PAUL G. ALLEN SCHOOL
OF COMPUTER SCIENCE & ENGINEERING

University of Washington
Seattle, WA, USA
fox@cs.washington.edu

NVIDIA

NVIDIA Robotics Research Lab
Seattle, WA, USA
dieterf@nvidia.com

Research Interests

Robotics, Artificial Intelligence, Perception.

Education

- Dr. rer.-nat. (Ph.D.), University of Bonn, Germany — December 1998
  Computer Science – *summa cum laude* (Thesis).
- Diplom (M.Sc.), University of Bonn, Germany — April 1993
  Computer science (major) and physics (minor) – *summa cum laude.*
- Vordiplom (B.Sc.), University of Bonn, Germany — March 1990
  Computer science (major), economics and physics (minor).

Positions

- Senior Director of Robotics Research, NVIDIA — 2017 – present
- Professor, University of Washington, Computer Science & Engineering — 2013 – present
- Associate Professor, University of Washington, Computer Science & Engineering — 2005 – 2013
- Director, Intel Labs Seattle — 2009 – 2011
- Assistant Professor, University of Washington, Computer Science & Engineering — 2000 – 2005
- Post-doc, Carnegie Mellon University, School of Computer Science — 1998 – 2000

Awards and Honors

- **IJCAI-2023 John McCarthy Award**: International Joint Conferences on Artificial Intelligence (IJCAI), 2023.
- **RA-L 2023 Best Paper Award**: IEEE Robotics and Automation Letters (RA-L), *Geometric fabrics: Generalizing classical mechanics to capture the physics of behavior*, 2023.
- **Fellow, ACM**: Association for Computing Machinery, 2021.
- **Pioneer in Robotics and Automation Award**: IEEE Robotics and Automation Society (RAS), 2020.
- **Fellow, IEEE**: Institute of Electrical and Electronics Engineers, 2015.
- **Fellow, AAAI**: Association for the Advancement of Artificial Intelligence, 2011.
- **RSS 2021 Best Student Paper Award**:Robotics: Science and Systems, *DiSECt: A Differentiable Simulation Engine for Autonomous Robotic Cutting*.
- **ICRA 2021 Best Paper Award on Human Robot Interaction**: IEEE International Conference on Robotics & Automation, *Reactive Human-To-Robot Handovers of Arbitrary Objects*.
- **ICRA 2020 Milestone Paper Award**: International Conference on Robotics & Automation, *Monte Carlo localization for mobile robots* , published in ICRA 1999 (most influential ICRA paper 1998-2002).
- **ICRA 2017 Best Robotic Vision Paper Award**: IEEE International Conference on Robotics & Automation, *Self-supervised visual descriptor learning for dense correspondence*.
- **AAAI 2017 Classic Paper Award**: AAAI Conference on Artificial Intelligence, *Monte Carlo localization: Efficient Position Estimation for Mobile Robots*, published in AAAI 1999.
- **AAAI 2016 Classic Paper Award**: AAAI Conference on Artificial Intelligence, *The Interactive Museum Tour-Guide Robot*, published in AAAI 1998.

- **CVPR 2015 Best Paper Award**: IEEE Computer Society Conference on Computer Vision and Pattern Recognition, *DynamicFusion: Reconstruction and tracking of non-rigid scenes in real-time*.
- **Finalist: ICRA Best Vision Paper Award**: ICRA, *Unsupervised feature learning for 3d scene labeling*, 2014; *Depth-based tracking with physical constraints for robot manipulation*, 2015.
- **Honorable Mention: AAAI 2014 Classic Paper Award**: AAAI Conference on Artificial Intelligence, *Estimating the Absolute Position of a Mobile Robot Using Position Probability Grids*, published in 1996.
- **ICRA 2014 Cognitive Robotics Best Paper Award**: IEEE International Conference on Robotics & Automation, *Multi-task policy search for robotics*.
- **Ubicomp 2013 10-Year Impact Award**: International Conference on Ubiquitous Computing, *Inferring high-level behavior from low-level sensors*, published 2003.
- **Friedrich Wilhelm Bessel Research Award**: Alexander von Humboldt Foundation, Germany, 2013.
- **AIJ Prominent Paper Award**: Artificial Intelligence Journal, *Learning and inferring transportation routines*, 2012.
- **ICRA 2011 Best Vision Paper Award**: IEEE International Conference on Robotics & Automation, *Sparse distance learning for object recognition combining RGB and depth information*.
- **IROS 2007 Best Student Paper Award** (as advisor): IEEE/RSJ International Conference on Intelligent Robots and Systems, *GP-UKF: Unscented Kalman filters with Gaussian process prediction and observation models*.
- **ISWC 2005 Best Paper Award**: International Symposium on Wearable Computers, *Fine-grained activity recognition by aggregating abstract object usage*.
- **Honorable Mention: 2004 IJCAII-JAIR Best Paper Prize**: Journal of Artificial Intelligence Research (JAIR), *Markov Localization for Mobile Robots in Dynamic Environments*, published 1999.
- **AAAI 2004 Outstanding Paper Award**: National Conference on Artificial Intelligence, *Learning and Inferring Transportation Routines*.
- **RoboCup 2004 Scientific Challenge (Best Paper) Award**: International RoboCup Symposium, *Map-based Multiple Model Tracking of a Moving Object*.
- **NSF CAREER Award**: *Probabilistic Methods for Multi-Robot Collaboration*, March 2001.
- **ICRA 2000 Best Paper Award**: IEEE International Conference on Robotics & Automation, *A Real-Time Algorithm for Mobile Robot Mapping with Applications to Multi-Robot and 3D Mapping*.
- **ECCAI Artificial Intelligence Dissertation Award**: European Coordinating Committee for Artificial Intelligence, *Markov Localization: A Probabilistic Framework for Mobile Robot Localization and Navigation*, 2000.
- **AKI Dissertation Award**: "Arbeitsgemeinschaft der deutschen KI-Institute" (German AI institutes), *Markov Localization: A Probabilistic Framework for Mobile Robot Localization and Navigation*, 1999.
- **DAGM 1999 Outstanding Paper Award**: 21st Symposium on Pattern Recognition, *Collaborative Multi-Robot Localization*.
- **AAAI 1998 Outstanding Paper Award**: National Conference on Artificial Intelligence, *The Interactive Museum Tour-guide Robot*.
- **IROS 1998 Best Paper Award**: IEEE/RSJ International Conference on Intelligent Robots and Systems, *An Experimental Comparison of Localization Methods*.
- **Second Place Award**: *clean-up an office event* at the AAAI autonomous mobile robot competition, 1994.

Professional Activities

Selected Editorial Board / Chairmanship

- **Advisory Board** *The International Journal of Robotics Research* (IJRR), 2023 -.
- **Chair** IROS Best Paper Awards Committee, *International Conference on Intelligent Robots and Systems* (IROS), 2021.
- **Associate Editor** *The International Journal of Robotics Research* (IJRR), 2017 - 2019.
- Member *AGE-WELL International Scientific Advisory Committee (ISAC)*, since 2014.

- **Editor** *IEEE Transactions on Robotics* (T-RO), 2010 - 2015.
- **General Chair** *Robotics: Science and Systems* (RSS), 2014.
- **Program Chair** *Robotics: Science and Systems* (RSS), 2013.
- Conference Committee Chair *Association for the Advancement of Artificial Intelligence* (AAAI), 2009 – 2012.
- Advisory Board *Journal of Artificial Intelligence Research* (JAIR), since 2011.
- Associate Editor *Journal of Artificial Intelligence Research* (JAIR), 2008 – 2011.
- RSS Foundation Board, 2009 – 2020.
- Conference Board *Robotics: Science and Systems* (RSS), 2005 – 2020.
- Local arrangements co-chair *Robotics: Science and Systems* (RSS), 2009.
- **Program co-chair** *Twenty-Third Conference on Artificial Intelligence* (AAAI), 2008.
- Associate Editor *IEEE Transactions on Robotics* (T-RO), 2004 – 2007.
- Publication chair *Robotics: Science and Systems* (RSS), 2006.
- Workshops co-chair *National Conference on Artificial Intelligence* (AAAI), 2004.
- NSF Reviewing Panels: 2012, 2004, 2001.

Selected Invited Talks

- **Distinguished Lecture**: University of Toronto, Toronto, Ca, April 2023.
- MIT, Robotics Seminar, Boston, MA, April 2023.
- **Distinguished Lecture**: UCSD, San Diego, CA, October 2022.
- Georgia Tech, IRIM Seminar Series, Atlanta, GA, October 2022.
- **Keynote Panel**: Automate, Detroit, MI, June 2022.
- UMich, Robotics Seminar, Ann Arbor, MI, May 2022.
- UPENN, GRASP on Robotics Seminar, Philadelphia, PA, December 2021.
- UCSD, Robotics Colloquium, San Diego, CA, November 2021.
- **Keynote**: Maryland Robotics Symposium,, University of Maryland, College Park, MD, May 2021.
- **Keynote**: Automate, Detroit, MI, March 2021.
- Johns Hopkins, LCSR Seminar, University, Baltimore, MD, October 2020.
- Stanford, Robotics Colloquium, Stanford, CA, February 2020.
- UT Austin, Forum on Artificial Intelligence, Austin, TX, February 2020.
- **Distinguished Colloquium:**, Cornell Tech, New York, NY, November 2019.
- ETHZ, ETH Robotics Symposium, Zurich, Switzerland, June 2019.
- MIT, Robotics Colloquium, Cambridge, MA, March 2019.
- **Distinguished Lecture**: Colorado School of Mines, Golden, CO, February 2018.
- University of California at Berkeley, EECS Colloquium Series, Berkeley, CA, February 2018.
- Harvard University, Computer Science Colloquium Series, Cambridge, MA, October 2017.
- **Plenary**: IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Vancouver, BC, Canada, September 2017.
- **Keynote**: Robotics: Science & Systems Conference (RSS), Boston, MA, July 2017.
- Toyota Technological Institute of Chicago, TTIC Colloquium, Chicago, IL, May 2017.
- **Distinguished Lecturer Series**, UMass Amherst, College of Information and Computer Sciences, Amherst, MA, October 2016.
- Stanford University, The Future of Artificial Intelligence Event, Stanford, CA, June 2016.

