Curriculum Vitae
for
Dr. Henrik Iskov Christensen

I. PERSONAL DATA

Name:

Henrik Iskov Christensen,
Born: Frederikshavn, Denmark

Address:

3275 5th Avenue, Unit 501
San Diego, CA 92103
Phone: +1 858 260 0570
Email: henrik@hichristensen.com

Affiliation:

Contextual Robotics Institute
Jacobs School of Engineering
Univ. of California — San Diego
9500 Gilman Drive
La Jolla, CA 92093–0436
Cell: +1 404 889 2500
Email: hichristensen@ucsd.edu

Citizenship: USA (Naturalized Dane)

Professional interests:

A *systems* oriented approach to Machine Perception, Robotics, and Artificial Intelligence for Autonomy

II. EDUCATIONAL BACKGROUND

1989 Ph.D., Faculty of Technical Sciences, Aalborg University, DK
Major subjects: Motion Analysis, Multi Scale Image Representation of Space and Time, and Concurrent computing.
Dissertation: “Aspects of Real Time Image Sequence Analysis”
Supervisor: Prof. Erik Granum.

1987 M.Sc. EE (Summa Cum Laude), Institute of Electronic Systems, Aalborg University, DK
Major subjects: Process Control and Image Analysis
Thesis: “Monitoring Moving Objects in Real-Time”

1981 Mechanical Design, Cert. of Apprenticeship (with honors), Frederikshavn Technical College, Denmark.

III. EMPLOYMENT

Professional Experience:

Apr 2025 – Mar 2026 Fellow, Temasek International, Singapore. (Part time)

Jul 2017 – Qualcomm Chancellor's Chair in Robot Systems, UC San Diego.

Aug 2016 – Director Institute for Contextual Robotics, UC San Diego. The Institute studies robot systems in the context of its actual use-cases and real-time perceptual information to provide holistic and robust solutions. The Institute involves four departments across Engineering and Social Sciences.

Aug 2016 – Distinguished Professor of Computer Science, Dept. of Computer Science and Engineering, UC San Diego, California, USA. (Partial Leave Apr 2025 – Mar 2026)

Feb 2019 – Oct 2025 Co-founder of Robust.AI, Palo Alto, CA

Feb 2014 – 2016 Advisor to the Manufacturing Academy of Denmark (MADE) with particular emphasis on strategy and impact. MADE is a joint venture between Danish Production Companies, The Council for Strategic Research and 4 Danish Universities.

Oct 2013 - Jul 2016 Founding Executive Director, "Institute for Robotics and Intelligent Machines", Georgia Institute of Technology – IRIM — a unit that involves more than 60 faculty and 150 graduate students doing research, education and translation of robotics across manufacturing, services, healthcare and defense applications.

Sep 2013 - Apr 2023 Co-Founder of "Robo-Global" a benchmark index to track the global robotics and automation market. Chairman of AI Strategy and general robotics advisor. Robo-Stox, is an exchange traded fund (ETF) on NYSE with the ticker symbol ROBO. A parallel fund was launched at London Stock Exchange 2014. The international company was renamed Robo-Global from Robo-Stox January 2016. Robo-Global was acquired by VettaFi April 2023.

June 2013– Co-founder/Partner of "Christensen Consulting Group", providing services to government agencies.

May 2012 - 2014 Co-founder/Partner of the company The "OR Standard" — a company that optimizes workflow for hospital operating suites. Initially, seeded through the GT Flashpoint Program.

Aug 2009 - 2017 Adjunct Professor of Electrical and Computer Engineering, College of Engineering, Georgia Institute of Technology.

Aug 2006 - Oct 2013 Director Georgia Tech Center for Robotics and Intelligent Machines (RIM@GT), an inter-departmental research center involving College of Computing, College of Engineering, and GTRI.

Feb 2006 - Aug 2016 Professor of Computer Science/Kuka Chair of Robotics — Georgia Institute of Technology, Atlanta, GA, USA. Part time during 2006 and full time from January 2007.

