

◁ 2012

188. *Girdhar*, Yogesh, *Xu*, Anqi, *Shkurti*, Florian, *Gamboa Higuera*, Juan Camilo, *Meghjani*, Malika, *Giguère*, Philippe, *Rekleitis*, Ioannis and Gregory Dudek, "Monitoring Marine Environments using a Team of Heterogeneous Robots," RSS 2012 Workshop on Robotics for Environmental Monitoring (WREM 2012), Sydney, Australia.

189. *Girdhar*, Yogesh, *Giguère*, Philippe and Gregory Dudek, "Autonomous Adaptive Underwater Exploration using Online Topic Modelling," 13th International Symposium on Experimental Robotics (ISER 2012), Quebec City, Canada.

190. *Meghjani*, Malika and Gregory Dudek, "Multi-Robot Exploration and Rendezvous on Graphs," In Proceedings of the 2012 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS '12), Algarve, Portugal, October 2012.

191. *Shkurti*, Florian, *Xu*, Anqi, *Meghjani*, Malika, *Gamboa Higuera*, Juan Camilo, *Girdhar*, Yogesh, *Giguère*, Philippe, *Dey*, Bir Bikram, *Li*, Jimmy, *Kalmbach*, Arnold, *Prahacs*, Chris, Turgeon, Katrine, *Rekleitis*, Ioannis and Gregory Dudek, "Multi-Domain Monitoring of Marine Environments Using a Heterogeneous Robot Team," Proceedings of the 2012 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS '12), Algarve, Portugal, October 2012.

192. *Gamboa Higuera*, Juan Camilo, *Xu*, Anqi, *Shkurti*, Florian and Gregory Dudek, "Socially-Driven Collective Path Planning for Robot Missions," Proceedings of the 9th Canadian Conference on Computer and Robot Vision (CRV '12), Toronto, Canada, May 2012, pages 417 - 424.

193. *Girdhar*, Yogesh and Gregory Dudek, "Efficient on-line data summarization using extremum summaries," Proceedings of the IEEE International Conference on Robotics and Automation (ICRA 2012), May 2012.

194. *Xu*, Anqi and Gregory Dudek, "Trust-Driven Interactive Visual Navigation for Autonomous Robots," Proceedings of the IEEE International Conference on Robotics and Automation (ICRA '12), St. Paul, USA, May 2012, pp. 3922 - 3929.

◁ 2011

195. *Girdhar*,Yogesh, *Xu*, Anqi, *Dey*, Bir Bikram, *Meghjani*, Malika, *Shkurti*, Florian, *Rekleitis*, Ioannis and Gregory Dudek, "MARE: Marine Autonomous Robotic Explorer," Proceedings of the 2011 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS '11), San Francisco, USA, September 2011, pp. 5048 - 5053, Digital Object Identifier: 10.1109/IROS.2011.6048582.

196. *Li*, Jimmy, *Xu*, Anqi and Gregory Dudek, "Graphical State Space Programming: A Visual Programming Paradigm for Robot Task Specification," 2011 IEEE International Conference on Robotics and Automation (ICRA '11), Shanghai, China, May 2011, pp. 4846-4853

197. *Virie*, Patrick and Gregory Dudek, "Conformative Filter : A Probabilistic Framework for Localization in Reduced Space," Proceedings of the 8th Canadian Conference on Computer and Robot Vision (CRV '11), St. John's, Newfoundland, Canada, May 2011, pp. 24-31.

198. *Shkurti*, Florian, *Rekleitis*, Ioannis and Gregory Dudek, "Feature Tracking Evaluation for Pose Estimation in Underwater Environments," Proceedings of the 8th Canadian Conference on Computer and Robot Vision (CRV '11), St. John's, Newfoundland, Canada, May 2011, pp. 160-167.

199. *Meghjani*, Malika and Gregory Dudek, "Combining Multi-Robot Exploration and Rendezvous," Proceedings of the 8th Canadian Conference on Computer and Robot Vision (CRV '11), St. John's, Newfoundland, Canada, May 2011, pp. 80-85.

200. *Girdhar*, Yogesh and Gregory Dudek, "Online Visual Vocabularies," Proceedings of the 8th Canadian Conference on Computer and Robot Vision (CRV '11), St. John's, Newfoundland, Canada, May 2011, pp. 191-196.

201. *Girdhar*, Yogesh and Gregory Dudek, "Offline Navigation Summaries," Proceedings of the IEEE International Conference on Robotics and Automation (ICRA2011), Shanghai, China, May 9-13, 2011, pp. 5769-5775.

202. *Xu*, Anqi and Gregory Dudek, "Fourier Tag: A Smoothly Degradable Fiducial Marker System with Configurable Payload Capacity," Proc.Conference on Computer and Robot Vision (CRV '11), St. John's, Newfoundland, Canada, May 2011, pp. 40-47.

203. *Sattar*, Junaed and Gregory Dudek, "Towards Quantitative Modeling of Task Confirmations in Human-Robot Dialog," Proceedings of the IEEE International Conference on Robotics and Automation (ICRA), Shanghai, China, May 9-13, 2011, pp. 1957-1963.

204. *Xu*, Anqi, Viriyasuthee, Chatavut, *Rekleitis*, Ionnis, and Gregory Dudek, "Optimal Complete Terrain Coverage using an Unmanned Aerial Vehicle,"In Proceedings of the 2011 IEEE International Conference on Robotics and Automation (ICRA'11), Shanghai, China, May 2011, pp. 2513-2519.

205. *Girdhar*, Yogesh and Gregory Dudek, "A surprising problem in navigation," In Vision in 3D Environments, Cambridge University Press, 2011, pp. 228-252. ISBN-13: 9781107001756

◁ 2010

206. *Sattar*, Junaed and Gregory Dudek, "Reducing Uncertainty in Human-Robot Interaction: A Cost Analysis Approach," Proceedings of the Twelfth International Symposium on Experimental Robotics (ISER 2010), New Delhi and Agra, India, December 2010.

207. *Sattar*, Junaed, *Xu*, Anqi, *Charette*, Gabrielle and Gregory Dudek, "Graphical State-Space Programmability as a Natural Interface for Robotic Control," Proceedings of the 2010 IEEE International Conference on Robotics and Automation (ICRA '10), Anchorage, Alaska, USA, May 2010, pp. 4609-4614.

208. *Girdhar*, Yogesh and Gregory Dudek, "ONSUM: A System for Generating Online Navigation Summaries," Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2010), Taipei, Taiwan, October 2010. (Nominee for ICROS best application paper award from 972 accepted papers.)

209. *Girdhar*, Yogesh and Gregory Dudek, "Online Navigation Summaries," Proceedings of the IEEE International Conference on Robotics and Automation (ICRA2010), Anchorage, Alaska, USA, May 3-8, 2010, Pages 5035-5040.

210. *Rekleitis*, Ioannis, *Schoueri*, Yasmina, *Giguère*, Philippe, *Sattar*, Junaed and Gregory Dudek, "Telepresence Across the Ocean," Proceedings of the Seventh Canadian Conference on Computer and Robot Vision (CRV 2010), Ottawa, Ontario, Canada, May 2010, pp. 261-268.

211. *Xu*, Anqi and Gregory Dudek, "A Vision-Based Boundary Following Framework for Aerial Vehicles," Proceedings of the 2010 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS '10), Taipei, Taiwan, October, 2010, pp. 81-86.

◁ 2009

212. *Girdhar* Yogesh and Gregory Dudek, "Optimal Online Data Sampling or How to Hire the Best Secretaries," Proceedings of the Sixth Canadian Conference on Computer and Robot Vision, 2009, Kelowna, British Columbia, Canada, May 2009.

213. *Giguère*, Philippe, *Prahacs*, Christopher, Plamondon, Nicolas, Turgeon, Katrine and Gregory Dudek, "Unsupervised Learning of Terrain Appearance for Automated Coral Reef Exploration," Proceedings of the Sixth Canadian Conference on Computer and Robot Vision, 2009, Kelowna, British Columbia, Canada, May 2009.

214. G. Dudek and J. -P. Lobos, "Towards Navigation Summaries: Automated Production of a Synopsis of a Robot Trajectories," Proc. Conference on Computer and Robot Vision, Kelowna, BC, Canada, 2009, pp. 93-100, doi: 10.1109/CRV.2009.43, URL: https://ieeexplore.ieee.org/document/5230533?signout=success

215. *Pomerantz*, Daniel and Gregory Dudek, "Context Dependent Movie Recommendations Using a Hierarchical Bayesian Model," Proceedings of the 22nd Canadian Conference on Artificial Intelligence, Canadian AI 2009, Kelowna, British Columbia, Canada, May 2009.

216. *Giguère*, Philippe and Gregory Dudek, "Surface Identification Using Simple Contact Dynamics for Mobile Robots," Proc. IEEE International Conference on Robotics and Automation (ICRA2009), Kobe, Japan, May 12-17, 2009.

217. *Sattar*, Junaed and Gregory Dudek, "Underwater Human-Robot Interaction via Biological Motion Identification," Proc. Robotics:Science and Systems V, Seattle, WA, USA, June-July 2009.

218. *Sattar*, Junaed and Gregory Dudek, "A Vision-based Control and Interaction Framework for a Legged Underwater Robot," Proc. Sixth Canadian Conference on Robot Vision (CRV), Kelowna, BC, Canada. May 2009, pp. 329-336. (Award for best robotics paper.)

219. *Sattar*, Junaed and Gregory Dudek, "Robust Servo-control for Underwater Robots using Banks of Visual Filters," Proc. IEEE International Conference on Robotics and Automation (ICRA2009), Kobe, Japan, May 12-17, 2009, Pages 3583-3588.

220. *Meger*, David, *Marinakis*, Dimitri, *Rekleitis*, Ioannis and Gregory Dudek, "Inferring a Probability Distribution Function for the Pose of a Sensor Network using a Mobile Robot," Proc. IEEE International Conference on Robotics and Automation (ICRA2009), Kobe, Japan, May 12-17, 2009.