- **Keynote**: IEEE International Conference on Robotics & Automation (ICRA), Stockholm, Sweden, May 2016.
- Arizona State University, ASU Robotics Seminar, Tempe, AZ, April 2016.
- **Distinguished Lecture**: Simon Fraser University, Burnaby, BC, Canada, February 2016.
- University of Washington College of Engineering: 2015 Engineering Lecture Series, November 2015.
- Massachusetts Institute of Technology, MIT Robotics Seminar Series, Cambridge, MA, May 2015.
- **Keynote**: 12th Asian Conference on Computer Vision (ACCV), Singapore, November 2014.
- Brown University, Humanity Centered Robotics Multidisciplinary (HCRI) Speaker Series, Providence, RI, September 2014.
- **Distinguished CS Colloquium**: Department of Computer Science, ETH Zurich, April 2014.
- **Keynote**: 3D Vision Conference (3DV), Seattle, WA, June 2013.
- **Keynote**: Tenth Conference on Computer and Robot Vision (CRV), Regina, Canada, May 2013.
- University of Maryland, Center for Automation Research, Rosenfeld Lecture: Distinguished Seminar Series on Vision, College Park, MD, April 2013.
- University of Pennsylvania, Institute for Research in Cognitive Science and GRASP Laboratory, IRCS/GRASP Joint Colloquium, Philadelphia, PA, November 2012.
- Carnegie Mellon University, Robotics Institute, RI Seminar Series, Pittsburgh, PA, April 2012.
- **Keynote**: 15th annual RoboCup International Symposium, Istanbul,Turkey, July 2011.
- Cornell University, Department of Computer Science, CS Colloquium, Ithaca, NY, November 2010.
- University of Rochester, Department of Computer Science, Rochester, NY, November 2010.
- Georgia Institute of Technology, Center for Robotics and Intelligent Machines, RIM Seminar Series, Atlanta, GA, March 2010.
- **Keynote**: Robotics Industry Forum, Orlando, FL, January 2010.
- **Keynote**: 4th European Conference on Mobile Robots (ECMR), Dubrovnik, Croatia, September 2009.
- Dartmouth College, Computer Science Seminar Series, Dartmouth, NH, February 2009.
- **Keynote**: 11th International Conference on Information Fusion (FUSION), Cologne, Germany, July 2008.
- Carnegie Mellon University, School of Computer Science, Intelligence Seminar Series, Pittsburgh, PA, November 2007.
- Carnegie Mellon University, Robotics Institute, RI Seminar Series, Pittsburgh, PA, November 2007.
- **Plenary talk**: 30th German Conference on Artificial Intelligence (KI), Osnabrück, Germany, September 2007.
- Georgia Institute of Technology, Center for Robotics and Intelligent Machines, RIM Seminar Series, Atlanta, GA, August 2007.
- University of Sydney, Institute of Transport and Logistics Studies, ITLS-Sydney Seminar Series, Sydney, Australia, May 2007.
- **Plenary talk**: Australasian Conference on Robotics and Automation, Auckland, New Zealand, December 2006.
- University of Freiburg, Faculty Seminar, Freiburg, Germany, June 2005.
- Canadian Conference on Computer and Robot Vision, Victoria, Canada, May 2005.
- University of Michigan, Artificial Intelligence Seminar, Ann Arbor, MI, January 2005.
- University of Texas at Austin, Forum for Artificial Intelligence, Austin, TX, October 2004.
- Stanford University, Broad Area Colloquium For AI-Geometry-Graphics-Robotics-Vision, Stanford, CA, September 2004.
- University of Southern California, CRES Robotics Seminar Series, Los Angeles, CA, November 2003.

- University of Pennsylvania, GRASP Seminar Series, Philadelphia, PA, November 2003.
- Oregon Graduate Institute, Portland, OR, January 2003.

Publication List

Most recent publications can be found on Google Scholar
`http://scholar.google.com/citations?hl=en&user=DqXsbPAAAAAJ`

Books and Edited Volumes

[1] D. Fox, L. Kavraki, and K. Kurniawati, editors. *Robotics: Science and Systems X*, 2014. ISBN 978-0-9923747-0-9.

[2] S. Williams and D. Fox. Special issue on Robotics: Science and Systems. *International Journal of Robotics Research (IJRR)*, 34, 2015. Guest editors.

[3] G. Dudek and D. Fox. Special issue on Robotics: Science and Systems. *Autonomous Robots*, 37(4), 2014. Guest editors.

[4] P. Newman, D. Fox, and D. Hsu, editors. *Robotics: Science and Systems IX*, 2013. ISBN 978-981-07-3937-9.

[5] D. Fox and C. Gomes, editors. *Proceedings of the Twenty-Third AAAI Conference on Artificial Intelligence*, number ISBN 978-1-57735-368-3. AAAI Press, 2008.

[6] G. Sukhatme, S. Schaal, W. Burgard, and D. Fox, editors. *Robotics: Science and Systems II*. MIT Press, 2007.

[7] S. Thrun, W. Burgard, and D. Fox. *Probabilistic Robotics*. MIT Press, Cambridge, MA, September 2005. ISBN 0-262-20162-3.

Refereed Journal / Magazine Articles

[1] Andreea Bobu, Chris Paxton, Wei Yang, Balakumar Sundaralingam, Yu-Wei Chao, Maya Cakmak, and Dieter Fox. Learning perceptual concepts by bootstrapping from human queries. In *RA-L / IROS*, October 2022.

[2] Eric Heiden, Miles Macklin, Yashraj Narang, Dieter Fox, Animesh Garg, and Fabio Ramos. Disect: A differentiable simulator for parameter inference and control in robotic cutting. In *Autonomous Robots*, August 2022.

[3] Rika Antonova, Jingyun Yang, Priya Sundaresan, Dieter Fox, Fabio Ramos, and Jeannette Bohg. A bayesian treatment of real-to-sim for deformable object manipulation. In *RA-L Special*, April 2022.

[4] D. Gordon, A. Farhadi, and D. Fox. Re^3: Real-time recurrent regression networks for visual tracking of generic objects. In *IEEE Robotics and Automation Letters*, 2018.

[5] T. Schimdt, R. Newcombe, and D. Fox. Self-supervised visual descriptor learning for dense correspondence. *IEEE Robotics and Automation Letters*, 2017. [**ICRA Best Vision Paper Award**]

[6] M. Chung, A. Friesen, D. Fox, A. Meltzoff, and R. Rao. A Bayesian developmental approach to robotic goal-based imitation learning. *PLoS One*, 10(11), 2015.

[7] T. Schmidt, R. Newcombe, and D. Fox. DART: dense articulated real-time tracking with consumer depth cameras. *Autonomous Robots*, 39(3), 2015.

[8] M. Deisenroth, D. Fox, and C.E. Rasmussen. Gaussian processes for data-efficient learning in robotics and control. *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 37(2), 2015.

[9] L. Bo, X. Ren, and D. Fox. Learning hierarchical sparse features for RGB-(D) object recognition. *International Journal of Robotics Research (IJRR)*, 33, 2014.

[10] X. Ren, D. Fox, and K. Konolige. Change their perception: RGB-D for 3d modeling and recognition. *Robotics & Automation Magazine*, 20(4), December 2013.

[11] A. Deshpande, J. Ko, D. Fox, and Y. Matsuoka. Control strategies for the index finger of a tendon-driven hand. *International Journal of Robotics Research (IJRR)*, 32(1), 2013.

[12] S. Bachrach, A. Prentice, R. He, P. Henry, A. Huang, M. Krainin, D. Maturana, D. Fox, and N. Roy. Estimation, planning, and mapping for autonomous flight using an RGB-D camera in GPS-denied environments. *International Journal of Robotics Research (IJRR)*, 31(11), 2012.

[13] P. Henry, M. Krainin, E. Herbst, X. Ren, and D. Fox. RGB-D mapping: Using Kinect-style depth cameras for dense 3D modeling of indoor environments. *International Journal of Robotics Research (IJRR)*, 31(4), 2012.

[14] M. Krainin, P. Henry, X. Ren, and D. Fox. Manipulator and object tracking for in hand 3d object modeling. *International Journal of Robotics Research (IJRR)*, 30(9), 2011.

[15] A. Stupakov, E. Hanusa, D. Vijaywargi, D. Fox, and J. Bilmes. The design and collection of COSINE, a multi-microphone in-situ speech corpus recorded in noisy environments. *Computer Speech and Language*, 26:52–66, 2011.

[16] B. Douillard, D. Fox, F. Ramos, and H. Durrant-Whyte. Classification and semantic mapping of urban environments. In *International Journal of Robotics Research (IJRR)*, 30(1), 2011.

[17] J. Ko and D. Fox. Learning GP-BayesFilters via Gaussian process latent variable models. *Autonomous Robots*, 30(1), 2011.

[18] K. Lai and D. Fox. Object recognition in 3D point clouds using web data and domain adaptation. *International Journal of Robotics Research (IJRR)*, 29(8), 2010.