July 1998 - Dec 2006 Chaired Professor of Computer Science, Dept. of Numerical Analysis and Computer Science, Royal Institute of Technology, Stockholm, Sweden. On part-time leave during 2006

Sept. 1996 - July 2006 Scientific Director for "Center for Autonomous Systems", Kungliga Tekniska Högskolan, Stockholm. Sponsored by the Swedish Strategic Research Foundation. Associated with the Computational Vision and Active Perception group, Dept. for Numerical Analysis and Computer Science.

Jan. 1996–July 1996 Visiting Professor of Computer and Information Science. GRASP Laboratory, University of Pennsylvania. Doing research on non.linear dynamical systems for control of autonomous sensor-driven agents and intelligent control for multi-agent systems.

Apr. 1992–Aug. 1998 Associate professor specializing in robot and computer vision, Faculty of Technical Sciences, Aalborg University. Project manager for internationally funded research projects.

June 1992–Sept. 1995 Local manager for the ESPRIT Basic Research project "Vision as Process-II". Principal investigator wrt. control of perception.

Jan. 1990–Dec. 1993 Chairman of the National Vision Programmers Workbench (VIPWOB) group, that developed generic application architectures for image analysis and computer vision.

Oct. 1989–April 1992 Research Associate and project head at Laboratory of Image Analysis. Project: ESPRIT Basic Research Action BR3038-VAP, "Vision as Process". The project was a collaboration with five other European Universities. Primary topic for AUC work was perceptual control for dynamic vision systems.

July 1988–Jan. 1989 Pre-doctoral Fellow at the Advanced Computing and Integrated Sensor Systems Group, Oak Ridge National Laboratory, Tennessee, USA. Participating in the research programme "Robotics and Intelligent Systems Program" (RISP). Primary topics were concurrent computer vision, sensor fusion for mobile robots, and multi resolution methods for dynamic scene analysis. Sponsored by the Danish Technical Research Council, The Danish Research Academy, the Foundation Vision North, and U.S. Department of Energy, under contract DE-AC05-840R214.

July 1987–Sept. 1989 Research assistant (Ph.D. student) sponsored by project "Computer Vision, — methods for real-time image sequence analysis". Supported by FTU grant no. 5.17.5.6.06 from the Danish Technical Research Council.

1986–1987 Part time programmer & Teaching Assistant, Image Analysis Group, Aalborg University, DK.

1980 Trainee as "Technical Assistant", Department of Automation, B&W/MAN Alpha Diesel A/S, Frederikshavn, DK.

Consulting Experience:

Industrial Consultant:

- Member Board of Directors — HillBot (2024–)
- Member Board of Directors — Praxis Solutions (formerly AlphaTrAI) (2023–)
- Advisor — Interwoven Ventures (2024—)
- Advisor — Spring Mountain Capital (2022–2025)
- Senior Advisor — Calibrate Ventures (2023–2025)
- Research Advisory Board — AutoDesk (2021–2024)
- Dean's Advisory Board — Fowley School of Engineering, Chapman University (2020–2024)
- Member of Board / Advisor — OnRobot (2018–2019)
- Covariant.AI — Advisory Board (2018–2019)
- Ready Robotics — Chair of Advisory Board (2017–2019)
- Board of Directors — Blue Ocean Robotics (2016–2018)
- Tech Mahindra — Manufacturing Advisory Board (2015–2018)
- General Electric — Robotics Advisory Board (2015–2016)
- Consultant — The Boeing Company — Strategic Automation Roadmap (2015)
- Board of Directors — Universal Robots Inc. (2014–2016)
- DARPA DRC Impact Study & Student Contest (2013–2015)
- CLSA — Robotics & Automation (2014–2016)
- Consultant — Symbotic (2014)

Board of Directors — MAG-IAS Composites (2010–2013)
Advisor – C&S WholeSale (2010–2011)
Scientific Advisor to Evolution Robotics (1998–2012)
Member of International Advisory Committee, Instituto Robotica e Systemas, Lisboa, Portugal, (1998–2008)
Consultant — iRobot (2004–2006)
Advisor — ABB (2001–2005)
Consultant – Totoya Motor Company (2000–2004)
Member of the European Image Understanding Environment Design Committee, (1994–1997)
Registered consultant for Apple Computers Inc. (DK, 1989–1995)
Development of a system for automatic real time obstacle detection at rail road crossings (DSB, 1988)