◁ 2008

221. *Sattar*, Junaed, Chiu, Olivia, *Rekleitis*, Ioannis, *Giguère*, Philippe, *Mills*, Alec, Plamondon, Nicolas, *Prahacs*, Chris, *Girdhar*, Yogesh, Nahon, Meyer, *Lobos*, John-Paul and Gregory Dudek, "Enabling Autonomous Capabilities in Underwater Robotics," Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS, Nice, France, Sept. 2008.

222. *Giguère*, Philippe and Gregory Dudek, "Clustering Sensor Data for Terrain Identi£cation using a Windowless Algorithm," Proc. Robotics Science and System (RSS), Zurich, Switzerland, June 2008.

223. *Xu*, Anqi, *Sattar*, Junaed and Gregory Dudek, "A Natural Gesture Interface for Operating Robotic Systems," Proceedings of the IEEE International Conference of Robotics and Automation (ICRA), Pasadena, California, USA, May 2008, pp. 3557-3563.

224. *Sattar*, Junaed and Gregory Dudek, "A Boosting Approach to Visual Servo-Control of an Underwater Robot," Proceedings of the 11th International Symposium on Experimental Robotics, ISER, Athens, Greece, July 2008.

◁ 2007

225. *Sattar*, Junaed and Gregory Dudek, "Where is your dive buddy: Tracking scuba divers using spatio-temporal features," Proc. of the IEE/RSJ International Conference on Intelligent Robots and Systems, (IROS), San Diego, California, USA, October-November 2007, pp. 3654-3659.

226. *Marinakis*, Dimitri, *Meger*, David, *Rekleitis*, Ioannis and Gregory Dudek, "Hybrid Inference for Sensor Network Localization using a Mobile Robot," Proceedings of the National Conference on Artificial Intelligence (AAAI), Vancouver, Canada, July 2007.

227. *Marinakis*, Dimitri and Gregory Dudek, "Topological Mapping with Weak Sensory Data," In Proceedings of the National Conference on Artificial Intelligence (AAAI), Vancouver, Canada, July 2007.

228. *Sattar*, Junaed, *Xu*, Anqi and Gregory Dudek, "A Visual Language for Robot Control and Programming: A Human-Interface Study," Proceedings of the IEEE International Conference of Robotics and Automation (ICRA) 2007, Rome, Italy, April 2007, pp. 2507-2513.

229. *Marinakis*, Dimitri, *Giguère*, Philippe and Gregory Dudek, "Learning Network Topology from Simple Sensor Data," Presented at the 20th Canadian Conference on Artificial Intelligence, Montreal, Canada, May 2007.

230. *Marinakis*, Dimitri and Gregory Dudek, "Topological Mapping through Distributed, Passive Sensors," Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI07), Hyderabad, India, Jan. 2007, pp 2147-2152.

◁ 2006

231. *Sattar*, Junaed, *Bourque*, Eric, *Giguère*, Philippe and Gregory Dudek, "Fourier tags: Smoothly degradable fiducial markers for use in human-robot interaction," In Proceedings of the Canadian Conference on Computer and Robot Vision (CRV06), Quebec City, Quebec, June 2006, pp. 22-29.

232. *Giguère*, Philippe, *Prahacs*, Chris and Gregory Dudek, "Characterization and Modeling of Rotational Responses for an Oscillating Foil Underwater Robot," Proc. IEEEE/RSJ/GI International Conference on Intelligent Robots and Systems (IROS), Beijing, China, October 2006.

233. *Giguère*, Philippe, *Prahacs*, Chris, *Saunderson*, Shane and Gregory Dudek, "Environment Identification for a Running Robot Using Inertial and Actuator Cues," Proc. Robotics Science and System (RSS), Philadelphia, U.S.A, August 2006.

234. *Giguère*, Philippe, *Sattar*, Junaed and Gregory Dudek, "Sensor Based Behavior Control for an Autonomous Underwater Vehicle," Proc. of the International Symposium on Experimental Robotics (ISER), Rio de Janeiro, Brazil, July 2006.

235. Dimitri *Marinakis*, Dimitri and Gregory Dudek, "Probabilistic Self-Localization for Sensor Networks," Proc. of the AAAI National Conference on Artificial Intelligence, Boston, Massachusetts, USA, July 2006.

236. *Johns*, Derek and Gregory Dudek, "Urban Position Estimation from One Dimensional Visual Cues," In Proceedings of the Canadian Conference on Computer and Robot Vision (CRV06), Quebec City, Quebec, June 2006, pp. 22-29.

237. *Burfoot*, Daniel, Joelle Pineau, and Gregory Dudek, "RRT-Plan: a Randomized Algorithm for STRIPs planning," Proc. of the International Conference on Automated Planning and Scheduling (ICAPS06), Cumbria, UK, June 2006.

238. *Torres-Mendez*, Luz Abril, and Gregory Dudek, "Statistics of Visual and Partial Depth Data for Mobile Robot Environment Modeling," Proc. Mexican International Conference on Artificial Intelligence (MICAI), November 2006.

239. *Meger*, David, *Rekleitis*, Ioannis and Gregory Dudek, "Autonomous Mobile Robot Mapping of a Camera Sensor Network," In Proc. 8th International Symposium on Distributed Autonomous Robotic Systems (DARS), 2006.

240. *Marinakis*, Dimitri and Gregory Dudek, "A Practical Algorithm for Network Topology Inference," In Proceedings of the IEEE International Conference on Robotics and Automation (ICRA06), Orlando, Florida, May 2006, pp. 3108 - 3115.

241. *Sattar*, Junaed and Gregory Dudek, "On the Performance of Color Tracking Algorithms for Underwater Robots under Varying Lighting and Visibility," In Proceedings of the IEEE International Conference on Robotics and Automation (ICRA06), Orlando, Florida, May 2006, pp. 3550 - 3555.

242. *Garden*, Mat and Gregory Dudek, "Mixed Collaborative and Content-Based Filtering with User-Contributed Semantic Features," In Proceedings of the National Conference on Artificial Intelligence (AAAI), Boston, MA, July 2006.

◁ 2005

243. *Marinakis*, Dimitri and Gregory Dudek, “Topology Inference for a Vision-Based Sensor Network,” In Proc. of Canadian Conference on Computer and Robot Vision (CRV 2005), Victoria, Canada, May 2005. (Winner of best paper in Robotics Category.)

244. *Verma*, Siddarth, Inna Sharf and Gregory Dudek. “Kinematic Variables Estimation using Eye-in-Hand Robot Camera System.” Proc. The 2nd Canadian Conference on Computer and Robot Vision, pp. 550-557, Victoria, BC, May, 2005.

245. *Chen*, Guangyi and Gregory Dudek, “Auto-correlation wavelet support vector machine and its applications to regression,” In Proc. of Canadian Conference on Computer and Robot Vision (CRV 2005), Victoria, Canada, May 2005, doi: 10.1109/CRV.2005.19, pp. 246-252.

246. *Garden*, Matthew and Gregory Dudek, "Semantic feedback for hybrid recommendations in Recommendz," Proceedings of the IEEE International Conference on e-Technology, e-Commerce, and e-Service (EEE05), Hong Kong, China, March 2005.

247. *Rao*, Malvika, Sue Whitesides and Gregory Dudek, “Randomized Algorithms for Minimum Distance Localization,” Proc. IEEE International Conference on Robotics and Automation (ICRA 2005), Barcelona, Spain, April 18-22, 2005, pp. 2438 - 2445.

248. *Sattar*, Junaed, *Giguère*, Philippe, *Prahacs*, Chris and Gregory Dudek, "A Visual Servoing System for an Aquatic Swimming Robot," In Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Edmonton, Alberta, Canada, August 2005.

249. *Marinakis*, Dimitri, Fleet, David and Gregory Dudek, “Learning Sensor Network Topology through Monte Carlo Expectation Maximization,” In Proceedings of the IEEE International Conference on Robotics and Automation (ICRA05), Barcelona, Spain, April 2005.

250. *Rekleitis*, Ioannis and Gregory Dudek, “Automated Calibration of a Camera Sensor Network,” In Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Edmonton, Alberta, Canada, August 2005, pp. 401-406.

251. Jenkin, Michael, *Prahacs*, Chris, Hogue, Andrew, *Sattar*, Junaed, *Giguère*, Philippe, German,Andrew, Liu, Hui, *Saunderson*, Shane, Ripsman, Arlene, *Simhon*, Saul, *Torres-Mendez*, Luz Abril, Milios, Evangelos, Zhang, Pifu, Ioannis Rekleitis, and Gregory Dudek, “A Visually Guided Swimming Robot,” In Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Edmonton, Alberta, Canada, August 2005, pp. 1749-1754.

◁ 2004

252. *Torres-Mendez*, Luz Abril and Gregory Dudek, “Statistical Inference and Synthesis in the Image Domain for Mobile Robot Environment Modeling,” Proceedings of the IEEEE/RSJ/GI International Conference on Intelligent Robots and Systems (IROS), Sendai, Japan, 2004.

253. *Torres-Mendez*, Luz Abril and Gregory Dudek, “Statistics in the Image Domain for Mobile Robot Environment Modeling,” Proc. 4th International Symposium of Robotics and Automation, Queretaro, Mexico, August 2004.

254. *Simhon*, Saul and Gregory Dudek, "Pen Stroke Extraction and Refinement using Learned Models," Proc. Eurographics Workshop on Sketch-Based Interfaces and Modeling, Grenoble, France, August 2004.

255. *Simhon*, Saul and Gregory Dudek, "Sketch Interpretation and Refinement using Statistical Models," Proc. Eurographics Symposium on Rendering, 2004.

256. *Rao*, Malvika, Sue Whitesides and Gregory Dudek, "Randomized Algorithms for Minimum Distance Localization," Proc. Sixth International Workshop on the Algorithmic Foundations of Robotics (WAFR), 2004.

257. *Georgiades*, C., German, A., Hogue, A., Liu, H., *Prahacs*, C., Ripsman, A., *Sim*, R., *Torres*, L.-A., Zhang, P., Buehler, M., Jenkin, M. and Milios, E. and Gregory Dudek, "AQUA: an aquatic walking robot," Proceedings of the IEEE/RSJ/GI International Conference on Intelligent Robots and Systems (IROS), Sendai, Japan, 2004.