[19] J. Ko and D. Fox. GP-BayesFilters: Bayesian filtering using Gaussian process prediction and observation models. *Autonomous Robots*, 27(1), 2009.

[20] R. Vincent, D. Fox, J. Ko, K. Konolige, B. Limketkai, B. Morisset, C. Ortiz, D. Schulz, and B. Stewart. Distributed multirobot exploration, mapping, and task allocation. *Annals of Mathematics and Artificial Intelligence*, 52(2–4), 2008.

[21] L. Liao, D. J. Patterson, D. Fox, and H. Kautz. Learning and inferring transportation routines. *Artificial Intelligence (AIJ)*, 171(5-6):311–331, 2007.
[**2012 AIJ Prominent Paper Award**]

[22] L. Liao, D. Fox, and H. Kautz. Extracting places and activities from GPS traces using hierarchical conditional random fields. *International Journal of Robotics Research (IJRR)*, 26(1), 2007.

[23] D. Fox, J. Ko, K. Konolige, B. Limketkai, and B. Stewart. Distributed multi-robot exploration and mapping. *Proc. of the IEEE*, 94(7):1325–1339, 2006. Special Issue on Multirobot Systems.

[24] M. Philipose, K.P. Fishkin, M. Perkowitz, D.J. Patterson, D. Hähnel, D. Fox, and H. Kautz. Inferring activities from interactions with objects. *IEEE Pervasive Computing Magazine*, 3(4):50–57, 2004.

[25] C.T. Kwok, D. Fox, and M. Meilă. Real-time particle filters. *Proceedings of the IEEE*, 92(2):469–484, 2004. Special Issue on Sequential State Estimation.

[26] D. Fox. Adapting the sample size in particle filters through KLD-sampling. *International Journal of Robotics Research (IJRR)*, 22(12):985–1003, 2003.

[27] D. Fox, J. Hightower, L. Liao, D. Schulz, and G. Borriello. Bayesian filtering for location estimation. *IEEE Pervasive Computing Magazine*, 2(3):24–33, 2003. Special Issue on Dealing with Uncertainty.

[28] D. Schulz, W. Burgard, and D. Fox. People tracking with a mobile robot using sample-based joint probabilistic data association filters. *International Journal of Robotics Research (IJRR)*, 22(2):99–116, 2003.

[29] M. Beetz, T. Arbuckle, T. Belker, M. Bennewitz, W. Burgard, A.B. Cremers, D. Fox, H. Grosskreutz, D. Haehnel, and D. Schulz. Integrated plan-based control of autonomous service robots in human environments. *IEEE Intelligent Systems*, 16(5):56–65, 2001.

[30] S. Thrun, D. Fox, W. Burgard, and F. Dellaert. Robust Monte Carlo localization for mobile robots. *Artificial Intelligence (AIJ)*, 128(1-2):99–141, 2001.

[31] S. Thrun, M. Beetz, M. Bennewitz, W. Burgard, A. B. Cremers, F. Dellaert, D. Fox, D. Haehnel, C. Rosenberg, N. Roy, J. Schulte, and D. Schulz. Probabilistic algorithms and the interactive museum tour-guide robot minerva. *International Journal of Robotics Research (IJRR)*, 19(11):972–999, 2000.

[32] D. Fox, W. Burgard, H. Kruppa, and S. Thrun. A probabilistic approach to collaborative multi-robot localization. *Autonomous Robots (ARJ)*, 8(3):325–344, 2000.

[33] D. Schulz, W. Burgard, D. Fox, S. Thrun, and A.B. Cremers. Web interfaces for mobile robots in public places. *IEEE-Magazine on Robotics and Automation*, 7(1):48–56, 2000.

[34] D. Fox, W. Burgard, and S. Thrun. Markov localization for mobile robots in dynamic environments. *Journal of Artificial Intelligence Research (JAIR)*, 11:391–427, 1999.
[**honorable mention: 2004 IJCAII-JAIR best paper prize**]

[35] W. Burgard, A.B. Cremers, D. Fox, D. Hähnel, G. Lakemeyer, D. Schulz, W. Steiner, and S. Thrun. Experiences with an interactive museum tour-guide robot. *Artificial Intelligence (AIJ)*, 114(1-2):3–55, 1999.

[36] D. Fox, W. Burgard, and S. Thrun. Active markov localization for mobile robots. *Robotics and Autonomous Systems (RAS)*, 25:195–207, 1998.

[37] M. Beetz, W. Burgard, D. Fox, and A.B. Cremers. Integrating active localization into high-level robot control systems. *Robotics and Autonomous Systems (RAS)*, 23:205–220, 1998.

[38] S. Thrun, D. Fox, and W. Burgard. A probabilistic approach to concurrent mapping and localization for mobile robots. *Machine Learning*, 31:29–53, 1998. Also appeared in *Autonomous Robots* 5:253–271, joint issue.

[39] D. Fox, W. Burgard, and S. Thrun. The dynamic window approach to collision avoidance. *IEEE Robotics & Automation Magazine*, 4(1):23–33, March 1997.

[40] W. Burgard, A.B. Cremers, D. Fox, D. Hähnel, A.M. Kappel, and S. Lüttringhaus-Kappel. Verbesserte Brandfrüherkennung im Steinkohlenbergbau durch Vorhersage von CO-Konzentrationen. In *KI Themenheft Data Mining*, volume 1:46–53. ScienTec Publishing GmbH, 1998. In German.

REFEREED CONFERENCE / SYMPOSIUM ARTICLES

Acceptance rate given if below 40%

[1] Mohit Shridhar, Lucas Manuelli, and Dieter Fox. Perceiver-actor: A multi-task transformer for robotic manipulation. In *Proceedings of the Conference on Robot Learning (CoRL)*, December 2022.

[2] Yann Labbe, Lucas Manuelli, Arsalan Mousavian, Stephen Tyree, Stan Birchfield, Jonathan Tremblay, Justin Carpentier, Mathie Aubry, Dieter Fox, and Josef Sivic. Megapose: 6d pose estimationof novel objects via render & compare. In *Proceedings of the Conference on Robot Learning (CoRL)*, December 2022.

[3] Adam Fishman, Adithyavairavan Murali, Clemens Eppner, Bryan Peele, Byron Boots, and Dieter Fox. Motion policy networks. In *Proceedings of the Conference on Robot Learning (CoRL)*, December 2022.

[4] Qiuyu Chen, Karl Van Wyk, Yu-Wei Chao, Wei Yang, Arsalan Mousavian, Abhishek Gupta, and Dieter Fox. Learning robust real-world dexterous grasping policies via implicit shape augmentation. In *Proceedings of the Conference on Robot Learning (CoRL)*, December 2022.

[5] Krishna Murthy Jatavallabhula, Miles Macklin, Dieter Fox, Animesh Garg, and Fabio Ramos. Bayesian object models for robotic interaction with differentiable probabilistic programming. In *Proceedings of the Conference on Robot Learning (CoRL)*, December 2022.

[6] Yashraj Narang, Iretiayo Akinola, Yunrong Guo, Ankur Handa, Michelle Lu, Miles Macklin, Adam Moravanszky, Philipp Reist, Gavriel State, Kier Storey, Lukasz Wawrzyniak, and Dieter Fox. Factory: Fast contact for robotic assembly. In *Proceedings of Robotics: Science and Systems (RSS)*, July 2022.

[7] Pratyusha Sharma, Balakumar Sundaralingam, Valts Blukis, Chris Paxton, Tucker Hermans, Antonio Torralba, Jacob Andreas, and Dieter Fox. Correcting robot plans with natural language feedback. In *Proceedings of Robotics: Science and Systems (RSS)*, July 2022.

[8] Ankit Goyal, Arsalan Mousavian, Chris Paxton, Yu-Wei Chao, Brian Okorn, Jia Deng, and Dieter Fox. Ifor: Iterative flow minimization for robotic object rearrangement. In *Proceedings of the Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2022.

[9] Weiyu Liu, Chris Paxton, Tucker Hermans, , and Dieter Fox. Structformer: Learning spatial structure for language-guided semantic rearrangement of novel objects. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, May 2022.

[10] Wei Yang, Balakumar Sundaralingam, Chris Paxton, Iretiayo Akinola, Yu-Wei Chao, Maya Cakmak, and Dieter Fox. Model predictive control for fluid human-to-robot handovers. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, May 2022.

[11] Yu-Wei Chao, Chris Paxton, Yu Xiang, Wei Yang, Balakumar Sundaralingam, Tao Chen, Adithyavairavan Murali, Maya Cakmak, and Dieter Fox. Handoversim: A simulation framework and benchmark for human-to-robot object handovers. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, May 2022.

[12] Karl Van Wyk, Mandy Xie, Anqi Li, Muhammad Asif Rana, Buck Babich, Bryan Peele, Qian Wan, Iretiayo Akinola, Balakumar Sundaralingam, Dieter Fox, Byron Boots, and Nathan D. Ratliff. Geometric fabrics: Generalizing classical mechanics to capture the physics of behavior. In *ICRA 2022/*, May 2022.

[13] Wentao Yuan, Chris Paxton, Karthik Desingh, and Dieter Fox. Sornet: Spatial object-centric representations for sequential manipulation. In *Proceedings of the Conference on Robot Learning (CoRL)*, November 2021.

[14] Lirui Wang, Yu Xiang, Wei Yang, Arsalan Mousavian, and Dieter Fox. Goal-auxiliary actor-critic for 6d robotic grasping with point clouds. In *Proceedings of the Conference on Robot Learning (CoRL)*, November 2021.

[15] Valts Blukis, Chris Paxton, Dieter Fox, Animesh Garg, and Yoav Artzi. A persistent spatial semantic representation for high-level natural language instruction execution. In *Proceedings of the Conference on Robot Learning (CoRL)*, November 2021.

