

Curriculum Vitae

Wolfram Burgard

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Work Address:

University of Technology Nuremberg

Computer Science & Artificial Intelligence Department

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Research Interests

- Robotics
- Artificial intelligence
- Machine Learning
- Computer Vision

Education

- Dr. rer.-nat. (Ph.D.), University of Bonn, Germany December 1991
Computer Science.
- Diplom (M.Sc.), University of Dortmund, Germany April 1987
Computer science (major) and Mathematics (minor).
- Vordiplom (B.Sc.), University of Dortmund, Germany March 1984
Computer science (major), Mathematics (minor).

Industry Positions

- Vice President Automated Driving Technology/Machine Learning Jan 2019 - Mar 2021
Toyota Research Institute, Los Altos, CA, USA.

Academic Positions

- Full professor 2022 - today
University of Technology Nuremberg.
- Full professor 2006 - 2022
University of Freiburg, Department of Computer Science.
- Associate professor 1999 - 2006
University of Freiburg, Department of Computer Science.
- Research scholar, 03-10/2002
Carnegie Mellon University, School of Computer Science.

- Research scientist (Akad. Rat) 1991 - 1999
University of Bonn, Department of Computer Science.
- Ph.D. student and research associate, 1990-1991
University of Bonn, Department of Computer Science.
- Ph.D. student and research associate, 1987-1990
University of Dortmund, Department of Computer Science.

Adjunct Positions

- Adjunct faculty member 2000 - 2005
Carnegie Mellon University, Center of Automated Learning and Discovery (CALD).

Services in Academic Positions

- Founding Department Chair, Computer Science & Artificial Intelligence Feb. 2022 - today
Department, University of Technology Nuremberg.
- Senior Past President of the IEEE Robotics and Automation Society Jan. 2022 - Dec. 2023
Piscataway, NJ, United States.
- Spokesperson of the Center BrainLinks-BrainTools Jan. 2020 - Jan. 2022
University of Freiburg.
- Junior Past President of the IEEE Robotics and Automation Society Jan. 2020 - Dec. 2021
Piscataway, NJ, United States.
- Spokesperson of the Cluster of Excellence BrainLinks-BrainTools Oct. 2012 - Dec. 2019
University of Freiburg.
- President of the IEEE Robotics and Automation Society Mar. 2018 - Dec. 2019
Piscataway, NJ, United States.
- Spokesperson of the Graduate School Embedded Microsystems Oct. 2010 - 2015
University of Freiburg.
- Vice Dean of the Faculty of Engineering Oct. 2010 - Sept. 2012
University of Freiburg.
- Director of the Department of Computer Science Sept. 2006 - Sept. 2010
University of Freiburg.
- Dean for student affairs (Studiendekan) Oct. 2000 - Dec. 2004
University of Freiburg, Department of Computer Science.
- Acting Director of the Department of Computer Science Oct. 2002 - Apr. 2003
University of Freiburg, Department of Computer Science.
- Administrator of the Rector of the University of Freiburg for affairs of the Oct. 2000 - 2004
European Commission, University of Freiburg, Department of Computer Science.
- Representative of the scientific staff, 1998-1999
University of Bonn, Department of Computer Science.