IV. TEACHING

Ph.D supervision - Ongoing

1. “Robust Autonomy”, Chenghao Li, CS@UCSD (2029)
2. “Multi-Robot Semantic Mapping”, Yang Liao, CS@UCSD (2029)
3. "Prediction for Autonomous Vehicles", Jing-yan Liao, CS@UCSD (2028)
4. “Intent Recognition for Autonomous Systems”, Zihan Zhang, CS@UCSD (2028)
5. “Behavior Planning in Urban Environments”, Luobin Wang, CS@UCSD (2028)
6. “Adversarial Planning using Game Theory”, Rohan Patil, CS@UCSD (2028)
7. “Mapping for Autonomous Vehicles”, Seth Farrell, CS@UCSD (2028)
8. “Autonomy for First-Responder Support”, Julian Raheema, CS@UCSD (2027)
9. "Robust Robot Learning", Abdulaziz Almuzairee, CS@UCSD (2026)

Ph.D supervision - Completed

1. “Constraint based planning for Manipulation”, Jiaming Hu, CS @ UCSD (2025)
2. “Towards Robust and Scalable Mapping for Autonomous Driving”, Henry Zhang, CS @ UCSD (2025)
3. “Achieving Flow”, Chris D’Ambrosia, CS@UCSD (2023)
4. “Object Based Mapping”, Anwesan Pal, CS@UCSD (2023)
5. “Leveraging Contextual Knowledge Allows Service Robots to Efficiently Organize Household Objects in the Real World”, Akanimoh Adeleye, CS@UCSD (2023)
6. “Autonomous Micro-Mobility”, David Paz, CS@UCSD (2023)
7. “Robot learning through Reinforcement Learning, Teleoperation and Scene Reconstruction”, Quan Voung, CS@UCSD (2022)
8. “Using Meta-Reasoning for Failure Detection and Recovery for Assembly Robots”, Priyam Parashar, CS@UCSD (2021)
9. “Robotics Software Engineering”, Ruffin White, CS @ UCSD (2021)

10. “StereoFlow Camera”, Dominique Meyer, CS@UCSD, (2021) (Co-Advised w. Falko Kuester)
11. “Affordance based planning for manipulation”, Andrew Price, Robotics @ GT (2021 — Joint with S. Balakirsky)
12. “Multi-Robot Navigation and Mapping”, Carlos Nieto, ECE@UCSD (2021)
13. “Robust Autonomy”, Shengye Wang, CS@UCSD (2020)
14. “Object-based SLAM”, Siddharth Choudhary, Robotics @ GT (2017)
15. “Grasp Planning”, Ana Huaman, Robotics @ GT (2016)
16. “Planning in Constraint Space for Multi-body Manipulation Tasks”, Can Erdogan, Robotics @ GT (2016)
17. “Navigation Behavior Design and Representations For a People Aware Mobile Robot System”, Akansel Cosgun, Robotics @ GT (2016)
18. “Model Based SLAM”, Alexander Trevor, Robotics @ GT (2015)
19. “Autonomous environment manipulation to facilitate task completion”, Martin Levihn, Robotics @ GT (2015)
20. “Time-Optimal sampling-based motion planning for manipulators with acceleration limits”, Tobias Kunz, Robotics @ GT (2015)
21. “Multi-Modal Object Tracking”, Changhyun Choi, Robotics @ GT (Aug 2014)
22. “Knowledge Transfer in Robot Manipulation Tasks”, Jake Huckaby, Robotics @ GT (Mar 2014)
23. “Trust and reputation in dynamic, heterogenous multi-agent teams”, Charles Pippin, CS @ GT (Oct 2013)
24. “Life-long Mapping and Exploration with a Mobile Robot”, John Rogers III, Robotics @ GT (2012)
25. “HRI for Domestic Robots”, Ja-Young Sung, HCC @ GT (2011) (Co-advisor w. Beki Grinter)
26. “High Performance Manipulation”, Christian Smith — CS @ KTH (Dec. 2009)
27. “Semantic SLAM”, Elin-Anna Topp CS @ KTH (Lic. Oct 2006, Oct 2008)
28. “Deployment of Field Robots in Hazardous Environments”, Carl Lundberg, CS @ KTH (Dec 2007)
29. “Evolutionary Learning for CyberRodents”, Stefan Elfwing. CS @ KTH (Nov 2007)
30. “Information Fusion”, Ronnie Johansson, CS @ KTH (Lic. — Dec. 2003, Ph.D. Apr. 2006)
31. “Large Scale SLAM”, John Folkesson, CS @ KTH (Oct 2005)
32. “Architectures for Autonomous Systems”, Anders Orebäck, CS @ KTH (Dec. 2004)
33. “Attention Systems”, Ola Ramström, CS @ KTH (Lic. Nov 2004)
34. “Learning in Behavior Based Systems”, Philipp Althaus, CS @ KTH (November 2003)
35. “Structure from Motion”, Marco Zucchelli, CS @ KTH (June 2002)
36. “A Framework for Integration of Processes”, Lars Petersson, CS @ KTH (Mar 2002)
37. “Sensor Fusion for Navigation”, Guido Zunino, CS @ KTH (Lic. Feb 2002)
38. “Visual Servoing for Manipulation: Robustness and Integration Issues”, Danica Kragic, CS @ KTH (June 2001)