258. *Torres-Mendez*, Luz-Abril, *Marco*, Paul Di and Gregory Dudek, "Inter-image Statistics for Scene Reconstruction," First Canadian Conference on Computer and Robot Vision, London, ON, May 2004, 6 pages.

259. *Bourque*, Eric and Gregory Dudek, "Procedural Texture Matching and Transformation," Proc. Eurographics 2004, Aug. 2004, 8 pages. (Also appears in Computer Graphics Forum.)

260. *Sim*, Robert, *Roy*, Nicholas and Gregory Dudek, "Online Control Policy Optimization for Minimizing Map Uncertainty During Exploration," Proceedings of the IEEE International Conference on Robotics and Automation (ICRA), New Orleans, LA, April 2004, 6 pages.

261. *Sim*, Robert and Gregory Dudek, "Self-Organizing Visual Maps," Proceedings of the National Conference on Artificial Intelligence (AAAI), San Jose, CA, July 2004, 6 pages.

262. *Simhon*, Saul and Gregory Dudek, "Analogical Path Planning," Proceedings of the National Conference on Artificial Intelligence (AAAI), San Jose, CA, July 2004, 6 pages.

263. *Torres-Mendez*, Luz-Abril and Gregory Dudek, "Reconstruction of 3D Models from Intensity Images and Partial Depth," Proceedings of the National Conference on Artificial Intelligence (AAAI), San Jose, CA, July 2004, 6 pages.

◁ 2003

264. *Sim*, Robert and Gregory Dudek, "Comparing image-based localization methods," Proc. of the International Joint Conference on Artificial Intelligence (IJCAI), Acapulco, Mexico, Aug. 2003, 3 pages.

265. *Sim*, Robert and Gregory Dudek, "Examining Exploratory Trajectories for Minimizing Map Uncertainty," Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI) workshop on Reasoning with Uncertainty in Robotics (RUR), Acapulco, Mexico, Aug. 2003, 8 pages.

266. *Rekleitis*, Ioannis, Milios, Evangelos and Gregory Dudek, " Experiments in Free-Space Triangulation Using Cooperative Localization," Proceedings of the IEEE/RSJ Conference on Intelligent Robots and Systems (IROS), Las Vegas, NV, Oct. 2003, 8 pages.

267. *Torres-Mendez*, Luz-Abril, and Gregory Dudek, " Range Synthesis for 3D Environment Modeling," Proceedings of the IEEE/RSJ Conference on Intelligent Robots and Systems (IROS), Las Vegas, NV, Oct. 2003, 8 pages.

268. *Sim*, Robert and Gregory Dudek, "Effective Exploration Strategies for the Construction of Visual Maps," Proceedings of the IEEE/RSJ Conference on Intelligent Robots and Systems (IROS), Las Vegas, NV, Oct. 2003, 8 pages.

269. *Garden*, Matthew and Gregory Dudek, "On User Recommendations Based on Multiple Cues," Proc. IEEE WI/IAT 2003 Workshop on Applications, Products and Services of Web-Based Support Systems (in conjunction with IEEE/WIC International Conference on Web Intelligence), ISBN 0-9734039-1-8, Halifax, NS, Oct. 2003, pp. 139-144.

270. *Sim*, Robert and Gregory Dudek, "RoboDaemon - A device-independent, network-oriented, modular mobile robot controller," IEEE International Conference on Robotics and Automation, Taipei, Taiwan, May 2003.

271. *Simhon*, Saul and Gregory Dudek, "Path Planning Using Learned Constraints and Preferences," IEEE International Conference on Robotics and Automation, Taipei, Taiwan, May 2003.

272. *Rekleitis*, Ioannis, *Sim*, Robert, Milios, Evangelos and Gregory Dudek, "Probabilistic Cooperative Localization and Mapping in Practice," IEEE International Conference on Robotics and Automation, Taipei, Taiwan, May 2003.

◁ 2002

273. *Rekleitis*, Ioannis, *Sim*, Robert, Milios, Evangelos and Gregory Dudek, "Multi-Robot Cooperative Localization: A Study of Trade-offs Between Efficiency and Accuracy," Proc. IEEE/RSJ/ International Conference on Intelligent Robots and Systems, Lausanne, Switzerland, 2002, pp. 2690-2695.

274. *Torres-Mendez*, L.A. and Gregory Dudek, "Automated Enhancement of 3-D Models," Proc. Eurographics 2002 (Geometric and Physics Based Modeling), Saarbrucken, Germany, Sept. 2002.

275. *Torres-Mendez*, L.A. and Gregory Dudek, "Range synthesis for 3D Environment Modeling," Proc. IEEE Workshop on Applications of Computer Vision (oral presentation, long paper), Orlando, FL, 2002.

276. *Bourque*, Eric and Gregory Dudek, "Automated Parameter Estimation for Procedural Texturing," Proc. 13th Eurographics Workshop on Rendering, Pisa, Italy, 2002.

277. *Rekleitis*, Ioannis, *Sim*, Robert, Milios, Evangelos and Gregory Dudek, "On the Positional Uncertainty of Multi-Robot Cooperative Localization," Proc. Naval Research Labs/NATO Workshop on Multi-Robot Systems, Washington, DC, 2002 (to appear).

◁ 2001

278. *Simhon*, S. and Gregory Dudek, "On the Elaboration of Hand-Drawn Sketches," Active Media Technology, Hong Kong, Dec. 2001.

279. *Sim*, Robert and Gregory Dudek, "Learning Generative Models of Scene Features," Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Hawaii, 2001, 7 pages.

280. *Rekleitis*, Ioannis, *Sim*, Robert, Milios, Evangelos and Gregory Dudek, "Collaborative Exploration for the Construction of Visual Maps," Proceedings of IEEE/RSJ Conference on Intelligent Robots and Systems (IROS), Hawaii, 2001, 6 pages.

281. *Rekleitis*, Ioannis, *Sim*, Robert, Milios, Evangelos and Gregory Dudek, "Collaborative Exploration for Map Construction," Proc. International Symposium on Computational Intelligence in Robotics and Automation (CIRA), Banff, Canada, 2001, 6 pages.

282. *Bourque*, Eric and Gregory Dudek, "Image-Driven Procedural Texture Specification," Proc. Vision Interface, Ottawa, Canada, June 2001, pp. 1-6.

◁ 2000

283. Jenkin, Michael and Gregory Dudek, "The Paparazzi Problem," Proc. IEEE/RSJ IROS 2000, Takamatsu, Japan.

284. Rekleitis, Ioannis, Milios, Evangelos and Gregory Dudek, "Graph-Based Exploration using Multiple Robots," Proc. 5th International Symposium on Distributed Autonomous Robotic Systems (DARS), Knoxville, USA, October 2000, pp. 241-250.

285. Simhon, Saul and Gregory Dudek, "Stochastic Reconstruction from Coarse Data," Proc. Graphics Interface, Montreal, May 2000, pp. 120-126.

286. Jugessur, Deeptiman and Gregory Dudek, "Robust Place Recognition using Local Appearance-Based Methods," *Proc. of IEEE International Conference in Robotics and Automation*, San Francisco, CA, April 2000.

287. Bourque, Eric and Gregory Dudek, "On-line Construction of Iconic Maps," *Proc. of IEEE International Conference in Robotics and Automation*, San Francisco, CA, April 2000.

288. Rekleitis, Ioannis and Gregory Dudek, "Multi-Robot Collaboration for Robust Exploration," *Proc. of IEEE International Conference in Robotics and Automation*, San Francisco, CA, April 2000, pp. 3164-3169.

289. Jugessur, Deeptiman and Gregory Dudek, "Local Appearance for Robust Object Recognition," *Proc. IEEE Computer Vision and Pattern Recognition*, June 2000.

290. Polifroni, Sandra, Ferrie, Frank and Gregory Dudek, "Evaluation of Computation Attention Operators using Human Image Recognition," *Investigative Opthalmology and Visual Science (Suppl),* The Association for Research in Vision and Opthalmology, May 1, 2000, pp. 196-197.

◁ 1999 to 1996

291. Sim, Robert and Gregory Dudek, "Learning and Evaluating Visual Features for Pose Estimation," *Proc. International Conference on Computer Vision*, Kerkyra (Corfu), Greece, Sept. 1999, pp. 32-40.

292. Sim, Robert and Gregory Dudek, "Learning Environmental Features for Position Estimation," *Proc. of the IEEE Workshop on Perception for Mobile Agents*, Fort Collins, Colorado, June 1999, pp. 7-14.

293. Rekleitis, Ioannis, Dujmović, Vida and Gregory Dudek, "Efficient Topological Exploration," *Proc. of IEEE International Conference in Robotics and Automation*, Detroit, MI, May 1999, pp. 676-681.

294. Sim, Robert and Gregory Dudek, "Learning Visual Landmarks for Pose Estimation," *Proc. of the IEEE International Conf. on Robotics and Automation*, Detroit, MI, May 1999, 7 pages.

295. Bourque, Eric and Gregory Dudek, "Viewpoint Selection – An Autonomous Robotic System for Virtual Environment Creation," *Proceedings IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)*, Victoria, BC, October 1998, pp. 526-531.

296. Simhon, Saul and Gregory Dudek, "A global topological map formed by local metric maps," *Proceedings IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)*, Victoria, BC, October 1998, pp. 1708-1714.

297. Sim, Robert and Gregory Dudek, "Mobile robot localization from learned landmarks," *Proceedings IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)*, Victoria, BC, October 1998, pp. 1060-1065.

298. Jenkin, Michael, Milios, Evangelos and Gregory Dudek, "Topological Exploration of Unknown Environments with Multiple Robots," *Proc. of the World Automation Congress (WAC '98)*, Anchorage, Alaska, May 1998, (8 pages: proceedings on CD-ROM). (*Also appears in Robotic and Manufacturing Systems - Recent Results in Research, Development and Applications*, M. Jamshidi, F. Pierrot and M. Kamel (eds.), Volume 7, TSI Press, Albuquerque, NM, USA, 1998.)