Awards

- **IEEE RAS Pioneer Award.** IEEE Robotics and Automation Society, 2025.
- **ICRA 2024 Best Paper Award.** IEEE International Conference on Robotics and Automation (ICRA), *Open X-Embodiment: Robotic Learning Datasets and RT-X Models*, 2024.
- **IEEE RAS Technical Field Award.** IEEE, 2022.
- **Distinguished Professorship.** Free State of Bavaria, 2022.
- **RA-L Best Paper Award.** *CALVIN: A Benchmark for Language-Conditioned Policy Learning for Long-Horizon Robot Manipulation Tasks*, 2022.
- **IEEE Robotics and Automation Magazine Best Paper Award.** *Building an Aerial-Ground Robotics System for Precision Farming: An Adaptable Solution*, 2022.
- **ICRA 2020 Milestone Award.** IEEE International Conference on Robotics and Automation (ICRA), *Monte Carlo Localization for Mobile Robots*, 2020.
- **IROS 2019 Best Paper Award.** IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), *Planning Reactive Manipulation in Dynamic Environments*, 2019.
- **IV 2018 Best Paper Award.** IEEE Intelligent Vehicles Symposium (IV), *Courtesy Behavior for Highly Automated Vehicles on Highway Interchanges*, 2018.
- **ICRA 2018 Best Robot Vision Paper Award.** IEEE International Conference on Robotics and Automation (ICRA), *Optimization Beyond the Convolution: Generalizing Spatial Relations with End-to-End Metric Learning*, 2018.
- **IROS Harashima Award for Innovative Technologies.** IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), *For pioneering research in robotic simultaneous localization and mapping*, 2018.
- **AAAI 1999 Classic Paper Award**, 2017.
- **AAAI 1998 Classic Paper Award**, 2016.
- **euRobotics Technology Transfer Award**, 2015.
- **ERC Advanced Grant**, 2010.
- **Gottfried Wilhelm Leibniz Prize**, 2009.
- **Most Useful Contribution Award**, ROS 3D Kinect Contest, Willow Garage, 2011.
- **IROS 2010 Best Paper Award.** IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), *Probabilistic Rule Set Joint State Update as Approximation to the Full Joint State Estimation Applied to Multi Object Scene Analysis*, 2010.
- **UAV 2010 Best Paper Award.** International Conference and Exhibition on Unmanned Aerial Vehicles (UAV), *Towards Palm-Size Autonomous Helicopters*, 2010
- **ICRA 2009 Best Paper Award.** IEEE International Conference on Robotics and Automation (ICRA), *Towards a Navigation System for Autonomous Indoor Flying*, 2009.
- **Most active IEEE technical committee award.** IEEE International Conference on Robotics & Automation (ICRA), 2005.
- **IROS 2004 Best Paper Award on applications.** IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), *Exploration with Active Loop-Closing for FastSLAM*, 2004.
- **2004 IJCAII-JAIR honorable mention award.** *Markov Localization for Mobile Robots in Dynamic Environments*, Journal of Artificial Intelligence Research (JAIR), 11, 1999.

- **INRIA-EPFL prize for the IROS 2002 best paper on Mobile Robot Navigation and Perception.** IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), *Mapping with mobile Robots in Populated Environments*, 2002.
- **ICRA 2000 Best Paper Award.** IEEE International Conference on Robotics & Automation (ICRA), *A Real-Time Algorithm for Mobile Robot Mapping with Applications to Multi-Robot and 3D Mapping*, 2000.
- **AAAI 1998 Outstanding Paper Award.** National Conference on Artificial Intelligence (AAAI), *The Interactive Museum Tour-guide Robot*, 1998.
- **DAGM 1999 Outstanding Paper Award.** 21st Symposium on Pattern Recognition (DAGM), *Collaborative Multi-Robot Localization*, 1999.
- **IROS 1998 Best Paper Award.** IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), *An Experimental Comparison of Localization Methods*, 1998.
- **KI 1998 Best Paper Award.** 22nd German Conference on Artificial Intelligence (KI), *GOLEX - Bridging The Gap between Logic (Golog) and a Real Robot*, 1998.
- **AAAI 1994 autonomous mobile robot competition Second Place Award.** *Clean-up an office event* of the 1994 AAAI autonomous mobile robot competition, 1994.

Other Achievements

- **Fellow** of the European Laboratory for Learning and Intelligent Systems (**ELLIS**).
- **Fellow** of the Institute of Electrical and Electronics Engineers (**IEEE**), 2015.
- **Member of the Akademie der Wissenschaften Leopoldina**, 2014.
- **Classic Paper Honorable Mention Award** of the Association for the Advancement of Artificial Intelligence (AAAI) for the 1996 paper *Estimating the Absolute Position of a Mobile Robot using Position Probability Grids*, 2014.
- **Best Paper Award finalist** of the IEEE International Conference on Robotics & Automation (ICRA), *An Approach to Solving Large-Scale SLAM Problems with a Small Memory Footprint*, 2014.
- **Best cognitive robotics paper award finalist** of the IEEE International Conference on Robotics & Automation (ICRA), *Learning to Give Route Directions from Human Demonstrations*, 2014.
- **Best student paper award finalist** of the IEEE International Conference on Robotics & Automation (ICRA), *Robust Map Optimization using Dynamic Covariance Scaling*, 2013.
- **Member of the Heidelberger Akademie der Wissenschaften**, 2012.
- **Fellow** of the Association for the Advancement of Artificial Intelligence (**AAAI**), 2009.
- **Fellow** of the European Association for Artificial Intelligence (**EurAI**), 2008.
- **Distinguished Lecturer** of the IEEE Robotics and Automation Society, 2005-2007.
- **Best Paper Award finalist** of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), *Unsupervised learning of compact 3d models based on the detection of recurrent structures*, 2010.
- **Best cognitive robotics paper award finalist** of the IEEE International Conference on Robotics & Automation (ICRA), *Mapping Indoor Environments Based on Human Activity*, 2010.
- **Best student paper award finalist** of the IEEE International Conference on Robotics & Automation (ICRA), *Mapping Indoor Environments Based on Human Activity*, 2010.