39. "Approaches to Mobile Robot Localisation in Indoor Environments", Patric Jensfelt EE @ KTH (June 2001)
40. "Sonar Based World Modelling", Olle Wijk. EE @ KTH (April 2001)
41. "Towards Human-Robot Interaction", Kristian Simsarian, CS @ KTH (Mar. 2000)
42. "Architectures for Autonomous Mobile Robot Navigation", Paolo Pirjanian, CE @ AUC (April 1998)
43. "Sensor Planning for Mobile Robot Navigation", Steen Kristensen. EE @ AUC (August 1996)
44. "A Framework for Control of a Camera Head", Claus S. Andersen, EE @ AUC (March 1996)
45. "View Planning for Quantification of Local Geometry", Claus Madsen, EE @ AUC (Oct. 1994).

Courses taught:

1. Topics in Robotics — Seminar Series (CSE 290 — 2019–)
2. Introduction to Robotics (CSE276A — 2018–)
3. Mathematics for Robotics (CSE276C — 2018–2024, 2026–)
4. Introduction to Robotics (CSE291D — 2018)
5. Mathematics for Robotics (CSE291G — 2018)
6. Pattern Recognition (CSE 291 — 2017)
7. Pattern Recognition (CS7616 — 2016)
8. Introduction to Robotics — Graduate (CS 7785 — 2015)
9. Industrial Robotics (Professional Education Course @ NIST/DLPE — 2012)
10. Software Engineering in Robotics (CS8803 — 2010)
11. Multi Disciplinary Robotics Research (CS8750/8751 — 2009 –2016)
12. Applied Estimation for Robotics (CS8803 — 2009, 2010, 2012, 2013)
13. Introduction to Robotics and Perception (CS3630 — 2008, 2009, 2015)
14. Mobile Manipulation (CS4632B/8803 — 2007, 2008)
15. Freshman Leap — Section Lead (CS1101 — 2007, 2009)
16. Artificial Intelligence — An Introduction (undergraduate, 2004–2005 @ KTH)
17. Behavior Based Robotics (Graduate, 1998–2004 @ KTH)
18. Autonomous Systems (undergraduate, 2002–2006 @ KTH)
19. Urban Robotics (Industrial — Professional Education, 2002 @ KTH)
20. Autonomous Robots (Industrial — Professional Education, 2000 @ KTH)
21. Mobile Robotics (Graduate, 1996–1999 @ KTH)
22. Computer Vision Techniques and Projective Geometry (Graduate, 1994–1996 @ KTH)
23. Discrete Mathematics (Graduate, 1993–1996 @ AUC)
24. Expert Systems (Graduate, 1993–1996 @ AUC)
25. Analysis and Design of Algorithms and Data-structures (Undergraduate, 1995 @ AUC)
26. Expert System Technology (Industrial — Professional Education, 1994 @ AUC)
27. Biological Vision (Graduate, 1993 @ AUC)
28. Structured programming (Undergraduate, 1992 @ AUC)