299. Rekleitis, Ioannis, Milios, Evangelos and Gregory Dudek, "On Multiagent Exploration," Proc. Vision Interface, Vancouver, BC, June 1998, pp. 455-461.

300. Badra, Fady, Qumsieh, Ala and Gregory Dudek, " Robust Mosaicing Using Zernike Moments," Proc. Vision Interface, Vancouver, BC, June 1998, pp. 149-156.

301. Dudek, Gregory, "Robotics and Empiricism," *AAAI Spring Symposium* (position paper), Stanford, CA, 1998, pp. 97-98.

302. Bourque, Eric and Gregory Dudek, "Automated Image-Based Mapping," Proc. IEEE Workshop on Perception for Mobile Agents, Santa Barbara, CA, June 1998, pp. 61-70.

303. Dudek, Gregory, "On the Integration of Mobile Robot Systems," *AAAI Spring Symposium* (long paper), Stanford, CA, 1998, pp. 20-27.

304. Daum, Michael and Gregory Dudek, "On 3-D Surface Reconstruction Using Shape from Shadows," *Proc. IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, Los Angeles, CA, June 1998, pp. 461-468, doi: 10/b8wprs.

305. Daum, Michael and Gregory Dudek, "Out of the Dark: Using Shadows to Reconstruct 3D Surfaces," *Proc. Asian Conference on Computer Vision*, (Also appears as *Springer Lecture Notes in Computer Science 1351, Eds. G. Goos, J. Hartmanis, J. van Leeuwen*), Hong Kong, China, January, 1998, pp. 72-79.

306. Bourque, Eric, Ciaravola, Philippe and Gregory Dudek, "Robotic Sightseeing - A Method for Automatically Creating Virtual Environments," Proc. IEEE International Conference on Robotics and Automation, IEEE Press, Leuven, Belgium. May 1998, pp. 3186-3191.

307. Simhon, Saul and Gregory Dudek, "Selecting Targets for Local Reference Frames," Proc. IEEE International Conference on Robotics and Automation, IEEE Press, Leuven, Belgium. May 1998, pp. 2840-2845.



308. Bourque, Eric and Gregory Dudek, "Automated Creation of Image-Based Virtual Reality," *Proc. SPIE Proceedings on Intelligent Systems and Manufacturing*, Pittsburgh, PA, Oct. 1997, pp. 292-303.

309. Lacroix, Simon and Gregory Dudek, "On the Identification of Sonar Features," *Proceedings IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)*, Grenoble, France, 1997, pp. 586-592.

310. Roy, Nicholas and Gregory Dudek, "On-line rendezvous selection for robot exploration or What to do When YouÕre Lost at the Zoo," Proc. American Association for Artificial Intelligence (AAAI) Workshop on On-Line Search, Providence, RI, July 1997, pp. 22-29 (also available as AAAI Report WS-97-10). DOI: https://cdn.aaai.org/Workshops/1997/WS-97-10/WS97-10-004.pdf

311. Roy, Nicholas and Gregory Dudek, "Learning to Rendezvous during Multi-agent Exploration or What to do When You're Lost at the Zoo," *Proc. of the Sixth European Workshop on Learning Robots (EWLR-6) sponsored by AAAI*, Brighton, UK., Aug. 1997, pp. 30-45, URL: Also appears as the AAAI Workshop AAAI Technical Report WS-97-10, URL: https://cdn.aaai.org/Workshops/1997/WS-97-10/WS97-10-004.pdf

312. Rekleitis, Ioannis, Milios, Evangelos and Gregory Dudek, "Multi-Robot Exploration of an Unknown Environment: Efficiently Reducing the Odometry Error," *Proc. International Joint Conference on Artificial Intelligence (IJCAI)*, Nagoya Japan, Sept. 1997, pp. 1340-1345.

313. Jenkin, Michael, Milios, Evangelos, Wilkes, David and Gregory Dudek, "On building and navigating with a globally topological but locally metric map," *Proc. 3rd ECPD Int. Conf. on Advanced Robotics, Intelligent Automation and Active Systems*, Bremen, Germany, 1997, pp. 132-144.

314. Rekleitis, Ioannis, Milios, Evangelos and Gregory Dudek, "Reducing odometry error through cooperating robots during the exploration of an unknown world," *Proc. Fifth IASTED International Conference ROBOTICS AND MANUFACTURING*, June 1997, pp. 200-208.

315. Roy, Nicholas, Daum, Michael and Gregory Dudek, "Mobile Robot Navigation: A Case Study," *Proc. American Assoc. for Artificial Intelligence National Conf. on Artificial Intelligence (AAAI)*, 1996.

316. Daum, Michael and Gregory Dudek, "Shape from Darkness in Three Dimensions Using Information from Solar Trajectories," *Proc. US/Japan Student Forum (in affiliation with RSJ/IEEE IROS conference)*, Nagoya, Japan, 1996, 20 pages. (A travel scholarship to Japan was awarded to M. Daum based on this submission.)

317. Ayoung-Chee, Nigel, Ferrie, Frank and Gregory Dudek, "Enhanced 3D Representation Using a Hybrid Model," *Proc. International Conf. on Pattern Recognition*, Vienna, Austria, August 1996, pp. 575-579.

318. Dudek, Gregory, Paul Freedman, Yiannis Rekleitis, "Just-in-Time Sensing: Efficiently Combining Sonar and Laser Range Data for Exploring Unknown Worlds," *Proceedings IEEE International Conference on Robotics and Automation,* Minneapolis, MN, April 1996, v. 1, pp. 667-672.

319. Roy, Nicholas, Freedman, Paul and Gregory Dudek, "Surface Sensing and Classification for Efficient Mobile Robot Navigation," *Proceedings IEEE International Conference on Robotics and Automation,* Minneapolis, MN, April 1996, v. 2, pp. 1224-1228.

320. Zhang, Chi and Gregory Dudek, "Vision-based Robot Localization Without Explicit Object Models," *Proceedings IEEE International Conference on Robotics and Automation,* Minneapolis, MN, April 1996, v. 1, pp. 76-82.

321. Ayoung-Chee, Nigel, Ferrie, Frank and Gregory Dudek, "A Hybrid Approach to 3D Representation," *Proceedings of the IEEE International Workshop on Object Representation*, Cambridge England, April 1996, pp. 202-209.

322. Freedman, Paul, Rekleitis, Ioannis and Gregory Dudek, "Environment Mapping Using "Just-In-Time" Sensor Fusion," *Proceedings of Vision Interface*, Toronto ON, April 1996, pp. 96-103.

323. Ayoung-Chee, Nigel, Ferrie, Frank and Gregory Dudek, "Enhanced 3D Representation Using a Multiple Models," *Proc. Vision Interface*, Toronto ON, April 1996, pp. 104-109.

324. Jenkin, Michael, Milios, Evangelos, Wilkes, David and Gregory Dudek, "Multi-robot landmark-based self-location and exploration," Proc. Third Int. Symposium on Intelligent Robotic Systems (SIRS), Pisa, Italy, July 1995, pp. 49-56.

325. Langer, Michael, Zucker, Steven W. and Gregory Dudek, "Space occupancy using multiple shadow-images," *Proceedings IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)*, Pittsburgh, PA, August 1995, v 1, pp. 285-290.

326. Jenkin, Michael, Milios, Evangelos, Wilkes, David and Gregory Dudek, "Experiments in sensing and communication for robot convoy navigation," *Proceedings IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)*, Pittsburgh, PA, August 1995, v 2, pp. 268-273.

327. Jenkin, Michael, Milios, Evangelos, Wilkes, David and Gregory Dudek, "Exploring Graph-Like World Embedded in a Metric Map," *Proc. Vision Interface*, Quebec City, Que., July 1995, pp. 195-202.

328. Pateras, Claudia, DeMori, Renato and Gregory Dudek, "Understanding Referring Expressions in a Person-Machine Spoken Dialogue," *Proc. of the IEEE Conference of Acoustics, Speech and Signal Processing,* Detroit MI, April 1995, pp. 197-200.

329. Romanik, Kathleen, Whitesides, Sue and Gregory Dudek, "Localizing a Robot with Minimum Travel," *1995 SIAM Symposium on Discrete Algorithms (SODA),* Jan. 1995, pp. 437-446.

330. Alami, Wassim and Gregory Dudek, "Multi-scale object representation using surface patches," *Proceedings of the International Society for Optical Engineering*, v. 2353, 1994, pp. 108-119.

331. Jenkin, Michael, Tsotsos, J. K. and Gregory Dudek, "Horoptor and active cyclotorsion," *Proceedings of the International Conference on Pattern Recognition*, 1994, v. 1, pp. 707-710.

332. Freedman, Paul and Gregory Dudek, "Mapping Unknown Graph-Like Worlds," *Proceedings of the International Advanced Robotics Programme Workshop on Robotics in Space,* Montreal, Canada, July 1994, pp. 1-20.

333. Arguin, Martin, Bub, Daniel and Gregory Dudek, "Human Integration of Shape Primitives," *Proceedings of the International Workshop on Visual Form"*, Capri, Italy, May 1994, pp. 130-138.

334. Arguin, Martin, Bub, Daniel and Gregory Dudek, "Dimensional Decomposition of Human Shape Recognition," *Investigative Ophthalmology and Visual Science (Suppl),* The Association for Research in Vision and Opthalmology, Sarasota, FL, May 1994.

335. Zhang, Chi and Gregory Dudek, "Pose Estimation From Image Data Without Explicit Object Models," *Proceedings of Vision Interface,* Banff, Alta., May 1994.

336. MacKenzie, Paul and Gregory Dudek, "Precise Positioning Using Model-Based Maps," *Proceedings 1994 IEEE International Conference on Robotics and Automation,* San Diego, CA, May 1994, pp. 1615-1621.

337. Hadjres, Souad, Freedman, Paul and Gregory Dudek, "Using local information in a non-local way for mapping graph-like worlds," *Proceedings of the International Joint Conference of Artificial Intelligence (IJCAI-93),* Chambery, France, August 1993, pp. 1639-1645.