- **Best student paper award finalist** of the IEEE International Conference on Robotics & Automation (ICRA), *Supervised learning of places from range data using AdaBoost*, 2005.
- **Best vision paper award finalist** of the IEEE International Conference on Robotics & Automation (ICRA), *Tracking Multiple Moving Targets with a Mobile Robot using Particle Filters and Statistical Data Association*, 2001.
- **Special track for distinguished papers** of the International Conference on Artificial Intelligence (IJCAI), *A Real-Time Algorithm for Mobile Robot Mapping with Applications to Multi-Robot and 3D Mapping*, 2001.

Projects

- **GeniusRobot**: Multi-Modal Generative Models with Interpretability for Robust Robotic Manipulation, BMBF, 2024.
- **Distinguished Professorship**: Robotics and Artificial Intelligence, Bavarian State Ministry for Research and Art, 2022.
- **IMBIT**: Institute for Machine Brain Interfacing Technology, German Science Council, 2021.
- **OML**: Organic Machine Learning, BMBF, 2019-2022.
- **NaRko**: Compliant Service Robots for Logistics in Hospitals, BMBF 2016-2019.
- **Flourish**: Aerial Data Collection and Analysis, and Automated Ground Intervention for Precision Farming, EU-Horizon 2020, 2016-2019.
- **RobDream**: Optimizing Robot Performance while Dreaming, EU-Horizon 2020, 2015-2018.
- **Squirrel**: Clearing clutter bit by bit, EU-IST IP, 2013-2018.
- **EUROPA2**: European Pedestrian Robot 2. EU-IST STREP, 2013-2018 (Coordinator).
- **BrainLinks-BrainTools**: Cluster of Excellence, German Research Foundation, German Research Foundation, 2012-2019.
- **Rovina**: Robots for Exploration, Digital Preservation and Visualization of Archeological Sites, EC, 2013-2015.
- **HYBRIS-C1**: Planning and Action Control under Uncertainty for Mobile Manipulation Tasks, German Research Foundation, 2012-2014.
- **Tidy-up-Robot**: Mobile Manipulation in Real-World-Environments. PR-2 Beta Program, Willow Garage, 2010-2012.
- **TAPAS**: Robotics-enabled Logistics and Assistive Services for the Transformable Factory of the Future. EU-IST STREP, 2010-2014.
- **RADHAR**: Robotic Adaptation of Robots Adapting to Humans. EU-IST STREP, 2010-2013.
- **First-MM**: Flexible Skill Acquisition and Intuitive Robot Tasking for Mobile Manipulation in the Real World. EU-IST STREP, 2010-2013 (Coordinator).
- **EUROPA**: European Pedestrian Robot. EU-IST STREP, 2009-2012 (Coordinator).
- Mobile Robot Navigation: KUKA Roboter GmbH.
- **RAWSEEDS**: Robotics Advancement through Web-publishing of Sensorial and Elaborated Extensive Data Sets. EU-IST SSA, 2006-2009.
- **SLAM**: Simultaneous Mapping and Localization, Toyota Europe, 2007-2009.
- Technology for Operations. ESA, 2007.

- Situation Recognition. Siemens AG, 2006-2008.
- **muFly**: Fully Autonomous Micro Helicopter. EU-IST STREP, 2006-2009.
- **INDIGO**: Interaction with Personality and Dialogue Enabled Robots. EU-IST STREP, 2006-2009.
- **E μ S**: Graduate School Embedded Microsystems. German Research Foundation, 2005-2008.
- **CoSy**: Cognitive Systems for Cognitive Assistants. EU-IST IP, 2005-2008.
- **DESIRE**: German Service-Robotics-Initiative. German Ministry for Education and Research (BMBF), 2005-2008.
- **MultiRob**: Multi-Robot-Coordination. Project within the Transegeonal Research Center Spatial Cognition (SFB-TR8). 2003-2014.
- **3D-Map**: Three-Dimensional Map Construction. Project within the Transegeonal Research Center Spatial Cognition (SFB-TR8), 2003-2014.
- **ObjectSpace**: Human and robot navigation in structured environments. Project within the Transegeonal Research Center Spatial Cognition (SFB-TR8), 2007-2014.
- **WEBFAIR**: Web-Based Tele-Presence on Trade-Fairs with Mobile Robots. EU-IST Project, 2001-2004.
- **TOURBOT**: Museum Tele-Presence through Robotic Avatars. EU-IST Project, 2000-2001.
- **Robotic Tele-Lab**: Ministry for Research of the state Northrhine Westfalia, 1997-1999.
- Documentation Information and Communication Technology NRW. Ministry for Research of the state Northrhine Westfalia, 1996-1997.
- Illumination Planning for Hardcoal Mines. Ruhrkohle Bergbau AG, 1990-1992.