29. C-programming (Undergraduate, 1991 @ AUC)
30. Motion Analysis (Graduate, 1990 @ AUC)

Other Teaching Activities

- Chair of Committee for definition of Undergraduate AI major in Computer Science, UC San Diego (2023–2024)
- Chair of committee for Masters of Robotics, Engineering, UC San Diego (2019–2021)
- Chair of Robotics Specialization — Computer Science, UC San Diego (2017–)
- Supervised or Co-supervised 300+ M.Sc. level projects, many basic and advanced B.Sc. projects (>100) in Electronic Engineering, Computer Engineering, and Computer Science.
- Chairman — Engineering of Computer Based Systems education at KTH (adopted- Spring 2000).
- Chairman of committee for specification of new B.Sc. Electrical and Electronic Engineering curriculum at the Faculty of Science and Technology, Aalborg University. The new curriculum was implemented from July 1996.
- Designed and implemented a B.Sc. specialization in E.E. entitled "Industrial Computer Engineering", Aalborg University, in 1994. The specialization was successfully implemented on a trial basis (June 1994–July 1996).
- Coordinator of E.E. Specialization in Computer Engineering (June 1993–December 1995)

V. SCHOLARLY ACCOMPLISHMENTS

Publications

Books

[1] T. Asfour, E. Yoshida, J. Park, H. Christensen, and O. Khatib, eds., *Robotics Research - The 19th International Symposium ISRR*, vol. 20 of *SPAR*. Berlin: Springer Verlag, February 2022.

[2] M. Vincze, T. Patten, H. I. Christensen, L. Nalpantidos, and M. Liu, eds., *Computer Vision Systems*. No. 12899 in LNCS, Vienna, Austria: Springer Verlag, Sep 2021.

[3] H. I. Christensen and O. Khatib, eds., *Robotics Research*, vol. 100 of *STAR*. Heidelberg/New York: Springer Verlag, Dec 2015.

[4] H. I. Christensen, F. Groen, and E. Petreu, eds., *International Symposium on Intelligent Autonomous Systems – IAS-11*. Ottawa, Canada: IOS Press, Aug 2010.

[5] H. I. Christensen, G. Kruijff, and J. Wyatt, eds., *Cognitive Systems*. COSMOS, Berlin, DE: Springer Verlag, May 2010.

[6] H. I. Christensen and H.-H. Nagel, eds., *Cognitive Vision - Sampling the Spectrum*. No. 3948 in Lecture Notes in Computer Science, Heidelberg: Springer Verlag, Apr. 2006.

[7] H. I. Christensen, ed., *European Robot Symposium – 2006*, vol. 22 of *STAR*. Heidelberg, DE: Springer Verlag, Mar. 2006.

[8] A. Bicchi, H. Christensen, and D. Prattichizzo, eds., *Control Problems in Robotics*, vol. 4 of *STAR, Springer Tracts in Advanced Robotics*. Berlin Heidelberg: Springer Verlag, 2002.

[9] G. Hager and H. I. Christensen, eds., *Mobile Robot Programming Paradigms*. ICRA-02 Workshop, Washington, DC: IEEE, May 2002.

[10] H. I. Christensen and J. Phillips, eds., *Empirical Evaluation of Computer Vision Methods – 2001*. Kauai, HW – USA: IEEE CS Press, Dec. 2001.

[11] H. I. Christensen, H. Bunke, and H. Noltemeier, eds., *Intelligent Sensor Based Robotics*, vol. 1724 of *Lecture Notes in Artificial Intelligence*. Heidelberg, Germany: Springer Verlag, Dec. 1999.

[12] H. I. Christensen, ed., *Computer Vision Systems*, vol. 1542 of *Lecture Notes in Computer Science*. Heidelberg: Springer Verlag, Jan. 1999.

[13] H. Christensen, C. Bautigam, and C. Ridderström, eds., *5th Symposium on Intelligent Robotics Systems*. Stockholm: KTH, July 1997.

[14] H. Christensen, W. Forstner, and C. Madsen, eds., *Proceedings: ECVnet Workshop on Performance Characteristics of Computer Vision Algorithms*. Cambridge, UK: AUCPress, Apr. 1996.