338. Jenkin, Michael, Milios, Evangelos, Wilkes, David and Gregory Dudek, "Map validation and self-location in a graph-like world," *Proceedings of the International Joint Conference of Artificial Intelligence (IJCAI-93),* Chambery, France, August 1993, pp. 1648-1653.

339. Jenkin, Michael, Milios, Evangelos, Wilkes, David and Gregory Dudek, "On the Utility of Multi-Agent Autonomous Robot Systems," *Proceedings of the International Joint Conference of Artificial Intelligence (IJCAI-93) Workshop on Dynamically Interacting Robots,* Chambery, France, August 1993, pp. 101-108.

340. Jenkin, Michael, Milios, Evangelos, Wilkes, David and Gregory Dudek, "Robust Positioning with a Multi-Agent Robotic System," *Proceedings of the International Joint Conference of Artificial Intelligence (IJCAI-93) Workshop on Dynamically Interacting Robots,* Chambery, France, August 1993, pp. 118-123.

341. Jenkin, Michael, Milios, Evangelos, Wilkes, David and Gregory Dudek, "A Taxonomy for swarm robotics," *Proceedings IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)*, Yokohama, Japan, July 1993, pp. 441-447.

342. MacKenzie, Paul and Gregory Dudek, "Model Based Map Construction for Mobile Robot Localization," *Proceedings of Vision Interface '93,* Toronto, Ontario, July 1993, pp. 97-102.

343. Dudek, Gregory, Michael Jenkin, Evangelos Milios, David Wilkes, "Organizational Characteristics for Multi-Agent Robotic Systems," *Proceedings of Vision Interface '93,* Toronto, Ontario, July 1993, pp. 91-96.

344. Jenkin, Michael, Milios, Evangelos, Wilkes, David and Gregory Dudek, "Multi-Transducer Sonar Interpretation," *Proceedings 1993 IEEE International Conference on Robotics and Automation,* Atlanta, GA, May 1993. pp. 392-397.

345. Jenkin, Michael and Gregory Dudek, "A Multi-Layer Distributed Environment for Mobile Robots," *Proceedings of the International Conference on Intelligent Autonomous Systems: IAS-3,* Pittsburgh, PA, Feb. 1993. pp. 542-550.

346. Hadjres, Souad, Freedman, Paul and Gregory Dudek, "Algorithms for Active Exploration of Unknown Environments: Using Uncertain Sensing Data to Create a Reliable Map," *Proceedings of the International Society for Optical Engineering Symposium on Advances in Intelligent Robotics Systems: Conference on Mobile Robotics VII,* Boston, MA, November 1992.

347. Dudek, Gregory, "Shape Description and Classification using Scale-Space Measurement," *Proceedings of the Workshop on Shape in Picture,* (revised manuscript to appear in the book *Shape in Picture* published Springer Verlag), Driebergen, Holland, August 1992.

348. Dudek, Gregory, "Shape Classification and Scale-Space Texture," *Investigative Ophthalmology and Visual Science (Suppl),* The Association for Research in Vision and Opthalmology, Sarasota, FL, May 1992.

349. Dudek, Gregory, "Robot Map-Making Using Weak Sensory Feedback," *Proceedings of the Workshop on Sensor-Based Mobile Robotics,* Nice, France, May 1992.

350. Jenkin, Michael, Milios, Evangelos, Wilkes, David and Gregory Dudek, "Modelling Sonar Range Sensors," in *Advances in Machine Vision: Strategies and Applications,* Archibald, C. and Petriu, E. (editors) World Scientific Press, Singapore, 1992, pp. 361-370.

351. Dudek, Gregory, "Shape Metrics From Curvature Scale-Space and Curvature-Tuned Smoothing," *Proceedings of the Conference on Geometric Methods in Computer Vision,* San Diego, CA, July 1991.

352. Jenkin, Michael, Milios, Evangelos, Wilkes, David and Gregory Dudek, "The Simulation of Sonar Mapping in Complex Environments Using Multiple Reflecting Surfaces," *Proceedings of Vision Interface '91,* Calgary, Alta., July 1991, pp. 213-217.

353. Tsotsos, John K. and Gregory Dudek, "Robustly recognizing curves using curvature-tuned smoothing," *1991 IEEE Conference on Computer Vision and Pattern Recognition,* Maui, HI, July 1991, pp 35-41.

354. Dudek, Gregory, "Object Description Using Qualitative Surface Descriptors," *Proceedings the AAAI-90 Workshop on Qualitative Vision,* Boston, MA, July 1990.

355. Jenkin, Michael, Milios, Evangelos, Wilkes, David and Gregory Dudek, "The Robust Simulation of Sonar Mapping from Multiple Viewpoints," *Proceedings of the International Society for Optical Engineering Symposium on Advances in Intelligent Robotics Systems: Conference on Mobile Robotics V,* Boston, MA, November 1990, pp. 536-542.

356. Tsotsos, John K. and Gregory Dudek, "Recognizing Planar Curves Using Curvature-Tuned Smoothing" (long paper), *Proceedings of the 10th International Conference of Pattern Recognition,* Atlantic City, N.J., June 1990, pp. 130-135.

357. Tsotsos, John K. and Gregory Dudek, "Goal-directed Smoothing for the Curvature-based Segmentation of 3-Dimensional Surfaces," *Proceedings of the Canadian Society for the Computational Studies of Intelligence,* Ottawa, Ontario, May 1990, pp. 253-257.

358. Tsotsos, John K. and Gregory Dudek, "The Decomposition and Representation of Planar Curves," *Proceedings of the Conference on Curves and Surfaces in Computer Vision and Graphics,* Santa Clara, CA, February 1990.

359. Tsotsos, John K. and Gregory Dudek, "Using Curvature Information in the Decomposition and Representation of Planar Curves," In, *Active Perception and Robot Vision,* A. Sood, H. Wechsler, Eds., Springer-Verlag, 1992, pp. 527-536.

360. Jenkin, Michael, Milios, Evangelos, Wilkes, David and Gregory Dudek, "Using Multiple Markers in Graph Exploration," *Proceedings of the International Society for Optical Engineering Symposium on Advances in Intelligent Robotics Systems: Conference on Mobile Robotics,* Philadelphia, PA, November 1989, pp. 77-87.

361. Jenkin, Michael, Milios, Evangelos, Wilkes, David and Gregory Dudek, "Using a Marker to Map an Unknown Environment," *Proceedings Vision Interface '89,* London, Ontario, June 1989, pp. 143-150.

362. Jenkin, Michael, Marcus, Howard and Gregory Dudek, "How to Make Friends With Number-Crunchers: Adding Single-User Array-Processor Slave environment to VAX UNIX," *Proceedings of 1986 USENIX Conference,* Atlanta, GA, June 1986, pp. 200-208.

363. Hamacher V., Carl and Gregory Dudek, Richard C. Holt, "Design of a Microcomputer-Based Central File Server," *Proceedings of the CIPS congress,* Montreal, Quebec, June 1985, pp. 176-182.

364. Swanston, Edward N., Richardson, David B., Campbell, Hugh and Gregory Dudek, "An Overview of the Metropolitan Toronto Traffic Control Computer System," *Proceedings of the 1983 International Electrical and Electronics Conference,* Toronto, Ontario, March 1983, pp. 202-208.

### Popular articles

365. Dudek, G., "Profile of a Winner: McGill University" (part of an article of the AAAI-97 mobile robotics competition), *American Association for Artificial Intelligence Magazine*, Summer, 1998.

## Patents

1. Rivkin, D. and G.L. Dudek, "Apparatus and method for controlling a robot photographer with semantic intelligence." Application US18/373,078 (world-wide PCT/KR2023/015100 ). Published Apr. 04, 2024, status pending.

2. Kang, Jikun, Xi Chen, Di Wu, Yi Tian Xu, Xue Liu, Gregory Lewis Dudek, L. E. E. Taeseop, and Intaik Park. "Hierarchical policy learning for hybrid communication load balancing." U.S. Patent 11,930,414, issued March 12, 2024.

3. Chen, Xi, Ju Wang, Hang Li, Yi Tian Xu, Di Wu, Xue Liu, Gregory Lewis Dudek, Lee Taeseop And Intaik Park. "Transfer Learning Of Network Traffic Prediction Model Among Cellular Base Stations." US Patent US11696153B2 (china CN116097704A, EU EP4150947A4, World-wide WO2022035276A1). Granted 2023-07-04.

4. S Rezaei-Shoshtari, D Meger, FR Hogan, GL Dudek, C Morissette. "Universal approximation of reinforcement learning solutions with hypernetworks." US US20240198517A1 Filed 2023-10-31, Published 2024-06-20

5. Jikun Kang, Xi Chen, Chengming HU, Ju Wang, Gregory Lewis Dudek, Xue Liu. "Method of performing communication load balancing with multi-teacher reinforcement learning, and an apparatus for the same." Application US18/351,201 (US, China, Europe, World). Pending with last update: publication of US20230353659A1 2023-11-02.

6. Wang, Ju, Xue Liu, and Gregory Lewis Dudek. "Ultra-wideband enabled one-for-all smart remote." U.S. Patent Application 17/965,360, filed April 18, 2024.

7. Rivkin, Dmitriy, and Gregory Lewis Dudek. "Apparatus and method for controlling a robot photographer with semantic intelligence." U.S. Patent Application 18/373,078, filed April 4, 2024.

8. Chen, Xi, Hang Li, Z. H. O. U. Chenyi, Xue Liu, Di Wu, and Gregory L. Dudek. "System and method for WiFi-based indoor localization via unsupervised domain adaptation." U.S. Patent 11,941,663, issued March 26, 2024.

9. Chengming, H. U., Xi Chen, Ju Wang, Hang Li, Jikun Kang, Yi Tian Xu, Xue Liu et al. "Communication load forecasting accuracy with adaptive feature boosting." U.S. Patent 11,991,531, issued May 21, 2024.