Graduated Students

1. Dirk Hähnel, 2004
2. Maren Bennewitz, 2005
3. Cyrill Stachniss, 2006
4. Rudolph Triebel, 2007
5. Patrick Pfaff, 2008
6. Óscar Martínez Mozos, 2008
7. Christian Plagemann, 2008
8. Jürgen Sturm, 2011
9. Daniel Meyer-Delius Di Vasto, 2011
10. Slawomir Grzonka, 2011
11. Thilo Grundmann, 2012
12. Kai Wurm, 2012
13. Axel Rottmann, 2012
14. Barbara Frank, 2013
15. Rainer Kümmerle, 2013
16. Bastian Steder, 2013

17. Jörg Müller, 2013
18. Dominik Joho, 2013
19. Boris Lau, 2013
20. Maximilian Beinhofer, 2014
21. Henrik Kretzschmar, 2014
22. Michael Ruhnke, 2014
23. Pratik Agarwal, 2015
24. Jürgen Hess, 2015
25. Felix Endres, 2015
26. Markus Kuderer, 2015
27. Christoph Sprunk, 2015
28. Annett Stelzer, 2016
29. Nichola Abdo, 2017
30. Benjamin Suger, 2017
31. Jörg Röwekämper, 2017
32. Tayyab Naseer, 2017
33. Felix Burget, 2018
34. Abhinav Valada, 2019
35. Noha Radwan, 2019
36. Philipp Ruchti, 2019
37. Gabriel Leivas Oliveira, 2019
38. Michael Herman, 2020
39. Alexander Schaefer, 2020
40. Joos Behncke, 2020
41. Tim Welschehold, 2020
42. Ayush Dewan, 2020
43. Federico Boniardi, 2020
44. Lukas Luft, 2020
45. Chau Do, 2020
46. Andreas Kuhner, 2020
47. Philipp Sebastian Schmitt, 2020
48. Jingwei Zhang, 2021
49. Marina Kollnitz, 2021
50. Florian Wirnshofer, 2021
51. Cristina Menéndez, 2021
52. Tim Caselitz, 2021
53. David Pannen, 2021
54. Lukas Enderich, 2022

55. Michael Krawez, 2022
56. Freya Fleckenstein, 2022
57. Oier Mees, 2023
58. Wera Winterhalter, 2023
59. Johan Vertens, 2024
60. Jannik Zürn, 2024
61. Nicolai Dorka, 2024
62. Reihaneh Mirjalili, 2025
63. Kshitij Sirohi, 2025
64. Niclas Vödisch, 2025
65. Iman Nematollahi, 2025

Patents

1. Object recognition method, object recognition apparatus and autonomous mobile robot
2. Method for locating a mobile robot
3. Method and system for calibrating a network of multiple horizontally scanning range finders
4. Method and system for building a lighting adaptable map of an indoor scene and using it for estimating an unknown light setting
5. Traffic light detection auto-labeling and federated learning based on vehicle-to-infrastructure communications
6. Navigating an autonomous vehicle through an intersection
7. Systems and methods for corridor intent prediction
8. Determining an action to be performed by a vehicle in response to conflicting input signals
9. Method and system for behavioral cloning of autonomous driving policies for safe autonomous agents
10. System and method for tracking occluded objects

Publication List

BOOKS / PROCEEDINGS

- [1] A. Bicchi and W. Burgard, editors. *Robotics Research*. Springer, 2017. Proc. of the International Symposium on Robotics Research (ISRR), 2015.
- [2] E. Prassler, R. Bischoff, W. Burgard, R. Haschke, M. Hägele, G. Lawitzky, B. Nebel, P. Plöger, U. Reiser, and M. Zöllner. *Towards Service Robots for Everyday in Environments*, volume 76 of *Springer Tracts in Advanced Robotics (STAR)*. Springer, 2012.
- [3] W. Burgard, R. Dillmann, C. Plagemann, and N. Vahrenkamp, editors. *Proc. of the 10th International Conference on Intelligent Autonomous Systems (IAS)*. IOS Press, July 2008.
- [4] W. Burgard, O. Brock, and C. Stachniss, editors. *Proc. of the Robotics - Science and Systems (RSS)*, 2007.