[15] J. L. Crowley and H. I. Christensen, eds., *Vision as Process*. EEC Basic Research Series, Springer Verlag, Jan. 1995.

[16] H. I. Christensen and J. L. Crowley, eds., *Experimental Environments in Computer Vision and Image Analysis*, vol. Vol 11 of *Series in Machine Perception and Artificial Intelligence*. World Scientific Press, Feb. 1994.

[17] H. I. Christensen, K. W. Bowyer, and H. Bunke, eds., *Active Robot Vision: Camera Heads, Model Based Navigation and Reactive Control*, vol. 7. World Scientific Publishers, Feb. 1993.

[18] H. I. Christensen, ed., *Proceedings Nordic Summer School on Active Vision and Geometric Modeling*. Aalborg, Denmark: AUC Press, Sept. 1992.

Book Chapters

[19] B. Dieber, R. White, S. Taurer, B. Breiling, G. Caiazza, H. Christensen, and A. Cortesi, "Penetration testing ros," in *Robot Operating System (ROS)*, pp. 183–225, Springer, 2020.

[20] M. Dogar, R. A. Knepper, A. Spielberg, C. Choi, H. I. Christensen, and D. Rus, "Towards coordinated precision assembly with robot teams," in *Experimental Robotics*, STAR, pp. 655–669, Springer Verlag, 2016.

[21] N. Dantam., A. H. B, H. Christensen, and M. Stilman, "Online camera registration for robot manipulation," in *Experimental Robotics*, STAR, pp. 179–194, Springer Verlag, 2016.

[22] C. Nieto-Granda, A. J. Trevor, J. G. Rogers, A. Cunningham, M. Paluri, N. Michael, F. Dellaert, H. I. Christensen, and V. Kumar, "Effects of sensory precision on mobile robot localization and mapping," in *Experimental Robotics*, STAR, pp. 433–446, Heidelberg/New York: Springer Verlag, Jan 2014.

[23] H. I. Christensen and G. Hager, "Sensing and estimation," in *Handbook of Robotics* (B. Siciliano and O. Khatib, eds.), ch. 4, Berlin Heidelberg New York: Springer Verlag, May 2008.

[24] A. Miller and H. Christensen, "Implementation of multi-rigid-body dynamics within a robotic grasping simulator," in *Intl Conf on Robotics and Automation*, Taipai, Taiwan: IEEE, Sept. 2003.

[25] H. I. Christensen and D. Kragic, "Adaptive hand-eye coordination," in *Skilled Hand Motion* (H. Forsberg, ed.), pp. 10–14, KI, Stockholm: Nobel Foundation, June 2003.

[26] D. Kragic and H. Christensen, "A framework for visual servoing," in *ICVS-03* (M. Vincze and J. Crowley, eds.), vol. 2626 of *LNCS*, Springer Verlag, Mar. 2003.

[27] H. I. Christensen, "Intelligent home appliances," in *Robotics Research* (R. A. Jarvis and A. Zelinsky, eds.), no. 6 in Springer Tracts in Advanced Robotics (STAR), pp. 319–330, Heidelberg, DE: Springer Verlag, Jan. 2003.

[28] H. I. Christensen and J.-O. Eklundh, "Artificial intelligence: Machine vision," in *Van Norstrand's Scientific Encyclopedia* (G. D. Considine, ed.), vol. 1, pp. 258–262, New York, NY: Wiley Interscience, Jan. 2003.

[29] O. Ramström and H. I. Christensen, "Attention using game theory," in *BMCV-2002*, vol. 2525 of *LNCS*, Heidelberg: Springer Verlag, Nov. 2002.

[30] D. Kragic and H. Christensen, "Visual servoing meets the real world," in *Visual Servoing*, Lausanne: IEEE, Oct. 2002.

[31] P. Jensfelt, H. Christensen, and G. Zunino, "Integrated systems for mapping and localization," in *ICRA-02 SLAM Workshop* (J. Leonard and H. Durrant-Whyte, eds.), IEEE, May 2002.