[16] Mohit Shridhar, Lucas Manuelli, and Dieter Fox. Cliport: What and where pathways for robotic manipulation. In *Proceedings of the Conference on Robot Learning (CoRL)*, November 2021.

[17] Chris Xie, Yu Xiang, Arsalan Mousavian, and Dieter Fox. Rice: Refining instance masks in cluttered environments with graph neural networks. In *Proceedings of the Conference on Robot Learning (CoRL)*, November 2021.

[18] Chris Paxton, Chris Xie, Tucker Hermans, and Dieter Fox. Predicting stable configurations for semantic placement of novel objects. In *Proceedings of the Conference on Robot Learning (CoRL)*, November 2021.

[19] Mohak Bhardwaj, Balakumar Sundaralingam, Arsalan Mousavian, Nathan D. Ratliff, Dieter Fox, Fabio Ramos, and Byron Boots. Storm: An integrated framework for fast joint-space model-predictive control for reactive manipulation. In *Proceedings of the Conference on Robot Learning (CoRL)*, November 2021.

[20] Muhammad Asif Rana, Anqi Li, Dieter Fox, Sonia Chernova, Byron Boots, and Nathan Ratliff. Towards coordinated robot motions: End-to-end learning of motion policies on transform trees. In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, September 2021.

[21] Michael Lutter, Shie Mannor, Jan Peters, Dieter Fox, and Animesh Garg. Value iteration in continuous actions, states and time. In *Proceedings of the International Conference on Machine Learning (ICML)*, July 2021.

[22] Michael Lutter, Shie Mannor, Jan Peters, Dieter Fox, and Animesh Garg. Robust value iteration for continuous control tasks. In *Proceedings of Robotics: Science and Systems (RSS)*, July 2021.

[23] Eric Heiden, Miles Macklin, Yashraj Narang, Dieter Fox, Animesh Garg, and Fabio Ramos. Disect: A differentiable simulation engine for autonomous robotic cutting. In *Proceedings of Robotics: Science and Systems (RSS)*, July 2021.

[24] Ahmed Qureshi, Arsalan Mousavian, Chris Paxton, and Dieter Fox. Nerp: Neural rearrangement planning for unknown objects. In *Proceedings of Robotics: Science and Systems (RSS)*, July 2021.

[25] Yu-Wei Chao, Wei Yang, Yu Xiang, Pavlo Molchanov, Ankur Handa, Jonathan Tremblay, Yashraj Narang, Karl Van Wyk, Umar Iqbal, Stan Birchfield, Jan Kautz, and Dieter Fox. Dexycb: A benchmark for capturing hand grasping of objects. In *Proceedings of the Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2021.

[26] Luyang Zhu, Arsalan Mousavian, Yu Xiang, Hammad Mazhar, Jozef van Eenbergen, Shoubhik Debnath, and Dieter Fox. Rgb-d local implicit function for depth completion of transparent objects. In *Proceedings of the Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2021.

[27] Yashraj Narang*, Balakumar Sundaralingam*, Miles Macklin, Arsalan Mousavian, and Dieter Fox. Sim-to-real for robotic tactile sensing via physics-based simulation and learned latent projections. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, June 2021.

[28] Martin Sundermeyer, Arsalan Mousavian, Rudolph Triebel, and Dieter Fox. Contact-graspnet: Efficient 6-dof grasp generation in cluttered scenes. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, June 2021.

[29] Fahad Islam, Chris Paxton, Clemens Eppner, Bryan Peele, Maxim Likhachev, and Dieter Fox. Alternative paths planner (app) for provably fixed-time manipulation planning in semi-structured environments. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, June 2021.

[30] Clemens Eppner, Arsalan Mousavian, and Dieter Fox. Acronym: A large-scale grasp dataset based on simulation. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, June 2021.

[31] Michael Danielczuk*, Arsalan Mousavian*, Clemens Eppner, and Dieter Fox. Object rearrangement using learned implicit collision functions. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, June 2021.

[32] Wei Yang, Chris Paxton, Arsalan Mousavian, Yu-Wei Chao, Maya Cakmak, and Dieter Fox. Reactive human-to-robot handovers of arbitrary objects. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, June 2021.

[33] Yunzhu Li, Antonio Torralba, Animashree Anandkumar, Dieter Fox, and Animesh Garg. Causal discovery in physical systems from videos. In *NeurIPS 2020*, December 2020.

[34] Ching-An Cheng, Mustafa Mukadam, Jan Issac, Stan Birchfield, Dieter Fox, Byron Boots, and Nathan Ratliff. Rmpflow: A geometric framework for generation of multi-task motion policies. November 2020.

[35] Yu Xiang, Christopher Xie, Arsalan Mousavian, and Dieter Fox. Learning rgb-d feature embeddings for unseen object instance segmentation. In *Proceedings of the Conference on Robot Learning (CoRL)*, November 2020.

[36] Carolyn Matl, Yashraj Narang, Dieter Fox, Ruzena Bajcsy, and Fabio Ramos. Stressd: Sim-to-real from sound for stochastic dynamics. In *Proceedings of the Conference on Robot Learning (CoRL)*, November 2020.

[37] Bhairav Mehta, Ankur Handa, Dieter Fox, and Fabio Ramos. A user's guide to calibrating robotics simulators. In *Proceedings of the Conference on Robot Learning (CoRL)*, November 2020.

[38] Alexander Lambert, Adam Fishman, Dieter Fox, Byron Boots, and Fabio Ramos. Stein variational model predictive control. In *Proceedings of the Conference on Robot Learning (CoRL)*, November 2020.

[39] M. Asif Rana, Anqi Li, Dieter Fox, Sonia Chernova, Byron Boots, and Nathan Ratliff. Towards coordinated robot motions: End-to-end learning of motion policies on transform trees. In *Proceedings of the Conference on Robot Learning (CoRL)*, November 2020.

[40] Wei Yang, Chris Paxton, Maya Cakmak, and Dieter Fox. Human grasp classification for reactive human-to-robot handovers. In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, October 2020.

[41] Adam Fishman, Chris Paxton, Wei Yang, Nathan Ratliff, Byron Boots, and Dieter Fox. Collaborative interaction models for optimized human-robot teamwork. In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, October 2020.

[42] Rafael Possas, Lucas Barcelos, Rafael Oliveira, Dieter Fox, and Fabio Ramos. Online bayessim for combined simulator parameter inference and policy improvement. In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, October 2020.

[43] Yashraj Narang, Karl Van Wyk, Arsalan Mousavian, and Dieter Fox. Interpreting and predicting tactile signals via a physics-based and data-driven framework. In *RSS 2020*, July 2020.

[44] Lirui Wang, Yu Xiang, and Dieter Fox. Manipulation trajectory optimization with online grasp synthesis and selection. In *RSS 2020*, July 2020.

[45] Mohak Bhardwaj, Ankur Handa, Dieter Fox, and Byron Boots. Information theoretic model predictive q-learning. In *L4DC 2020*, June 2020.

[46] M. Asif Rana, Anqi Li, Dieter Fox, Byron Boots, Fabio Ramos, and Nathan Ratliff. Euclideanizing flows: Diffeomorphic reduction for learning stable dynamical systems. In *L4DC 2020*, June 2020.

[47] Adithyavairavan Murali, Arsalan Mousavian, Clemens Eppner, Chris Paxton, and Dieter Fox. 6-dof grasping for target-driven object manipulation in clutter. In *ICRA 2020*, June 2020.

[48] Xinke Deng, Yu Xiang, Arsalan Mousavian, Clemens Eppner, Timothy Bretl, and Dieter Fox. Self-supervised 6d object pose estimation for robot manipulation. In *ICRA 2020*, June 2020.

[49] Carolyn Matl, Yashraj Narang, Ruzena Bajcsy, Fabio Ramos, and Dieter Fox. Inferring the material properties of granular media for robotic tasks. In *ICRA 2020*, June 2020.

[50] Ankur Handa, Karl Van Wyk, Wei Yang, Jacky Liang, Yu-Wei Chao, Qian Wan, Stan Birchfield, Nathan Ratliff, and Dieter Fox. Dexpilot: Depth-based teleoperation of dexterous robotic hand-arm system. In *ICRA 2020*, June 2020.

[51] De-An Huang, Yu-Wei Chao, Chris Paxton, Xinke Deng, Li Fei-Fei, Juan Carlos Niebles, Animesh Garg, and Dieter Fox. Motion reasoning for goal-based imitation learning. In *ICRA 2020*, June 2020.

[52] Jacky Liang, Ankur Handa, Karl Van Wyk, Viktor Makoviychuk, Oliver Kroemer, and Dieter Fox. In-hand object pose tracking via contact feedback and gpu-accelerated robotic simulation. In *ICRA 2020*, June 2020.

[53] Ajay Uday Mandlekar, Fabio Ramos, Byron Boots, Li Fei-Fei, Animesh Garg, and Dieter Fox. Implicit reinforcement without interaction at scale: Leveraging large-scale robot manipulation datasets for control. In *ICRA 2020*, June 2020.

[54] Michelle Lee, Carlos Florensa, Jonathan Tremblay, Nathan Ratliff, Animesh Garg, Fabio Ramos, and Dieter Fox. Guided uncertainty-aware policy optimization: Combining model-free and model-based strategies for sample-efficient learning. In *ICRA 2020*, June 2020.

[55] Timothy E. Lee, Jonathan Tremblay, Thang To, Jia Cheng, Terry Mosier, Oliver Kroemer, Dieter Fox, and Stan Birchfield. Camera-to-robot pose estimation from a single image. In *ICRA 2020*, June 2020.