- [5] G. Sukhatme, S. Schaal, D. Fox, and W. Burgard, editors. *Proc. of the Robotics - Science and Systems (RSS)*, 2006.
- [6] S. Thrun, W. Burgard, and D. Fox. *Probabilistic Robotics*. MIT Press, 2005.
- [7] H. Choset, K. Lynch, S. Hutchinson, G. Kantor, W. Burgard, L. Kavraki, and S. Thrun. *Principles of Robot Motion: Theory, Algorithms and Implementation*. MIT Press, 2005.
- [8] A. Borkowski, W. Burgard, and P. Zingaretti, editors. *Proc. of the first European Conference on Mobile Robots (ECMR)*, 2003.
- [9] W. Burgard, U. Nehmzow, S. Vestli, and G. Schweizer, editors. *Proc. of the third European Workshop on Advanced Mobile Robots (EUROBOT)*, 1999.
- [10] W. Burgard, T. Christaller, and A. Cremers, editors. *Proc. of the 22nd German Conference on Artificial Intelligence (KI)*, LNCS. Springer Verlag, 1999.

BOOK CHAPTERS / COLLECTIONS

- [1] W. Burgard, M. Hebert, and M. Bennewitz. World modeling. In B. Siciliano and O. Khatib, editors, *Springer Handbook of Robotics*, chapter 36, pages 1135–1152. Springer Verlag, 2016.
- [2] K. Arras, B. Lau, S. Grzonka, M. Lubner, O. Martinez-Mozos, D. Meyer-Delius, and W. Burgard. Range-based people detection and tracking for socially enabled service robots. In E. Prassler, R. Bischoff, W. Burgard, R. Haschke, M. Hägele, G. Lawitzky, B. Nebel, P. Plöger, U. Reiser, and M. Zöllner, editors, *Towards Service Robots for Everyday in Environments*, volume 76 of *Springer Tracts in Advanced Robotics (STAR)*, pages 235–280. Springer, 2012.
- [3] O. Martínez Mozos, C. Stachniss, A. Rottmann, and W. Burgard. Using AdaBoost for place labeling and topological map building. In S. Thrun, R. Brooks, and H. Durrant-Whyte, editors, *Robotics Research: Results of the 12th International Symposium ISRR.*, volume 28 of *STAR Springer tracts in advanced robotics*, pages 453–472. Springer, 2007.
- [4] W. Burgard, C. Stachniss, and D. Haehnel. Mobile robot map learning from range data in dynamic environments. In C. Laugier and R. Chatila, editors, *Autonomous Navigation in Dynamic Environments*, volume 35 of *STAR Springer tracts in advanced robotics*. Springer Verlag, 2007.
- [5] M. Bennewitz and W. Burgard. Serviceroboter für den Pflegebereich. In Fenger, Kolb, Nikolaus, Raem, and Rychlik, editors, *Handbuch Geriatrie*. Deutsche Krankenhaus Verlagsgesellschaft mbH, Düsseldorf, 2005. In German.
- [6] W. Burgard, M. Moors, and F. Schneider. Collaborative exploration of unknown environments with teams of mobile robots. In M. Beetz, J. Hertzberg, M. Ghallab, and M. Pollack, editors, *Advances in Plan-Based Control of Robotic Agents*, volume 2466 of *LNCS*. Springer Verlag, 2002.
- [7] W. Burgard and D. Schulz. Robust visualization for web-based control of mobile robots. In K. Goldberg and R. Siegwart, editors, *Robots on the Web: Physical Interaction through the Internet*. MIT-Press, 2001.
- [8] D. Fox, S. Thrun, F. Dellaert, and W. Burgard. Particle filters for mobile robot localization. In A. Doucet, N. de Freitas, and N. Gordon, editors, *Sequential Monte Carlo Methods in Practice*. Springer Verlag, New York, 2000.
- [9] D. Fox, W. Burgard, H. Kruppa, and S. Thrun. Efficient multi-robot localization based on Monte Carlo approximation. In J. Hollerbach and D. Koditschek, editors, *Robotics Research: The Ninth International Symposium*. Springer-Verlag, London, 2000.