10. Wu, Di, Amal Feriani, Yi Tian Xu, Jang Seowoo, Michael Jenkin, Xue Liu, Gregory Lewis Dudek And Jimmy Li (2023). Communication Load Balancing Via Meta Multi-Objective Reinforcement Learning. Us Patent App. 17/903,646 (Patent Pending), Filed: September, 2022

11. Wu, Di, Yi Tian Xu, Jimmy Li, Tianyu Li, Jikun Kang, Xue Liu, Xi Chen, Gregory Lewis Dudek And Jang Seowoo (2023). System And Method For Communication Load Balancing In Unseen Traffic Scenarios. Us Patent App. 17/872,667 (Patent Pending), Filed: July 25, 2022.

12. Wu, Di, , Jikun Kang, Yi Tian Xu, Jimmy Li, Michael Jenkin, Xue Liu, Xi Chen, Gregory Lewis Dudek, Intaik Park, Taeseop Lee Method And Apparatus For Distributing Traffic Load Between Different Communication Cells Patent Application (Application 20220150785), (Patent Pending). Publication Date: May, 2022.

13. Li, Hang, Ju Wang, Hu Chengming, Xi Chen, Xue Liu, Jang Seowoo And Gregory Lewis Dudek (2023). Method Of Communication Traffic Prediction Via Continual Learning With Knowledge Distillation, And An Apparatus For The Same. Us Patent App. 17/957,499 (Patent Pending), Filed: September 30, 2022 Publication date: April 13, 2023.

14. Wu, Di, Manyou Ma, Yi Tian Xu, Jimmy Li, Jang Seowoo, Xue Liu And Gregory Lewis Dudek (2023). Coordinated Load Balancing In Mobile Edge Computing Network. US Patent App. 17/965,294 (Patent Pending), Filed: October, 2022

15. Wu, Di, Jikun Kang, Hang Li, Xi Chen, Yi Tian Xu, Dmitriy Rivkin, LEE Taeseop, Intaik Park, Michael Jenkin, Xue Liu et al. "Load balancing using data-efficient learning". US Patent App. 17/139,561, 2022.

16. Di Wu, Michael Jenkin, Xue Liu, Gregory Lewis Dudek. "Method Of Short-Term Load Forecasting Via Active Deep Multi-Task Learning, And An Apparatus For The Same." US Patent Application Number: 20220207357 (Patent Pending). Filed: June 28, 2021.

17. Di Wu, Yi Tian Xu, Xi Chen, Ju Wang, Michael Jenkin, Hang Li, Gregory Lewis Dudek, Xue Liu. "Short-Term Load Forecasting." US Patent App. 16/953,586, US Patent App. 20220004941 (Patent Pending), Filed: November, 2020

18. Ju Wang, Xi Chen, Xue Liu, Gregory Lewis Dudek. "Millimeter-Wave Beam Alignment Assisted By Ultra Wide Band (UWB) Radio." US Patent Application 20220116088. Filed: August, 2021.

19. Chengming, Hu, Xi Chen, Amal Feriani, Ju Wang, Jikun Kang, Xue Liu, Gregory Lewis Dudek And Jang Seowoo. "Method Of Load Forecasting Via Knowledge Distillation, And An Apparatus For The Same." US Patent App. 17/902,626 (Patent Pending), 2023.

20. Hogan, Francois, Michael Jenkin, Gregory Lewis Dudek, Yogesh Girdhar, Sahand Rezaei-Shoshtari And David Meger. "Semitransparent Tactile Surface Sensor And A Method Of Sensing An Interaction With An Object Using The Semitransparent Tactile Surface Sensor." US Patent 11,656,759. Date Of Patent: May, 2023

21. Hogan, Francois, Jean-Francois Tremblay, Bobak Hamed Baghi, Michael Jenkin, Kaleem Siddiqi And Gregory Lewis Dudek. "Visuotactile Operators For Proximity Sensing And Contact Control." US Patent Us-20230264367-A1. 2023.

22. Kang, Jikun, Xi Chen, Hu Chengming, Ju Wang, Gregory Lewis Dudek And Xue Liu. "Method Of Performing Communication Load Balancing With Multi-Teacher Reinforcement Learning, And An Apparatus For The Same." US Patent 11,750,719. 2023.

23. Li, Jimmy, Di Wu, Yi Tian Xu, Tianyu Li, Jang Seowoo, Xue Liu And Gregory Lewis Dudek (2023). "Traffic Scenario Clustering And Load Balancing With Distilled Reinforcement Learning Policies." Us Patent App. 17/870,212 (Patent Pending),

24. Wang, Ju, Xi Chen, Xue Liu And Gregory Lewis Dudek. "Millimeter- Wave Beam Alignment Assisted By Ultra Wide Band (UWB) Radio". US Patent 11,616,548. 2023.

25. Wu, Di, Tianyu Li, David Meger, Michael Jenkin, Xue Liu And Gregory Lewis Dudek. "Multi-Batch Reinforcement Learning Via Multi-Imitation Learning." US Patent App. 17/957,960 (Patent Pending), 2023.

26. Florian Shkurti, Yasasa Abeysirigoonawardena, Jun Luo, Gregory Dudek, Elmira Amirloo Abolfathi. "Iterative Generation Of Adversarial Scenarios", USPTO Application 16297973, Ep 17746676.0, Ca 3,012,721.

27. Roshtkhari, Mehrsan Javan, Juan Camilo Gamboa Higuera, and Gregory Lewis Dudek. "Systems And Methods For Automated Camera Calibration." U.S. Patent US 20180336704, 16/049,546.

28. Dudek, Gregory. "Progressively Degrading Synthetic Markers." Sole Inventor. Us Patent 8,025,235. Granted In 2008. I am the sole inventor and patent holder for this patent dealing with variable resolution fiducial markers

29. "AMPHIBIOUS ROBOTIC DEVICE." I am co-inventor for US patent 7,427,220 issued Feb. 2008 and licensed by McGill University in 2010. Patent related to our work on underwater vehicles and licensed to Independent Robotics Inc. (related Canadian patent CA 2,555,148 )

## Books

366. Dudek, Gregory, Michael Jenkin, "Computational Principles of Mobile Robotics 3rd edition ," *Cambridge University Press*, ISBN 9780521692120, 2024, 450 pages.

367. Jaydev Desai, Gregory Dudek, Oussama Khatib, Vijay Kumar (editors), "Experimental Robotics: The 13th International Symposium on Experimental Robotics," Springer, DOI 10.1007/978-3-319-00065-7, ISBN 978-3-319-00064-0, ISBN 978-3-319-00065-7 (eBook), ISSN 1610-742X (electronic), 2013.

368. Dudek, Gregory, Michael Jenkin, "Computational Principles of Mobile Robotics 2nd edition," *Cambridge University Press*, ISBN 9780521692120, 2010, 406 pages.

369. Dudek, Gregory, "Digital Television at Home: Satellite, Cable and Over-The-Air," *Y1D Books*, ISBN 978-9809915-0-5, 2008. (Another edition exists as well.)

370. Dudek, Gregory, Jenkin, Michael "Computational Principles of Mobile Robotics," *Cambridge University Press*, ISBN 0521560217, 2000, 250 pages.

## Selected Recent Invited Talks and Presentations (2010-2021, 2024-)

Most ordinary university lectures ( e.g. normal invited colloquia and seminars at universities) are not shown here except when they had particular significance or notability.

- Invited speaker, "Intentions to Policies: Marrying Classical Robotics with Foundation Models in the Wild," Physical Intelligence (PIš) workshop, University of Delaware, Nov., 2025.
- Invited speaker, "From Robotics Science to Startup: The Journey of a Venture Scientist", AI for Hardware, Chips and Robotics, Mila, Montreal, Oct, 2025.
- Invited speaker, "From Robotics Science to Startup: The Journey of a Venture Scientist", AI for Hardware, Chips and Robotics, Oct, 2025.
- Invited speaker, "Robot sensors for challenging environments", Mila Robotics Summer School, June, 2024.
- Invited speaker, "Robotics for challenging environments and the potential of machine learning," Sir Arthur Lewis College, St Lucia, Feb. 2024.
- Invited talks from 2021-2023 are not listed.

- Keynote invited speaker, "Modern AI Meets Cell Phone Network Optimization", IEEE International Conference on Communications (ICC), June 2021.
- Invited panelist, Queen's University, Robotics Symposium, October 2021.
- Invited debater, 2nd Workshop on Closing the Reality Gap in Sim2Real Transfer for Robotics, Robotics Science and Systems, 2020.
- Invited panelist, AI4Earth Sciences Workshop, ICLR, April 26, 2020.
- Invited panelist/debater/presenter, Debates on the Future of Robotics Research, Int Conference on Robotics and Automation (ICRA), 2020.
- Invited Keynote speaker, World Summit on Artificial Intelligence (WSAI), March, 2020.
- Invited Keynote speaker, Informed Scientific Sampling in Large-scale Outdoor Environments, Creating Effective and Useful Robots for Scientific Data Collection, IROS 2019, November 2019, Macau China.
- Invited speaker, Samsung Computer Vision Workshop, IROS 2019, November 2019, Seoul South Korea.
- Invited speaker, Samsung Machine Learning Workshop, IROS 2019, July 2019, Moscow, Russia.
- Invited speaker, Samsung AI Forum, IROS 2019, January 2019, Mountain View, California, USA.
- Invited Keynote Presentation, Huawei-sponsored Strategy and Technology Workshop (STW) for Chinese company leadership, Huawei Corporate Technology Strategy Department and Overseas Research Institutes, Shenzhen, May 2018.
- Invited Keynote Presentation, CRV 2018, Toronto, May 2018.
- Invited Presentation, JKT Workshop, Toronto, May 2018.
- Invited Keynote Presentation, "Robots that for for, and work with, humans," IEEE Research Boost , Mind the Product community, April 2018.
- Invited Presentation, "Building the Aqua2 Robot Family," ProductTank, Mind the Product community, March 2018.
- Invited Presentation, "How I got here. Careers in Robotics and Computer Science," IEEE Young Professionals, Concordia University, November 2017.
- Invited Presentation, "Learning, sensing and algorithmic problems in robotics: capacities and needs," NSERC Workshop on building the Canadian Robotics Roadmap, Vancouver, BC, 2017.
- Invited Presentation, "Objectives, outcomes and processing in NCFRN", IROS Workshop on Vision and learning for field robotics," Best practices in designing effective roadmaps for robotics innovation, Vancouver, BC, 2017. Part of an effort to develop the Canadian robotics community.