[56] Kei Kase, Chris Paxton, and Dieter Fox. "zero-shot" task execution through learning of pixel-based action preconditions. In *ICRA 2020*, June 2020.

[57] Caelan Garrett, Chris Paxton, Tomas Lozano-Perez, Leslie Pack Kaelbling, and Dieter Fox. Online replanning in belief space for partially observable task and motion problems. In *ICRA 2020*, June 2020.

[58] Ian Abraham, Ankur Handa, Nathan Ratliff, Kendall Lowrey, Todd Murphey, and Dieter Fox. Model-based generalization under parameter uncertainty using path integral control. In *ICRA 2020*, June 2020.

[59] Xiangyun Meng, Nathan Ratliff, Yu Xiang, and Dieter Fox. Scaling local control to large-scale topological navigation. In *ICRA 2020*, June 2020.

[60] Keunhong Park, Arsalan Mousavian, Yu Xiang, and Dieter Fox. Latentfusion: End-to-end differentiable reconstruction and rendering for unseen object pose estimation. In *CVPR 2020*, June 2020.

[61] Ching-An Cheng, Mustafa Mukadam, Jan Issac, Stan Birchfield, Dieter Fox, Byron Boots, and Nathan Ratliff. Rmpflow: A computational graph for automatic motion policy generation. In *WAFR*, December 2019.

[62] Chris Paxton, Nathan Ratliff, Clemens Eppner, and Dieter Fox. Representing robot task plans as robust logical-dynamical systems. In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, November 2019.

[63] Samarth Brahmbhatt, Ankur Handa, James Hays, and Dieter Fox. Contactgrasp: Functional multi-finger grasp synthesis from contact. In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, November 2019.

[64] Aaron Walsman, Yonatan Bisk, Saadia Gabriel, Dipendra Misra, Yoav Artzi, Yejin Choi, and Dieter Fox. Early fusion for goal directed robotic vision. In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, November 2019.

[65] Clemens Eppner, Arsalan Mousavian, and Dieter Fox. A billion ways to grasp: An evaluation of grasp sampling schemes on a dense, physics-based grasp data set. In *Springer Proceedings of the International Symposium of Robotics Research (ISRR)*, October 2019.

[66] Arsalan Mousavian, Clemens Eppner, and Dieter Fox. 6-dof graspnet: Variational grasp generation for object manipulation. In *Proceedings of the International Conference on Computer Vision (ICCV)*, October 2019.

[67] M. Asif Rana, Anqi Li, Harish Ravichandar, Mustafa Mukadam, Sonia Chernova, Byron Boots, Nathan Ratliff, and Dieter Fox. Learning reactive motion policies in multiple task spaces from human demonstrations. In *Proceedings of the Conference on Robot Learning (CoRL)*, October 2019.

[68] Chris Xie, Yu Xiang, Arsalan Mousavian, and Dieter Fox. The best of both modes: Separately leveraging rgb and depth for unseen object instance segmentation. In *Proceedings of the Conference on Robot Learning (CoRL)*, October 2019.

[69] Junha Roh, Chris Paxton, Ali Fahradi, and Dieter Fox. Conditional driving from natural language instructions. In *Proceedings of the Conference on Robot Learning (CoRL)*, October 2019.

[70] Xinke Deng, Arsalan Mousavian, Yu Xiang, Fei Xia, Tim Bretl, and Dieter Fox. Poserbpf: A rao-blackwellized particle filter for 6d object pose tracking. In *Proceedings of Robotics: Science and Systems (RSS)*, June 2019.

[71] Fabio Ramos, Rafael Possas, and Dieter Fox. Bayessim: adaptive domain randomization via probabilistic inference for robotics simulators. In *Proceedings of Robotics: Science and Systems (RSS)*, June 2019.

[72] Balakumar Sundaralingam, Alexander Lambert, Ankur Handa, Byron Boots, Tucker Hermans, Stan Birchfield, Nathan Ratliff, and Dieter Fox. Robust learning of tactile force estimation through robot interaction. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, May 2019.

[73] C. Schenck and D. Fox. SPNets: Differentiable fluid dynamics for deep neural networks. In *Proc. of the Conference on Robot Learning (CoRL)*, 2018.

[74] J. Liang, V. Makoviychuk, A. Handa, N. Chentanez, M. Macklin, and D. Fox. Gpu-accelerated robotic simulation for distributed reinforcement learning. In *Proc. of the Conference on Robot Learning (CoRL)*, 2018.

[75] J. Tremblay, T. To, B. Sundaralingam, Y. Xiang, D. Fox, and S. Birchfield. Deep object pose estimation for semantic robotic grasping of household objects. In *Proc. of the Conference on Robot Learning (CoRL)*, 2018.

[76] C.-A. Cheng, M. Mukadam, J. Issac, S. Birchfield, D. Fox, B. Boots, and N. Ratliff. RMP-flow: A computational graph for automatic motion policy generation. In *Workshop on the Algorithmic Foundations of Robotics (WAFR)*, 2018.

[77] Y. Li, G. Wang, X. Ji, Y. Xiang, and D. Fox. DeepIM: Deep iterative matching for 6d pose estimation. In *Proc. of European Conference on Computer Vision (ECCV)*, 2018. [Oral presentation, 2% of submissions were selected for oral]

[78] D. Gordon, A. Kembhavi, M. Rastegari, J. Redmond, D. Fox, and A. Farhadi. IQA: Visual question answering in interactive environments. In *Proc. of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018. [30% acceptance rate]

[79] Y. Xiang, T. Schmidt, V. Narayanan, and D. Fox. PoseCNN: A convolutional neural network for 6D object pose estimation in cluttered scenes. In *Proc. of Robotics: Science and Systems (RSS)*, 2018.

[80] A. Byravan, F. Leeb, F. Meier, and D. Fox. SE3-Pose-Nets: Structured deep dynamics models for visuomotor planning and control. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2018.

[81] A. Bosselut, O. Levy, A. Holtzman, C. Ennis, D. Fox, and Y. Choi. Simulating action dynamics with neural process networks. In *Proc. of the International Conference on Learning Representations (ICLR)*, 2018. [34% acceptance rate]

[82] R. Mottaghi, C. Schenck, D. Fox, and A. Farhadi. See the glass half full: Reasoning about liquid containers, their volume and content. In *Proc. of the International Conference on Computer Vision (ICCV)*, 2017. [29% acceptance rate]

[83] Y. Zhu, D. Gordon, E. Kolve, D. Fox, L. Fei-Fei, A. Gupta, R. Mottaghi, and A. Farhadi. Visual semantic planning using deep successor representations. In *Proc. of the International Conference on Computer Vision (ICCV)*, 2017. [29% acceptance rate]

[84] C. Schenck and D. Fox. Reasoning about liquids via closed-loop simulation. In *Proc. of Robotics: Science and Systems (RSS)*, 2017.

[85] Y. Xiang and D. Fox. DA-RNN: Semantic mapping with data associated recurrent neural networks. In *Proc. of Robotics: Science and Systems (RSS)*, 2017.

[86] C. Schenck and D. Fox. Visual closed-loop control for pouring liquids. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2017.

[87] A. Byravan and D. Fox. SE3-nets: Learning rigid body motion using deep neural nxetworks. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2017. [**Finalist: ICRA Best Vision Paper Award**]

[88] Y. Sun, A. Singla, D. Fox, and A. Krause. Evaluating task-dependent taxonomies for navigation. In *Proc. of the AAAI Conference on Human Computation and Crowdsourcing (HCOMP)*, 2016.

[89] Y. Sun and D. Fox. Toward never-ending object learning for robots. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2016.

[90] A. Byravan, M. Monfort, B. Ziebart, B. Boots, and D. Fox. Graph-based inverse optimal control for robot manipulation. In *Proc. of the International Joint Conference on Artificial Intelligence (IJCAI)*, 2015. [29% acceptance rate]

[91] Y. Sun, A. Singla, D. Fox, and A. Krause. Building hierarchies of concepts via crowdsourcing. In *Proc. of the International Joint Conference on Artificial Intelligence (IJCAI)*, 2015. [29% acceptance rate]

[92] R. Newcombe, D. Fox, and S. Seitz. DynamicFusion: Reconstruction and tracking of non-rigid scenes in real-time. In *Proc. of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, 2015. [25% acceptance rate; **Best Paper Award**]

[93] T. Schimdt, R. Newcombe, and D. Fox. Self-supervised visual descriptor learning for dense correspondence. *IEEE Robotics and Automation Letters*, 2017. [**ICRA Best Vision Paper Award**]

[94] T. Schmidt, R. Newcombe, and D. Fox. DART: dense articulated real-time tracking with consumer depth cameras. *Autonomous Robots*, 39(3), 2015.

[95] T. Schmidt, K. Hertkorn, R. Newcombe, Z. Marton, S. Suppa, and D. Fox. Depth-based tracking with physical constraints for robot manipulation. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2015. [**Finalist: ICRA Best Vision Paper Award**]

[96] T. Schmidt, R. Newcombe, and D. Fox. DART: Dense articulated real-time tracking. In *Proc. of Robotics: Science and Systems (RSS)*, 2014. [31% acceptance rate]

[97] C. Matuszek, L. Bo, L. Zettlemoyer, and D. Fox. Learning from unscripted deictic gesture and language for human-robot interactions. In *Proc. of the AAAI Conference on Artificial Intelligence (AAAI)*, 2014. [28% acceptance rate]

[98] Y. Sun, L. Bo, and D Fox. Learning to identify new objects. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2014.