- [10] A. Knoll, W. Burgard, and T. Christaller. Robotik. In G. Görz, C.-R. Rollinger, and J. Schneeberger, editors, *Handbuch der Künstlichen Intelligenz*. Oldenbourg, 2000. In German.
- [11] S. Thrun, A. Bücken, W. Burgard, D. Fox, T. Fröhlingshaus, D. Hennig, T. Hofmann, M. Krell, and T. Schimdt. Map learning and high-speed navigation in RHINO. In D. Kortenkamp, R. Bonasso, and R. Murphy, editors, *Artificial Intelligence and Mobile Robots*. MIT/AAAI Press, Cambridge, MA, 1998.
- [12] W. Burgard. Goal-directed forward chaining: A tuple-oriented bottom-up approach. In C. Beierle and L. Plümer, editors, *Logic Programming: Formal Methods and Practical Applications*. Elsevier Science B.V., 1995.

REFEREED JOURNAL/MAGAZINE ARTICLES

- [1] C. Huang, O. Mees, A. Zeng, and W. Burgard. Multimodal spatial language maps for robot navigation and manipulation. *International Journal of Robotics Research*, 2025.
- [2] G. Wang, Y. Zheng, Y. Wu, Y. Guo, Z. Liu, Y. Zhu, W. Burgard, and H. Wang. End-to-end 2D-3D registration between image and LiDAR point cloud for vehicle localization. *IEEE Transactions on Robotics*, 41:4643–4662, 2025.
- [3] C. Huang, S. Yan, and W. Burgard. BYE: Build your encoder with one sequence of exploration data for long-term dynamic scene understanding. *IEEE Robotics and Automation Letters*, 10(4):3334–3341, 2025.
- [4] N. Vödisch, K. Petek, M. Käppeler, A. Valada, and W. Burgard. A good foundation is worth many labels: Label-efficient panoptic segmentation. *IEEE Robotics and Automation Letters*, 10(1):216–223, 2025.
- [5] G. K. Fischer, M. Bergau, D. A. Gómez-Rosal, A. Wachaja, J. Graeter, M. Odenweller, U. Piechotka, F. Höflinger, N. Gosala, N. Wetzel, D. Büscher, A. Valada, and W. Burgard. Evaluation of a smart mobile robotic system for industrial plant inspection and supervision. *IEEE Sensors Journal*, 24(12):19684–19697, 2024.
- [6] K. Sirohi, D. Büscher, and W. Burgard. uPLAM: Robust panoptic localization and mapping leveraging perception uncertainties. *IEEE Robotics and Automation Letters*, 9(8):7174–7181, 2024.
- [7] J. Zürn, I. Posner, and W. Burgard. Autograph: Predicting lane graphs from traffic observations. *IEEE Robotics and Automation Letters*, 9(1):73–80, 2024.
- [8] K. Petek, N. Vödisch, J. Meyer, D. Cattaneo, A. Valada, and W. Burgard. Automatic targetless camera-lidar calibration from motion and deep point correspondences. *IEEE Robotics and Automation Letters*, 9(11):9978–9985, 2024.
- [9] E. Chisari, N. Heppert, T. Welschhold, W. Burgard, and A. Valada. CenterGrasp: Object-aware implicit representation learning for simultaneous shape reconstruction and 6-DoF grasp estimation. *IEEE Robotics and Automation Letters*, 9(6):5094–5101, 2024.
- [10] K. Sirohi, S. Marvi, D. Büscher, and W. Burgard. Uncertainty-aware panoptic segmentation. *IEEE Robotics and Automation Letters*, 8(5):2629–2636, 2023.
- [11] J. O. von Hartz, E. Chisari, T. Welschhold, W. Burgard, J. Boedecker, and A. Valada. The treachery of images: Bayesian scene keypoints for deep policy learning in robotic manipulation. *IEEE Robotics and Automation Letters*, 8(11):6931–6938, 2023.
- [12] J. Arce, N. Vödisch, D. Cattaneo, W. Burgard, and A. Valada. PADLoC: Lidar-based deep loop closure detection and registration using panoptic attention. *IEEE Robotics and Automation Letters*, 8(3):1319–1326, 2023.