- Invited Presentation, "Enabling Autonomy in Challenging Marine Environments," NUS-ARC, SMART and KEPPEL Joint Talk, Nanyang University of Singapore, June, 2017.
- Invited Presentation, "Vision and learning for field robotics," Stanford University, 2017.
- Invited keynote speaker, "Robotics and machine vision for outdoors," Callaghan Innovation (Government of New Zealand), Auckland, New Zealand, November 2015. (They also coupled this with a speaking tour to all local universities and some relevant enterprises.)
- Invited keynote speaker, "Who will look at the data: robotics and machine vision." Beyond the line of sight conference (350 attendees, by invitation only), Auckland, New Zealand, November 2015.
- Keynote speaker, "Emerging Challenges in Field Robotics," Conference on Computer and Robot Vision (held in conjunction with the conferences AI 2015 and Graphics Interface 2015), Halifax, NS, 2015.
- Invited speaker, "Reducing the distance between "them" and "us"," objets handicapŐs [sic] – disabled objects (invited workshop on art and robotics), Concordia University/Laval University/University of Paris 8, November 2014.
- Invited keynote speaker and panelist, "Robotics challenges and robotics in Canada," Canadian Consulate, Boston MA, October 2014.
- Invited keynote speaker, "Environmental assessment with robotics," Robobusiness, Boston MA, October 2014.
- Keynote speaker, International Conference on Robotics and Systems (IROS 2014), "Human-guided Video Data Collection in Marine Environments," Chicago, IL, September, 2014.
- Invited speaker, "Robot Teams to Assist Humans in Scientific Discovery," University of Nebraska-Lincoln, Lincoln, NE, February 2014.
- Invited speaker, "The robots are here!" Bacon and Eggheads lectures for parliamentarians, The Partnership Group for Science and Engineering (PAGSE), Ottawa, November 28, 2013.
- Invited speaker, "Environmental assessment with robotics," Canadian Science Writers Association, June 2013.
- Invited speaker, "Multi-robot and human coordination to monitor coral reef environments," RSS 2013 Workshop on Robotics for Environmental Monitoring (WREM), June 2013.
- Invited speaker, "Robot teams to assist humans in scientific discovery," University of British Columbia, Vancouver, March 2013.
- Invited colloquium and Forum for Artificial Intelligence speaker, "Robot teams to assist humans in scientific discovery," University of Texasï£¡ Austin, Texas, February 2013.
- Invited speaker, Artificial Intelligence Research at McGill University, Consumer's Union, Yonkers, New York, December 2012.

- Invited speaker, "Automated video summarization and the detection of notable events," Breaking the Surface, The International Interdisciplinary Field Workshop of Marine Robotics and Applications, Office of Naval Research-Global (ONR-Global) and the Republic of Croatia, Croatia, October 2012.
- Invited keynote speaker, "On the Performance Evaluation of a Vision-based Human-Robot Interaction Framework," Performance Metrics for Intelligent Systems (PerMIS 2012), University of Maryland, March 2012.
- Invited speaker, "Data collection using both human-in-the-loop and automated summarization on the Aqua amphibious vehicle," Monterey Bay Aquarium Research Institute (MBARI), October 2011. MBARI is one of the top three independent marine biology institutes in North America.
- Invited keynote speaker, "Underwater Data Collection and Summarization," IEEE 9th International Symposium on Robotics and Sensor Environments (ROSE), Conference on Computer and Robot Vision, September 2011.
- Invited speaker, "Mission planning and endurance for underwater and harsh-terrain missions," RSS Workshop on Autonomous long term operation (ALONE), June 2011.
- Invited speaker, "A multi-modal approach to coral reef data collection," RSS Marine Robotics Workshop, June 2011.
- Invited speaker, "A multi-modal approach to coral reef data collection," Computer and Robotics Vision workshop on underwater robotics, June 2011.
- Invited speaker, "Why amphibious robots have a hard time with underwater vacations," TEDxMcGill conference (TED-licensed idea dissemination event), November 2010.
- Invited speaker, "Marine Robotics and McGill," 2010 Maritime Autonomy Workshop, Sponsored by Defense Research and Development Canada, Sept. 2010.
- Invited keynote speaker (and also invited panelist), "Building Interfaces for Robotic Data Collection and Human-Robot Collaboration Underwater and Outdoors," Performance Metrics for Intelligent Systems (PerMIS'10), Sponsored by the US National Bureau of Standards and Technology (NIST), August 2010.

## Graduate Students and Post docs

My former graduate supervisees hold tenured or tenure track positions at Universities in Mexico, the USA, Singapore and Canada, senior positions at many leading edge companies, and are founders of at least 6 different companies. These institutions include MIT, CINVESTAV, Laval University, McGill, University of Southern Carolina, University of Minnesota, Wood's Hole (WHOI), Autodesk, Microsoft, Google, and Amazon.com. While I have not tracked undergraduate who have worked in my lab, I have supervised over 24 in the last 6 years and of these at least 14 have chosen to pursue further graduate studies.

## Supervision - current graduate students

1. Steve Wen, MSC Computer Science (co-supervised with Doina Precup, McGill)
2. Edwin Meriaux, PhD Computer Science (co-supervised with Professor Antonio Loria, CNRS).
3. Charlotte Morrisette, MSC Computer Science.
4. Farnoosh Faraji, PhD Computer Science (co-supervised with David Meger).
5. Xiru Xu, PhD Computer Science (co-supervised).
6. Nikhil Kakodkar, MSc Computer Science.
7. Wei-Di Chang PhD. Computer Science (co-supervised).

## Graduates - past graduate students

Current status of past students is provided on a best-effort basis based on recent communications. Note that due to faculty regulations related to my leave of absence, students under my supervision in 2019-2023 were required to have an official co-supervisor, although in several cases they did not substantively work with the co-supervisor.

8. Andrew Holliday, PhD Computer Science, 2024. Thesis: Applications of Deep Reinforcement Learning to Urban Transit Network Design.
9. Johanna Hansen, PhD Computer Science 2024. Thesis: Structured modeling for robot decision-making. As of 9/24 employed as Boston Dynamics. Nominally co-supervised due to faculty requirements during my leave of absence.
10. Faraz Lotfi, Post-doctoral Fellow, 2022-2024. Now head of perception team, Hexagon Inc.
11. Khalil, Virji, MSC Computer Science, 2024. Thesis: Following scuba divers with an autonomous underwater vehicle. As of 9/24 employed at the University of California.
12. Hanqing (Gaspard) Zhao , PhD Computer Science (co-supervised), 2024. Title: Towards Secure Robot Intelligence through Rewards-based Fault Management.
13. Travis Leland Manderson, PhD Computer Science, 2024. **CIPPRS John Barron Doctoral Dissertation Award (Robotics) 2023 (awarded in 2024)** . As of Sept 2024, doing at postdoc as MIT CSAIL.
14. Abhisek Konar, MSc. Computer Science 2021. Last update he was employed at Samsung Electronics.
15. Bobak Hamed Bahgi MSc. Computer Science 2020. CTO of a small Montreal-based company.
16. Jimmy Li, PhD Computer Science 2021. CEO of a small Montreal-based company.
17. Herke van Hoof, Postdoc, 2018-2019 (co-supervised). Now on faculty at the university of Amsterdam.
18. Wei-Di Chang MSc. Computer Science 2019. Now pursuing doctoral degree.
19. Arnold Kalmbach, MSc Computer Science 2019, “Unsupervised learning of interpretable models for sparse, smooth data”.

20. Sandeep Manjanna, PhD Computer Science, 2021. Postdoc at University of Pennsylvania GASP lab (one of the best robotics labs in the world), Not tenure-track faculty at Plaksha University. **CIPPRS 2021 John Barron Doctoral Dissertation Award (awarded in 2022): Thesis: "Multi-robot Planning Strategies for Non-myopic Spatial Sampling"**
21. Shrushti Dhope, MSc Computer Science.
22. Florian Shkurti, PhD Computer Science. Tenure-track faculty, University of Toronto.
23. Nikhil Kakodkar, MEng Computer Engineering (technically classified as co-supervised with Benoit Boulet).
24. Karim Kortencamp, M.Sc., Computer Science, 2020. Now employed at Waymo (self-driving car company).
25. Nihil Kakodar, MSc Computer Engineering, 2017. Now pursing a PhD.
26. Malika Meghjani, PhD Computer Science, 2017. Currently on faculty at Singapore University of Technology and Design.
27. Anqi Xu, PhD Computer Science 2017, "Efficient Collaboration withTrust-Seeking Robots", former NSERC Vanier Scholar. **CIPPRS Doctoral Dissertation Award winner.** Now employed in a leadership role at Facebook.
28. Andrew Holliday, M.Sc Computer Science, 2019. Now pursuing PhD.
29. Dr. Mohammad Keshmiri, Postdoctoral fellow (MITACS Elevate), 2014-2016. Currently lead software developer at RobotMaster.
30. Dr. David Meger, Postdoctoral fellow (Tomlinson Fellowship), 2013-2015. Now tenure-track faculty, McGill University.
31. Michael Ounsworth, MSc Computer Science, "ANTICIPATORY MOVEMENT PLANNING FOR QUADROTOR VISUAL SERVOING," 2015. Software Developer at Entrust Datacard.
32. Qiwen Shang (co-supervised), MSc Computer Science, "Uncertainty reduction via heuristic search planning on hybrid metric/topological maps," 2015. IT specialist at Morgan Stanley.
33. Yogesh Ghirdar, PhD Computer Science, "Unsupervised Semantic Perception, Summarization, and Autonomous Exploration for Robots in Unstructured Environments", 2014. CIPPRS Doctoral Dissertation Award 2014 Honourable Mention. Now tenure-track faculty (assistant scientist), Wood's Hole Oceanographic Institute.
34. Juan Camillo Gamboa, MSc Computer Science, "Distributing work among heterogeneous robots: An approach based on fair division theory,' 2013. Now pursuing PhD work in my lab.
35. Sandeep Manjanna, MSc Computer Science, "Efficient Robotic Walking by Learning Gaits and Terrain Properties," 2013.
36. Ian Tessier, MSc Computer Science, "Distributed Process Scheduling in ROS," 2012. Now employed at Google (Google-X, Google's top research group).
37. Junaed Sattar, Phd Computer Science, "Towards a Robust Framework for Visual Human-Robot Interaction," 2012. Now tenured faculty at Univ. of Minnesota.
38. Amjad AlMahairi, MSc Computer Science, "Recommendation of Items with Inter-Dependencies," 2012. Subsequently completed PhD at Univ de Montreal. Now pursuing doctoral work at the Universite de Montreal.