[99] K. Lai, L. Bo, and D. Fox. Unsupervised feature learning for 3d scene labeling. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2014. [**Finalist: ICRA Best Vision Paper Award**]

[100] M. Madry, L. Bo, D. Kragic, and D. Fox. ST-HMP: Unsupervised spatio-temporal feature learning for tactile data. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2014.

[101] E. Herbst, P. Henry, and D. Fox. Toward online 3-D object segmentation and mapping. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2014.

[102] B. Boots, A. Byravan, and D. Fox. Learning predictive models of a depth camera & manipulator from raw execution traces. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2014.

[103] A. Byravan, B. Boots, S. Srinivasa, and D. Fox. Space-time functional gradient optimization for motion planning. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2014.

[104] M. Ruhnke, L. Bo, D. Fox, and W. Burgard. Hierarchical sparse coded surface models. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2014.

[105] M. Deisenroth, P. Englert, J. Peters, and D. Fox. Multi-task policy search for robotics. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2014. [**ICRA Cognitive Robotics Best Paper Award**]

[106] P. Henry, D. Fox, A. Bhowmik, and R. Mongia. Patch volumes: Segmentation-based consistent mapping with RGB-D cameras. In *Proc. of the International Conference on 3D Vision (3DV)*, 2013.

[107] M. Ruhnke, L. Bo, D. Fox, and W. Burgard. Compact RGBD surface models based on sparse coding. In *Proc. of the National Conference on Artificial Intelligence (AAAI)*, 2013. [29% acceptance rate]

[108] L. Bo, X. Ren, and D. Fox. Multi-path hierarchical sparse coding for object recognition. In *Proc. of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, 2013. [25.2% acceptance rate]

[109] Y. Sun, L. Bo, and D. Fox. Attribute based object identification. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2013. [39% acceptance rate]

[110] E. Herbst, X. Ren, and D. Fox. RGB-D Flow: Dense 3-d motion estimation combining color and depth. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2013. [39% acceptance rate]

[111] A. Gupta, D. Fox, B. Curless, and M. Cohen. DuploTrack: A real-time system for authoring and guiding Duplo block assembly. In *Proc. of the ACM Symposium on User Interface Software and Technology (UIST)*, 2012. [$\approx$ 20% acceptance rate]

[112] J. Lei, X. Ren, and D. Fox. Fine-grained kitchen activity recognition using RGB-D data. In *International Conference on Ubiquitous Computing (UbiComp)*, 2012. [19% acceptance rate]

[113] C. Matuszek, N. Fitzgerald, L. Zettlemoyer, and D. Fox. A joint model of language and perception for grounded attribute learning. In *Proc. of the International Conference on Machine Learning (ICML)*, 2012. [27% acceptance rate]

[114] L. Bo, X. Ren, and D. Fox. Unsupervised feature learning for RGB-D based object recognition. In *Proc. of the International Symposium on Experimental Robotics (ISER)*, 2012.

[115] C. Matuszek, E. Herbst, L. Zettlemoyer, and D. Fox. Learning to parse natural language commands to a robot control system. In *Proc. of the International Symposium on Experimental Robotics (ISER)*, 2012.

[116] X. Ren, L. Bo, and D. Fox. RGB-(D) scene labeling: Features and algorithms. In *Proc. of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, 2012. [24% acceptance rate]

[117] K. Lai, L. Bo, X. Ren, and D. Fox. Detection-based object labeling in 3d scenes. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2012.

[118] L. Chang, J. Smith, and D. Fox. Interactive singulation of objects from a pile. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2012.

[119] M. Krainin, K. Konolige, and D. Fox. Exploiting locally consistent patches in probabilistic sensor models. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2012.

[120] L. Bo, X. Ren, and D. Fox. Hierarchical matching pursuit for recognition: Architecture and fast algorithms. In *Advances in Neural Information Processing Systems (NIPS)*, 2011. [22% acceptance rate]

[121] L. Bo, X. Ren, and D. Fox. Depth kernel descriptors for object recognition. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2011. [32% acceptance rate]

[122] E. Herbst, X. Ren, and D. Fox. RGB-D object discovery via multi-scene analysis. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2011. [32% acceptance rate]

[123] A. Huang, N. Roy, A. Bachrach, P. Henry, M. Krainin, D. Maturana, and D. Fox. Visual odometry and mapping for autonomous flight using an RGB-D camera. In *Proc. of the International Symposium of Robotics Research (ISRR)*, 2011.

[124] H. Du, P. Henry, X. Ren, M. Cheng, D.B. Goldman, S.M. Seitz, and D. Fox. Interactive 3D modeling of indoor environments with a consumer depth camera. In *International Conference on Ubiquitous Computing (UbiComp)*, 2011. [17% acceptance rate]

[125] L. Bo, X. Ren, and D. Fox. Object recognition with hierarchical kernel descriptors. In *Proc. of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, 2011. [26% acceptance rate]

[126] K. Lai, L. Bo, X. Ren, and D. Fox. A scalable tree-based approach for joint object and pose recognition. In *Proc. of the National Conference on Artificial Intelligence (AAAI)*, 2011. [25% acceptance rate]

[127] M. Deisenroth and D. Fox. Learning to control a low-cost manipulator using data-efficient reinforcement learning. In *Proc. of Robotics: Science and Systems (RSS)*, 2011. [24% acceptance rate]

[128] E. Larson, G. Cohn, S. Gupta, X. Ren, B. Harrison, D. Fox, and S. Patel. Heatwave: Thermal imaging for surface user interaction. In *Proc. of the Conference on Human Factors in Computing Systems (CHI)*, 2011. [26% acceptance rate, **top 5% honorable mention award**]

[129] K. Lai, L. Bo, X. Ren, and D. Fox. A large-scale hierarchical multi-view RGB-D object dataset. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2011.

[130] K. Lai, L. Bo, Ren. X., and D. Fox. Sparse distance learning for object recognition combining RGB and depth information. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2011. [**Best Vision Paper Award**]

[131] E. Herbst, P. Henry, X. Ren, and D. Fox. Toward object discovery and modeling via 3-D scene comparison. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2011.

[132] M. Krainin, D. Fox, and B. Curless. Autonomous generation of complete 3D object models using next best view manipulation planning. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2011.

[133] C. Matuszek, B. Mayton, R. Aimi, L. Bo, M. Deisenroth, R. Chu, M. Kung, L. LeGrand, J. Smith, and D. Fox. Gambit: An autonomous chess playing manipulator. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2011.

[134] L. Bo, X. Ren, and D. Fox. Kernel descriptors for visual recognition. In *Advances in Neural Information Processing Systems (NIPS)*, 2010. [24% acceptance rate]

[135] P. Henry, M. Krainin, E. Herbst, X. Ren, and D. Fox. RGB-D mapping: Using depth cameras for dense 3D modeling of indoor environments. In *Proc. of the International Symposium on Experimental Robotics (ISER)*, 2010.

[136] P. Henry, C. Vollmer, B. Ferris, and D. Fox. Learning to navigate through crowded environments. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2010.

[137] C. Matuszek, D. Fox, and K. Koscher. Following directions using statistical machine translation. In *ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2010. [21% acceptance rate]

[138] K. Lai and D. Fox. Exemplar-based 3d laser scan classification using web data and domain adaptation. In *Proc. of Robotics: Science and Systems (RSS)*, 2009. [25% acceptance rate]

[139] J. Ko and D. Fox. Learning GP-BayesFilters via Gaussian process latent variable models. In *Proc. of Robotics: Science and Systems (RSS)*, 2009. [25% acceptance rate]

[140] A. Stupakov, E. Hanusa, J. Bilmes, and D. Fox. COSINE - a corpus of multi-party conversational speech in noisy environments. In *Proc. of the International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2009.

[141] A. Deshpande, J. Ko, D. Fox, and Y. Matsuoka. Anatomically correct testbed hand control: Muscle and joint control strategies. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2009.

[142] J. Ko and D. Fox. GP-BayesFilters: Bayesian filtering using Gaussian process prediction and observation models. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2008.

[143] F. Ramos, K. Waleed, and D. Fox. Learning to associate image features with CRF-matching. In *Proc. of the International Symposium on Experimental Robotics (ISER)*, 2008.

[144] B. Douillard, D. Fox, and F. Ramos. Laser and vision based outdoor object mapping. In *Proc. of Robotics: Science and Systems (RSS)*, 2008. [26% acceptance rate]

[145] J. Ko, D. Klein, D. Fox, and D. Hähnel. GP-UKF: Unscented Kalman filters with Gaussian process prediction and observation models. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2007. [**Best Student Paper Award**]

[146] B. Douillard, D. Fox, and F. Ramos. A spatio-temporal probabilistic model for multi-sensor multi-class object recognition. In *Proc. of the International Symposium of Robotics Research (ISRR)*, 2007.

[147] B. Douillard, D. Fox, and F. Ramos. A spatio-temporal probabilistic model for multi-sensor object recognition. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2007.

[148] F. Ramos, D. Fox, and H. Durrant-Whyte. CRF-matching: Conditional random fields for feature-based scan matching. In *Proc. of Robotics: Science and Systems (RSS)*, 2007.

[149] J. Ko, D. Klein, D. Fox, and D. Hähnel. Gaussian processes and reinforcement learning for identification and control of an autonomous blimp. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2007.

[150] B. Limketkai, D. Fox, and L. Liao. CRF-filters: Discriminative particle filters for sequential state estimation. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2007.

[151] S. Friedman, D. Fox, and H. Pasula. Voronoi Random Fields: Extracting the topological structure of indoor environments via place labeling. In *Proc. of the International Joint Conference on Artificial Intelligence (IJCAI)*, 2007. [35% acceptance rate.]