- [13] N. Dorka, T. Welschehold, J. Bödecker, and W. Burgard. Adaptively calibrated critic estimates for deep reinforcement learning. *IEEE Robotics and Automation Letters*, 8(2):624–631, 2023.
- [14] K. Sirohi, R. Mohan, D. Büscher, W. Burgard, and A. Valada. EfficientLPS: Efficient LiDAR panoptic segmentation. *IEEE Transactions on Robotics*, 38(3):1894–1914, 2022.
- [15] O. Mees, L. Hermann, and W. Burgard. What matters in language conditioned robotic imitation learning over unstructured data. *IEEE Robotics and Automation Letters*, 7(4):11205–11212, 2022.
- [16] O. Mees, L. Hermann, E. Rosete-Beas, and W. Burgard. CALVIN: A benchmark for language-conditioned policy learning for long-horizon robot manipulation tasks. *IEEE Robotics and Automation Letters*, 7(3):7327–7334, 2022.
- [17] E. Chisari, T. Welschehold, J. Boedecker, W. Burgard, and A. Valada. Correct me if I am wrong: Interactive learning for robotic manipulation. *IEEE Robotics and Automation Letters*, 2022.
- [18] J. Zürn and W. Burgard. Self-supervised moving vehicle detection from audio-visual cues. *IEEE Robotics and Automation Letters*, 7(3):7415–7422, 2022.
- [19] S. Yan, T. Welschehold, D. Büscher, and W. Burgard. Courteous behavior of automated vehicles at unsignalized intersections via reinforcement learning. *IEEE Robotics and Automation Letters*, 7(1):191–198, 2022.
- [20] A. Schaefer, D. Büscher, J. Vertens, L. Luft, and W. Burgard. Long-term vehicle localization in urban environments based on pole landmarks extracted from 3-D lidar scans. *Robotics and Autonomous Systems*, 136:103709, 2021.
- [21] M. Krawez, T. Caselitz, J. Sundram, M. Van Loock, and W. Burgard. Real-time outdoor illumination estimation for camera tracking in indoor environments. *IEEE Robotics and Automation Letters*, 2021.
- [22] W. Winterhalter, F. Fleckenstein, C. Dornhege, and W. Burgard. Localization for precision navigation in agricultural fields - beyond crop row following. *Journal of Field Robotics*, 38(3):429–451, 2021.
- [23] L. Enderich, F. Timm, and W. Burgard. SYMOG: Learning symmetric mixture of gaussian modes for improved fixed-point quantization. *Neurocomputing Journal*, 4/6:310–315, 2020.
- [24] A. Pretto, S. Aravecchia, W. Burgard, N. Chebrolu, C. Dornhege, T. Falck, F. Fleckenstein, A. Fontenla, M. Imperoli, R. Khanna, F. Liebis, P. Lottes, A. Milioto, D. Nardi, S. Nardi, J. Pfeifer, M. Popović, C. Potena, C. Pradalier, E. Rothacker-Feder, I. Sa, A. Schaefer, R. Siegwart, C. Stachniss, A. Walter, W. Winterhalter, X. Wu, and J. Nieto. Building an aerial-ground robotics system for precision farming: An adaptable solution. *IEEE Robotics & Automation Magazine*, 2020.
- [25] L. Luft, F. Boniardi, A. Schaefer, D. Büscher, and W. Burgard. On the Bayes filter for shared autonomy. *IEEE Robotics and Automation Letters*, 4(4):3286–3293, 2019.
- [26] A. Valada, R. Mohan, and W. Burgard. Self-supervised model adaptation for multimodal semantic segmentation. *International Journal of Computer Vision*, pages 1573–1405, 2019. Special Issue: Deep Learning for Robotic Vision.
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Professional Activities

CHAIRMANSHIPS / EDITORIAL BOARDS

- Editor in Chief of the *IEEE Transactions on Robotics*, 2023-today.
- Program Chair of the Conference on Robot Learning (CoRL), 2024.
- Senior Editor of the *IEEE Transactions on Robotics*, 2020-2023.
- Program Chair of the IEEE International Conference on Robotics and Automation (ICRA), 2020.
- Local Arrangements Chair of Robotics - Science and Systems, 2019.
- Associate Editor of the IEEE International Conference on Robotics and Automation (ICRA), 2018.
- Editor in Chief, IEEE/RSJ International Conference on Intelligent Robots and Systems, 2014-2017.
- Associate Editor of the Journal of Artificial Intelligence Research (JAIR), 2012-2017.
- Program co-chair of the AAAI Conference on Artificial Intelligence (AAAI), 2011.
- Program chair of Intelligent Autonomous Systems (IAS), 2008.