[32] H. Christensen and J. Eklundh, "Active vision from multiple cues," in *Biologically Motivated Computer Vision – BMCV 2000*, vol. 1811 of *Lecture Notes in Computer Science*, pp. 209–216, Seoul, South Korea: Springer Verlag, May 2000. (keynote).

[33] D. Kragić and H. I. Christensen, "Active visual tracking of an end-effector: Integration of various cues," in *Robust vision for vision-based control of motion* (M. Vincze and G. Hager, eds.), SPIE/IEEE Series on Imaging Science and Engineering, ch. 1, pp. 1–14, New York, Ny – USA: IEEE Press, Jan. 2000.

[34] M. Andersson, A. Orebäck, M. Lindström, and H. Christensen, *Intelligent Sensor Based Robots*, vol. 1724 of *Lecture Notes in Artificial Intelligence*, ch. ISR: An Intelligent Service Robot, pp. 291–314. Heidelberg: Springer Verlag, Oct. 1999.

[35] H. Christensen, L. Petersson, and M. Eriksson, "Mobile manipulation: Getting a grip?," in *ISRR-99* (J. Hollerbach and D. Koditschek, eds.), Heidelberg: Springer Verlag, Oct. 1999.

[36] E. Large, H. I. Christensen, and R. Bajcsy, "Dynamic robot planning," in *Environmental Modeling* (R. Bolles, H. Bunke, and H. Noldemeyer, eds.), pp. 39–58, Singapore: World Scientific Press, Sept. 1997.

[37] R. Bajcsy, H. Christensen, and J. Kosecka, *Advanced in Computer Vision*, ch. Segmentation of behavioural spaces for navigation tasks, pp. 241–250. Advanced in Computer Science, Wien: MIT Press, Mar. 1997.

[38] J. Faymann, E. Rivlin, and H. I. Christensen, "A system for active vision driven robotics," in *Proceedings from The IEEE International Conference on Robotics and Automation, Minneapolis.*, IEEE CS Society, Apr. 1996.

[39] H. I. Christensen, E. Granum, and J. L. Crowley, *System Integration and Control*, pp. 9–22. EEC Basic Research Series, Heidelberg.: Springer Verlag, 1995.

[40] N. O. Kirkeby and H. I. Christensen, *A Vision Programmers Workbench*, pp. 57–71. Heidelberg: Springer Verlag, 1995.

[41] C. B. Madsen and H. I. Christensen, *Modelling and testing the stability of edge segments: Length and orientation*, ch. Chapter 1., pp. 1–15. Singapore: World Scientific Press, 1995.

[42] H. I. Christensen and E. Granum, "Control of perception," in *Vision as Process* (J. L. Crowley and H. I. Christensen, eds.), EEC Basic Research Series, pp. 323–346, Springer Verlag, Jan. 1995.

[43] P. Pirjanian and H. I. Christensen, "Hierarchical control for navigation using heterogenuous models," in *Modelling and Planning for Sensor Based Intellignet Robot Systems* (H. Bunke, T. Kanade, and H. Noldemeier, eds.), vol. Vol 21 of *Series in Machine Perception and Artificial Intelligence*, pp. 344–361, Singapore: World Scientific Press, Nov. 1995. Proc. from Schloss Dagstuhl meeting on Environmental Modelling.

[44] S. Andreasen and H. I. Christensen, *Image and Signal Processing - Synopsis*, pp. 263–265. Year Book of Medical Informatics - 1994, Schattauer, 1994.

[45] J. Matas, H. I. Christensen, J. Kittler, J. Illingworth, and L. Nguyen, *Constraining Visual Expectations Using a Grammar of Scene Events*, ch. 1, pp. 1–12. Bratislava: World Scientific, July 1994.

[46] J. L. Crowley and H. I. Christensen, *Vision as Process: Integration and Control of a Real Time Active Vision System*, pp. 127–155. Series in Machine Perception and Artificial Intelligence, Singapore: World Scientific, Mar. 1994.

[47] N. O. S. Kirkeby and H. I. Christensen, *The Vision Programmers Workbench (VIPWOB)*, vol. Vol 11 of *Series in Machine Perception and Artificial Intelligence*, pp. 195–224. Singapore: World Scientific, Mar. 1994.