[152] C. Plagemann, D. Fox, and W. Burgard. Efficient failure detection on mobile robots using particle filters with Gaussian process proposals. In *Proc. of the International Joint Conference on Artificial Intelligence (IJCAI)*, 2007. [35% acceptance rate]

[153] B. Ferris, D. Fox, and N. Lawrence. WiFi-SLAM using gaussian process latent variable models. In *Proc. of the International Joint Conference on Artificial Intelligence (IJCAI)*, 2007. [35% acceptance rate]

[154] L. Liao, T. Choudhury, D. Fox, and H. Kautz. Training conditional random fields using virtual evidence boosting. In *Proc. of the International Joint Conference on Artificial Intelligence (IJCAI)*, 2007. [35% acceptance rate]

[155] L. Liao, D. Fox, and H. Kautz. Hierarchical conditional random fields for GPS-based activity recognition. In S. Thrun, R. Brooks, and H. Durrant-Whyte, editors, *Robotics Research – Results of the 12th International Symposium ISRR*, volume 28 of *Springer Tracts in Advanced Robotics (STAR)*. Springer Verlag, 2007.

[156] A. Subramanya, A. Raj, J. Bilmes, and D. Fox. Recognizing activities and spatial context from wearable sensors. In *Proc. of the Conference on Uncertainty in Artificial Intelligence (UAI)*, 2006. [32% acceptance rate. Selected for oral presentation; 12% were chosen for oral presentation.]

[157] B. Ferris, D. Hähnel, and D. Fox. Gaussian processes for signal strength-based location estimation. In *Proc. of Robotics Science and Systems (RSS)*, 2006.

[158] A. Raj, A. Subramanya, D. Fox, and J. Bilmes. Rao-Blackwellized particle filters for recognizing activities and spatial context using wearable sensors. In O. Khatib, V. Kumar, and D. Rus, editors, *Experimental Robotics: The 10th International Symposium*, volume 39 of *Springer Tracts in Advanced Robotics (STAR)*. Springer Verlag, 2008.

[159] P. Pfaff, W. Burgard, and D. Fox. Robust Monte-Carlo Localization using adaptive likelihood models. In *Proc. of the European Robotics Symposium*, 2006.

[160] D. Patterson, D. Fox, H. Kautz, and M. Philipose. Fine-grained activity recognition by aggregating abstract object usage. In *Proc. of the International Symposium on Wearable Computers*, 2005. [**Best Paper Award**]

[161] L. Liao, D. Fox, and H. Kautz. Location-based activity recognition. In *Advances in Neural Information Processing Systems (NIPS)*, 2005. [27% acceptance rate]

[162] J. Letchner, D. Fox, and A. LaMarca. Large-scale localization from wireless signal strength. In *Proc. of the National Conference on Artificial Intelligence (AAAI)*, 2005. [20% acceptance rate]

[163] L. Liao, D. Fox, and H. Kautz. Location-based activity recognition using relational Markov networks. In *Proc. of the International Joint Conference on Artificial Intelligence (IJCAI)*, 2005. [18% acceptance rate]

[164] B. Limketkai, L. Liao, and D. Fox. Relational object maps for mobile robots. In *Proc. of the International Joint Conference on Artificial Intelligence (IJCAI)*, 2005. [18% acceptance rate]

[165] D. Wolf, D. Fox, W. Burgard, and G. Sukhatme. Autonomous terrain mapping and classification using hidden Markov models. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2005.

[166] C.T. Kwok and D. Fox. Map-based multiple model tracking of a moving object. In *Proc. of the International RoboCup Symposium*, 2004. [25% acceptance rate; **Scientific Challenge Award (Best Paper)**]

[167] K. Konolige, D Fox, C. Ortiz, A. Agno, M. Eriksen, B. Limketkai, J. Ko, B. Morisset, D. Schulz, B. Stewart, and R. Vincent. Centibots: Very large scale distributed robotic teams. In M.H. Ang and O. Khatib, editors, *Experimental Robotics IX: Proc. of the 9th International Symposium ISER04*, Springer Tracts in Advanced Robotics (STAR). Springer Verlag, 2005.

[168] D. Schulz and D. Fox. Bayesian color estimation for adaptive vision-based robot localization. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2004.

[169] C.T. Kwok and D. Fox. Reinforcement learning for sensing strategies. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2004.

[170] D. Patterson, L. Liao, K. Gajos, M. Collier, N. Livic, K. Olson, S. Wang, D. Fox, and H. Kautz. Opportunity Knocks: a system to provide cognitive assistance with transportation services. In *International Conference on Ubiquitous Computing (UbiComp)*, 2004. [18% acceptance rate]

[171] L. Liao, D. Fox, and H. Kautz. Learning and inferring transportation routines. In *Proc. of the National Conference on Artificial Intelligence (AAAI)*, 2004. [27% acceptance rate; **Outstanding Paper Award**]

[172] D. Hähnel, W. Burgard, D. Fox, K. Fishkin, and M. Philipose. Mapping and localization with RFID technology. In *Pocr. of the IEEE International Conference on Robotics & Automation (ICRA)*, pages 1015–1020, 2004.

[173] D. Fox, J. Ko, K. Konolige, and B. Stewart. A hierarchical Bayesian approach to the revisiting problem in mobile robot map building. In P. Dario, R. Chatila, editors, *Robotics Research: the Eleventh International Symposium*, Springer Tracts in Advanced Robotics (STAR). Springer Verlag, 2004.

[174] D. Patterson, L. Liao, D. Fox, and H. Kautz. Inferring high-level behavior from low-level sensors. In *International Conference on Ubiquitous Computing (UbiComp)*, pages 73–89, 2003. [15% acceptance rate; **10 Year Impact Award**]

[175] B. Stewart, J. Ko, D. Fox, and K. Konolige. The revisiting problem in mobile robot map building: A hierarchical Bayesian approach. In *Proc. of the Conference on Uncertainty in Artificial Intelligence (UAI)*, pages 551–558, 2003. [33% acceptance rate. Selected for oral presentation; 11% were chosen for oral presentation.]

[176] D. Schulz, D. Fox, and J. Hightower. People tracking with anonymous and id-sensors using Rao-Blackwellised particle filters. In *Proc. of the International Joint Conference on Artificial Intelligence (IJCAI)*, pages 921–926, 2003. [21% acceptance rate]

[177] J. Ko, B. Stewart, D. Fox, K. Konolige, and B. Limketkai. A practical, decision-theoretic approach to multi-robot mapping and exploration. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 3232–3237, 2003.

[178] L. Liao, D. Fox, J. Hightower, H. Kautz, and D. Schulz. Voronoi tracking: Location estimation using sparse and noisy sensor data. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2003.

[179] K. Konolige, D. Fox, J. Ko, B. Limketkai, and B. Stewart. Map merging for distributed robot navigation. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 212–217, 2003.

[180] D. Hähnel, W. Burgard, D. Fox, and S. Thrun. An Efficient FastSLAM Algorithm for Generating Maps of Large-scale Cyclic Environments From Raw Laser Range Measurements. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 206–211, 2003.

[181] C.T. Kwok, D. Fox, and M. Meilă. Adaptive real-time particle filters for robot localization. In *Proc. of the IEEE International Conference on Robotics & Automation* (ICRA), pages 2836–2841, 2003.

[182] C.T. Kwok, D. Fox, and M. Meilă. Real-time particle filters. In *Advances in Neural Information Processing Systems 15 (NIPS)*, pages 1057–1064, 2003. [30% acceptance rate]

[183] J.S. Gutmann and D. Fox. An experimental comparison of localization methods continued. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2002.

[184] D. Fox. KLD-sampling: Adaptive particle filters. In T. G. Dietterich, S. Becker, and Z. Ghahramani, editors, *Advances in Neural Information Processing Systems 14 (NIPS)*, pages 713–720, 2002. MIT Press. [30% acceptance rate]

[185] A. LaMarca, W. Brunette, D. Koizumi, M. Lease, S.B. Sigurdsson, K. Sikorski, D. Fox, and G. Borriello. Making sensor networks practical with robots. In *International Conference on Pervasive Computing (Pervasive)*, 2002. [13% acceptance rate]

[186] A. LaMarca, W. Brunette, D. Koizumi, M. Lease, S.B. Sigurdsson, K. Sikorski, D. Fox, and G. Borriello. PlantCare: An investigation in practical ubiquitous systems. In *International Conference on Ubiquitous Computing (UbiComp)*, 2002. [15% acceptance rate]

[187] D. Schulz, W. Burgard, and D. Fox. Tracking multiple moving objects with a mobile robot. In *Proc. of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 371–377, 2001. [Selected for oral presentation; 8% were chosen for oral presentation.]

[188] D. Schulz, W. Burgard, D. Fox, and A. B Cremers. Tracking multiple moving targets with a mobile robot using particle filters and statistical data association. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, pages 1665–1670, 2001.

[189] R. Simmons, D. Apfelbaum, W. Burgard, M. Moors, D. Fox, S. Thrun, and H. Younes. Coordination for multi-robot exploration and mapping. In *Proc. of the National Conference on Artificial Intelligence (AAAI)*, pages 852–858, 2000. [33% acceptance rate]

[190] S. Thrun, W. Burgard, and D. Fox. Monte carlo localization with mixture proposal distribution. In *Proc. of the National Conference on Artificial Intelligence (AAAI)*, pages 859–865, 2000. [33% acceptance rate]

[191] S. Enderle, M. Ritter, D. Fox, S. Sablatnög, G Kraetzschmar, and G. Palm. Soccer-robot locatization using sporadic visual features. In *Proc. of the International Conference on Intelligent Autonomous Systems (IAS)*, 2000.

[192] W. Burgard, M. Moors, D. Fox, R. Simmons, and S. Thrun. Collaborative multi-robot exploration. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2000.