39. Yasmina Soucheri, MSc Computer Science, 2011. Now employed at Nuance Communications Canada Inc.
40. Florian Shkurti, MSc Computer Science, "State estimation for an underwater robot using visual and inertial cues," 2011. Continued to PhD and faculty position.
41. Philippe Giguère, PhD Computer Science, 2013, "Improving environment perception for mobile robots," 2010. Now tenured faculty in Computer Science, University of Laval.
42. John-Paul Lobos, MSc Computer Science, non-thesis, 2010. Software Development Engineer at Amazon.com, Seattle, WA (Prime Air group).
43. Daniel Pomererantz, MSc Computer Science, "Designing a context dependant movie recommender: a hierarchical Bayesian approach," 2009. Now on faculty at Dawson College.
44. Dimitri Marinakis, PhD Computer Science, "Inferring environmental representations through limited sensory data with applications to sensor network self-calibration," 2008. Founder and principal, Kinsol Research.
45. David Meger, MSc Computer Science, "Planning, localization, and mapping for a mobile robot in a camera network," 2008. Subsequent PhD UBC, Currently tenure-track faculty in Computer Science, McGill University.
46. Alec Mills, MSc Computer Science, "A stitch in time: A dissertation on video mosaicking," 2007. Currently employed at Canadian Security Intelligence Service (CSIS).
47. Daniel Burfoot, MSc Computer Science, "Limitations of and extensions to heuristic search planning," 2007. Subsequent PhD, University of Tokyo. Currently employed at Ozora Research LLC (founder).
48. Paul DiMarco, MSc Computer Science, (non-thesis), 2007. Currently Senior Programmer @ Minority Media Inc.
49. Sumedha Ahuja, MSc Computer Science, 2006. Currently mid-Level Associate at Akin Gump Strauss Hauer and Feld LLP.
50. Malvika Rao, MSc Computer Science "A randomized approach to minimum distance localization"(co-supervised), 2004. Subsequent PhD Harvard.
51. Mat Garden, MSc Computer Science, "On the use of semantic feedback in recommender systems," 2004. Software developer, Lightspeed POS.
52. Junaed Sattar, MSc Computer Science, "A visual servoing system for an amphibious legged robot," 2005. Subsequent PhD McGill. Now tenure-track faculty.
53. Eric Bourque, PhD Comp. Sci, "Image-based procedural texture matching and transformation," 2006. Currently senior Software Development Manager, Entertainment Compute Group, Media and Entertainment at Autodesk.
54. Saul Simhon, PhD Comp. Sci, "A machine learning framework for the classification and refinement of hand drawn curves," 2006. Fomer head Data Scientist, Consumer Reports (Consumer's Union). Currently employed at Amazon.com.
55. Robert Sim, PhD Comp. Sci, "On visual maps and their automatic construction," 2006. Principal Applied Researcher at Microsoft.
56. Ioannis (Yiannis) Rekleitis, Ph.D. Comp. Sci., "Cooperative localization and multi-robot exploration," 2002. Tenure-track faculty, USC.

57. Luz Abril Torres Mendez, PhD Comp. Sci, "Statistics of visual and partial range data for mobile robot environment modeling," 2006. Now tenured professor, Centre for Research and Advanced Studies (CINVESTAV), Mexico
58. Simon Drouin, MSc Comp. Sci., now tenured faculty member at Čcole de technologie supŐrieure.
59. Deeptiman Jugessur, MSc Comp. Sci., "Robust object recognition using local appearance based methods," 2000. Currently senior Scientist at Vircom
60. Sandra Polifroni, MSc Comp. Sci (co-supervised). "Evaluation of Computational Attention Operators Using Human Image Recognition," 1997-2000. Currently Documentation and Usability Specialist, Masstech Innovations Inc.
61. Rajwade, Ajit, MEng Electrical and Computer Eng. (co-supervised with M Levine), "Facial Pose Estimation and Recognition from 3D Shape Information," 2004.
62. Francois Belair, MSc Comp. Sci, "Obstacle Avoidance Using Visual Motion Estimation," 1997-2000.
63. Scott Burlington, MSc Comp. Sci, "Efficient Planar Search for Automated Robotic Discovery," 1997-2000.
64. Maria Ignatova, MSc Comp. Sci (co-supervised), "Finding Faces in Color Images Just Using Hue," 1996-1998.
65. Eric Bourque, MSc Comp. Sci, "On The Automated Selection of Viewpoints for Image Based Maps" (**Dean's List**), 1996-1998. Subsequent PhD in my lab (see above).
66. Robert Sim, MSc Comp. Sci, "Mobile Robot Localisation Using Learned Landmarks," 1996-1998. Subsequent PhD in my lab (see above).
67. Saul Simhon, MSc Comp. Sci, "Islands of Reliability for Hybrid Topological-Metric Mapping," 1996-1998. Subsequent PhD in my lab (see above).
68. Hing Cheung Chui, MSc Comp. Sci (co-supervised), "Three-dimensional registration and voxel-based analysis in magnetic resonance imaging," 1998.
69. Michael Daum, M.Sc. Comp. Sci., "Extending the shape-from-darkness algorithm to three dimensions," 1995-1998. Currently Principal Engineer at Autodesk.
70. Chi Zhang, M.Eng. Elect. Eng., "Vision-Based Robot Localization with Explicit Landmarks," 1992-1998 (part-time).
71. Zie Kone, Ph.D. Comp. Sci., withdrew.
72. Phil Ciaravola, MSc Comp. Sci, "An Automated Robotic System for Synthesis of Image-Based Virtual Reality," 1996-1997. Current status unknown.
73. Nicholas Roy, M.Sc. Comp. Sci. (**Dean's List**), "Multi-Agent Exploration and Rendezvous," supervisor, 1995-1997. Now tenured faculty, MIT.
74. Kadima Lonji, M.Sc. Comp. Sci., "Mobile Robot Teleoperation Using Enhanced Video," 1993-1996. Currently Global CTO of Direct to Consumer at Billabong
75. Madhuri Sethi, M.Sc. Comp. Sci., "Generating Clouds in Computer Graphics," 1993-1997.
76. Simon Lacroix, Comp. Sci., Post-doctoral visitor, 1996. Currently tenured scientist, LAAS-CNRS, France.

77. Yi-Jen Huang, M.Sc. Comp. Sci (co-supervised), 1996, "An Extended Shadow Map for Shading with Linear Light Sources," 1995-1996 (co-supervision with Pierre Poulin).
78. Claudia Pateras, M.Sc. Comp. Sci., co-supervised, "Object Identification in Mobile Robotic Applications Through Dialogue and Sensing," 1992-1994 (Rec'd degree 1995).
79. Wassim Alami, M.Eng. Elect. Eng., "Multi-Scale Object Representation and Localization Using Range Data," supervisor, 1994. Currently Senior Manager, Application Development at Sirius XM Radio Inc.
80. Paul MacKenzie, M.Eng. Elect. Eng., 1992-1994, "Mobile Robot Localization Using Model-Based Maps," supervisor. Currently Vice President, Simlog Inc.

## Selected Professional Affiliations and Activities

### National

- President of the Canadian Pattern Recognition and Image Processing Society (2006-2016)
- Speaker at the Partnership Group for Science and Engineering (PAGSE) seminar series (2013).
- Emeber of NSERC Computer Science Grant Selection Committee and the Computer Science Liaison Committee (2007-2009, 2010-2014).

### International

- Fellow of the IEEE (Institute of Electrical and Electronics Engineers), elected through the IEEE Robotics and Automation Society (RAS), 2025.
- Editorial board member, IEEE Transactions on Robotics and Automation – Practice, 2024-
- Editorial board member, Autonomous Robots Journal, 2022-
- Co-chair, RSS Workshop on Visual Learning and Reasoning for Robotic Manipulation, 2020.
- Co-organizer of virtual events and debates for the Robotics Community, 2019-2022. A few recent examples follows:
  - Moderator/co-organizer, Debates on the Future of Robotics Research, 2021 (virtual event in association with the International Conference on Robotics and Automation).
  - Speaker/participant, Debates on the Future of Robotics Research, 2020 (virtual event in association with the International Conference on Robotics and Automation).

  - Co-organizer, 2021 NeurIPS Workshop on AI for Earth Sciences.

- General Chair of the IEEE International Conference on Robotics and Automation (ICRA) 2019.
- Co-organizer of the International Conference on Experimental Robotics 2013 (with Oussama Khatib, Stanford, Jaydev Desai, Maryland, and Vijay Kumar, U Penn, some of the most influential robotics researchers in the world).

  2015.
- Co-founder and advisor board member for Robotics Science and Systems.
- Past co-chair, program co-chair, area chair or program committee member for essentially every major international conference on computer vision or robotics conference at some time over the last decade.
- Organizer of a series of field trials and co-located scientific meetings at the Bellairs Research Institute (2010-2026, omitting 2021).
- External expert on Brussels/Luxembourg assessment panels, European FP7 and Horizon 2020 robotics and cognitive systems programs (STREP and IP projects, budgets between €2M and €11M each), 2009 through 2014.
- Member of the evaluation committee for Carnegie-Mellon University Qatar campus (the review team had 6 members: 2 in Business Administration, 2 education specialists, and 2 computer scientists, myself and Eric Grimson who is now Provost of MIT), 2011.