- General chair of Robotics - Science and Systems (RSS), 2007.
- General chair of the *European Conference on Mobile Robots (ECMR)*, 2007.
- Program chair of Robotics - Science and Systems (RSS), 2006.
- Associate editor of the *IEEE Transactions on Robotics*, 2005-2008.
- Editorial board of the *Journal of Artificial Intelligence Research (JAIR)*, 2003-2006.
- Co-chair of the *IEEE Technical Committee on Networked Robots*, 2003-2007.
- Program co-chair of the *European Conference on Mobile Robots (ECMR)*, 2005.
- Organizer of the *ICRA-2004 Workshop on Networked and Wireless Robots*, 2004.
- Chair of the *European Conference on Mobile Robots (ECMR)*, 2003.
- Organizer of the *IROS-2002 Workshop on Robots in Exhibitions*, 2002.
- Co-chair of the *Third Workshop on Reasoning under Uncertainty in Robotics (RUR)*, 2001.
- Program Co-chair of the *Fourth European Workshop on Advanced Mobile Robots (EUROBOT)*, 2001.
- Guest Editor of *KI* (Special Issue on Mobile Robots).
- Guest editor of *Robotics and Autonomous Systems* (Special Issue on the Third European Workshop on Advanced Mobile Robots).
- Program chair of the *Third European Workshop on Advanced Mobile Robots (EUROBOT)*, 1999.
- Co-chair of the *23rd German Conference of Artificial Intelligence (KI)*, 1999.
- Co-chair of the *Workshop on Adaptive Spatial Representations of Dynamic Environments*, International Joint Conference on Artificial Intelligence (IJCAI), 1999.
- Workshop chair of the *22nd German Conference of Artificial Intelligence (KI)*, 1998.

BOARDS

- Founding Member *Open Source Robotics Foundation*, 2012.
- Conference Board of the International Conference *Robotics 2005, Science and Systems*.
- EURON coordination committee for the key-area dissemination.
- Scientific Advisory Board of *AndroTeC GmbH, Intelligente Automatisierungs- und Robotertechnik*.
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MEMBERSHIPS

- Member GI
- Senior Member IEEE
- Life-time member AAAI
- Member of the AdCom-Committee of the IEEE Robotics and Automation Society (2012-2018)

TUTORIALS

- Tutorial on probabilistic techniques for robot navigation, Fall School on Human Robot Interaction, Dresden, 2013.

- Tutorial on probabilistic techniques for robot navigation, GI-Conference, Koblenz, 2013.
- Tutorial on probabilistic techniques for robot navigation, Bosch Expert Days, Stuttgart, 2013.
- Tutorial on three-dimensional mapping with mobile robots, SLAM Summer School, Sydney, 2009.
- Tutorial on solving the SLAM problem with Rao-Blackwellized Particle Filters, SLAM Summer School, Oxford, 2006.
- Tutorial on Rao-Blackwellized Particle Filters for Simultaneous Mapping and Localization and Tutorial in Mapping in Dynamic Environments, SLAM Summer School, Toulouse, 2004.
- Tutorial on Probabilistic Robotics, International Spatial Cognition Summer Institute (ISCSI), 2003.
- Tutorial on Probabilistic Robotics, Interdisziplinäres Kolleg (IK), 2003.
- Tutorial on Mapping in Dynamic Environments, SLAM Summer School, Stockholm, 2002.
- Probabilistic Techniques for Mobile Robots at the European Summer School for Mobile Robot Navigation, EPFL, Lausanne, 2001.
- ECAI-Tutorial on Probabilistic Techniques for Mobile Robots, 2002.
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- Tutorial on Probabilistic Techniques for Mobile Robots at the European Summer School for Mobile Robot Navigation, EPFL, Lausanne, 2001.

PROGRAM COMMITTEES

- International Conference on Robotics and Automation (ICRA), Best Paper Award Committee, 2011.
- AAAI Conference on Artificial Intelligence, Area Chair, 2010.
- International Conference on Robotics - Science and Systems (RSS), Area Chair, 2005.
- International Conference on Robotics and Automation (ICRA), 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2020.
- International Conference on Intelligent Robots and Systems (IROS), 2001, 2002, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016.
- IVAC Symposium on Intelligent Autonomous Vehicles (IAV), 2004.
- Seventh International Symposium Distributed Autonomous Robotic Systems (DARS), 2004.
- International Joint Conference on Artificial Intelligence ((IJCAI), Senior-PC-Member, 2003, 2009.
- Second International Joint Conference on Autonomous Agents and Multi-Agent Systems (AA-MAS), 2003.
- European Conference on Machine Learning (ECML), 2001, 2002.
- European Workshop on Advanced Mobile Robots (EUROBOT), 1999, 2001.
- Symposium for Intelligent Robotics Systems (SIRS), 2000, 2001.
- National Conference on Artificial Intelligence (AAAI), 1998, 1999, 2000, 2002, 2008.
- German Conference on Artificial Intelligence (KI), 1999, 2009.

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