[193] S. Thrun, W. Burgard, and D. Fox. A real-time algorithm for mobile robot mapping with applications to multi-robot and 3d mapping. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 2000. [**Best Paper Award**]

[194] R. Simmons, D. Apfelbaum, D. Fox, R.P. Goldman, K.Z. Haigh, D.J. Musliner, M. Pelican, and S. Thrun. Coordinated deployment of multiple, heterogeneous robots. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2000.

[195] 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*, pages 153–160. Springer-Verlag, London, 2000.

[196] D. Fox, W. Burgard, H. Kruppa, and S. Thrun. Collaborative multi-robot localization. In *Proc. of the German Conference on Artificial Intelligence (KI), Germany*, 1999. [**DAGM Outstanding Paper Award**]

[197] D. Fox, W. Burgard, F. Dellaert, and S. Thrun. Monte Carlo localization: Efficient position estimation for mobile robots. In *Proc. of the National Conference on Artificial Intelligence (AAAI)*, pages 343–349, 1999. [27% acceptance rate]

[198] S. Thrun, M. Bennewitz, W. Burgard, A.B. Cremers, F. Dellaert, D. Fox, D. Hähnel, C. Rosenberg, N. Roy, J. Schulte, D. Schulz, and W. Steiner. Experiences with two deployed interactive tour-guide robots. In *Proc. of the International Conference on Field and Service Robotics (FSR)*, 1999.

[199] F. Dellaert, W. Burgard, D. Fox, and S. Thrun. Using the condensation algorithm for robust, vision-based mobile robot localization. In *Proc. of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, 1999. [selected for oral presentation]

[200] S. Thrun, J. Langford, and D. Fox. Monte carlo hidden markov models: Learning non-parametric models of partially observable stochastic processes. In *Proc. of the International Conference on Machine Learning (ICML)*, 1999. [36% acceptance rate]

[201] W. Burgard, D. Fox, H. Jans, C. Matenar, and S. Thrun. Sonar-based mapping of large-scale mobile robot environments using EM. In *Proc. of the International Conference on Machine Learning (ICML)*, 1999. [36% acceptance rate]

[202] S. Thrun, M. Bennewitz, W. Burgard, A.B. Cremers, F. Dellaert, D. Fox, D. Hähnel, C. Rosenberg, N. Roy, J. Schulte, and D. Schulz. MINERVA: A second generation mobile tour-guide robot. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 1999.

[203] F. Dellaert, D. Fox, W. Burgard, and S. Thrun. Monte carlo localization for mobile robots. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, 1999.

[204] D. Fox, W. Burgard, S. Thrun, and A.B. Cremers. Position estimation for mobile robots in dynamic environments. In *Proc. of the National Conference on Artificial Intelligence (AAAI)*, pages 983–988, 1998. [30% acceptance rate]

[205] S. Thrun, J.-S. Gutmann, D. Fox, W. Burgard, and B. Kuipers. Integrating topological and metric maps for mobile robot navigation: A statistical approach. In *Proc. of the National Conference on Artificial Intelligence (AAAI)*, pages 989–995, 1998. [30% acceptance rate]

[206] W. Burgard, A.B. Cremers, D. Fox, D. Hähnel, G. Lakemeyer, D. Schulz, W. Steiner, and S. Thrun. The interactive museum tour-guide robot. In *Proc. of the National Conference on Artificial Intelligence (AAAI)*, pages 11–18, 1998. [30% acceptance rate; **Outstanding Paper Award, 2016 Classic Paper Award**]

[207] J.-S. Gutmann, W. Burgard, D. Fox, and K. Konolige. An experimental comparison of localization methods. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 1998. [**Best Paper Award**]

[208] N. Roy, W. Burgard, D. Fox, and S. Thrun. Coastal navigation: Robot motion with uncertainty. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 1998.

[209] W. Burgard, A. Derr, D. Fox, and A.B. Cremers. Integrating global position estimation and position tracking for mobile robots: the Dynamic Markov Localization approach. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 1998.

[210] D. Fox, W. Burgard, S. Thrun, and A.B. Cremers. A hybrid collision avoidance method for mobile robots. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, pages 1238–1243, 1998.

[211] S. Thrun, D. Fox, and W. Burgard. Probabilistic mapping of an environment by a mobile robot. In *Proc. of the IEEE International Conference on Robotics & Automation (ICRA)*, pages 1546–1551, 1998.

[212] W. Burgard, D. Fox, and S. Thrun. Active mobile robot localization. In *Proc. of the International Joint Conference on Artificial Intelligence (IJCAI)*, pages 1346–1352, 1997. [22% acceptance rate]

[213] W. Burgard, D. Fox, and D. Hennig. Fast grid-based position tracking for mobile robots. In *Proc. of the German Conference on Artificial Intelligence (KI), Germany*. Springer Verlag, 1997.

[214] M. Beetz, W. Burgard, A.B. Cremers, and D. Fox. Active localization for service robot applications. In *Proc. of the 5th Symposium for Intelligent Robotics Systems (SIRS'97), Stockholm, Sweden*, 1997.

[215] W. Burgard, D. Fox, D. Hennig, and T. Schmidt. Estimating the absolute position of a mobile robot using position probability grids. In *Proc. of the National Conference on Artificial Intelligence (AAAI)*, 1996. [30% acceptance rate; **honorable mention: AAAI classic paper award**]

[216] D. Fox, W. Burgard, and S. Thrun. Controlling synchro-drive robots with the dynamic window approach to collision avoidance. In *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 1280–1287, 1996.

[217] W. Burgard, A. B. Cremers, D. Fox, M. Heidelbach, A. M. Kappel, and S. Lüttringhaus Kappel. Knowledge-enhanced co-monitoring in coal mines. In *Proc. of the Ninth International Conference on Industrial & Engineering Applications of Artificial Intelligence & Expert Systems*, 1996.

[218] W. Burgard, A. B. Cremers, D. Fox, M. Heidelbach, A. M. Kappel, and S. Lüttringhaus-Kappel. Logic programming tools applied to fire detection in hard-coal mines. In *Proc. of the Joint International Conference and Symposium on Logic Programming*, 1996.

[219] D. Fox, V. Heinze, K. Möller, S. Thrun, and G. Veenker. Learning by error-driven decomposition. In *Proc. of the International Conference on Artificial Neural Networks (ICANN)*, 1991.

BOOK CHAPTERS / COLLECTIONS

[1] K. Lai, L. Bo, X. Ren, and D. Fox. RGB-D object recognition: Features, algorithms, and a large scale benchmark. In *Consumer Depth Cameras for Computer Vision: Research Topics and Applications*. 2012.

[2] W. Burgard, D. Fox, and S. Thrun. Probabilistic state estimation techniques for autonomous and decision support systems. *Informatik-Spektrum*, 34, 2011.

[3] L. Liao, D. J. Patterson, D. Fox, and H. Kautz. Building personal maps from GPS data. In W.S. Bainbridge and M.C. Roco, editors, *Progress in Convergence: Technologies for Human Wellbeing*, Annals of the New York Academy of Sciences. Blackwell Publishing, 2007.

[4] D. Patterson, L. Liao, D. Fox, and H. Kautz. Pervasive healthcare: The application of pervasive computing to healthcare. In J. Bardram, A. Mihailidis, and D. Wan, editors, *Pervasive Computing in the Home and Community*. CRC Press, 2006.

[5] D. Fox, J. Ko, B. Stewart, K. Konolige, and B. Limetkai. Distributed multi-robot mapping. In A. Schultz, L. Parker, and F. Schneider, editors, *Multi-Robot Systems: From Swarms to Intelligent Automata*, volume II, pages 301 – 302. Kluwer, 2003.

[6] K. Konolige, C. Ortiz, R. Vincent, A. Agno, M. Eriksen, B. Limetkai, M. Lewis, L. Briesemeister, E. Ruspini, D. Fox, J. Ko, B. Stewart, and L. Guibas. CentiBOTS: Large-scale robot teams. In A. Schultz, L. Parker, and F. Schneider, editors, *Multi-Robot Systems: From Swarms to Intelligent Automata*, volume II, pages 193–204. Kluwer, 2003.

[7] D. Fox, W. Burgard, H. Kruppa, and S. Thrun. A probabilistic approach to collaborative multi-robot localization. In T. Balch and L.E. Parker, editors, *Robot Teams: From Diversity to Polymorphism*. A K Peters Ltd, 2002.

[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*, pages 401–428. Springer Verlag, New York, 2001.

[9] D. Fox. Markov Lokalisierung für mobile Roboter. In *Ausgezeichnete Informatikdissertationen 1998*, pages 52–61. Teubner, Stuttgart, 2000. In German.

[10] S. Thrun, A. Bücken, W. Burgard, D. Fox, T. Fröhlinghaus, D. Hennig, T. Hofmann, M. Krell, and T. Schimdt. Map learning and high-speed navigation in RHINO. In D. Kortenkamp, R.P. Bonasso, and R. Murphy, editors, *Artificial Intelligence and Mobile Robots*, pages 21–52. MIT/AAAI Press, Cambridge, MA, 1998.

THESES

[1] D. Fox. *Markov Localization: A Probabilistic Framework for Mobile Robot Localization and Navigation*. PhD thesis, Dept. of Computer Science, University of Bonn, Germany, December 1998 – *summa cum laude*.
Advisor: Armin B. Cremers; Thesis Committee: Armin B. Cremers, Leslie P. Kaelbling.

[2] D. Fox. Function approximation with neural networks by error-driven decomposition. Master's thesis, Dept. of Computer Science, University of Bonn, Germany, 1993. In German.