[48] H. I. Christensen, N. O. Kirkeby, S. Kristensen, and L. F. Knudsen, "Active vision for robot navigation," in *Proceedings from IRS'93, Zakopane, Poland*, pp. 44–56, Polish Academy of Science, July 1993.

[49] D. W. Eggert, K. W. Bowyer, C. R. Dyer, H. I. Christensen, and D. B. Goldgof, "Applying the scale space concept to perspective projection aspect graphs," in *Theory and Applications of Image Analysis - Selected Papers from 7th Scandinavian Conference on Image Analysis.* (P. Johansen and S. I. Olsen, eds.), pp. 48–62., World Scientific Publishers, 1992.

[50] E. Granum and H. I. Christensen, "Dynamic robot vision," in *Traditional and Non-Traditional Robotic Sensors.* (T. Henderson, ed.), vol. 63 of *NATO ASI Series F*, pp. 57–71, Springer Verlag, Mar. 1990.

[51] H. I. Christensen and E. Granum, *On Token-Matching in Real-Time Motion Analysis*, vol. 301 of *LNCS*, pp. 448–457. Heidelberg: Springer Verlag, Mar. 1988.

Edited Journal Issues

[52] R. Chatila, H. I. Christensen, and O. Khatib, "Roboitcs research - isrr 2011," *Intl. Jour. of Robotics Research*, vol. 31, pp. 1217–1218, Sep 2012.

[53] R. Rusu, G. Gradski, K. Konolige, M. Beetz, and H. I. Christensen, "Special issue on semantic perception for robots in indoor environments," *Intl. Jour. of Robotics Research*, vol. 30, pp. 1207–1208, Sep 2011.

[54] D. Kragic and H. I. Christensen, "Advances in robot vision," *Robotics and Autonomous Systems*, pp. 1–4, June 2005.

[55] H. I. Christensen, "Cognitive vision," *AI Magazine*, vol. 25, pp. 8–9, July 2004.

[56] H. Christensen and P. Corke, "Visual servoing – editorial," *Intl. Jour. of Robotics Research*, vol. 22, Oct. 2003.

[57] H. Christensen and J. Crowley, "Intelligent robotic systems," *Robotics and Autonomous Systems*, vol. 23, pp. 201–204, Aug. 1998.

[58] H. I. Christensen and W. Förstner, "Performance characteristics of vision algorithms," *Machine Vision and Applications*, vol. 9, pp. 215–218, Mar. 1997.

Ref. Jour. Papers

[59] B. Ai, S. Tian, H. Shi, Y. Wang, T. Pfaff, C. Tan, H. I. Christensen, H. Su, J. Wu, and Y. Li, "A review of learning-based dynamics models for robotic manipulation," *Science Robotics*, vol. 10, Sept 2025.

[60] C. D'Ambrosia, E. Y. Huang, N. H. Goldhaber, G. R. Jacobsen, B. Sandler, S. Horgan, L. G. Appelbaum, H. Christensen, and R. C. Broderick, "Physiological detection of intraoperative errors during robot-assisted surgery," *The International Journal of Medical Robotics and Computer Assisted Surgery*, vol. 25, June 2025.

[61] D. Paz, H. Zhang, H. Xiang, A. Liang, and H. I. Christensen, "Conditional generative models for dynamic trajectory generation and urban driving," *Sensors*, vol. 23, no. 15, p. 6764, 2023.

[62] H. Zhang, S. Venkatramani, D. Paz, Q. Li, H. Xiang, and H. I. Christensen, "Probabilistic semantic mapping for autonomous driving in urban environments," *Sensors*, vol. 23, no. 14, 2023.

[63] C. D'Ambrosia, E. Spencer, E. Huang, N. Goldhaber, G. Jacobsen, B. Sandler, S. Horgan, L. Appelbaum, H. I. Chirstensen, and R. Broderick, "The physiology of intraoperative error: Using electrokardiograms to understand operator performance during robot-assisted surgery simulations," *Surgical Endoscopy*, 2023.

[64] C. D'Ambrosia, E. Aronoff-Spencer, E. Y. Huang, N. H. Goldhaber, H. I. Christensen, R. C. Broderick, and L. G. Appelbaum, "The neurophysiology of intraoperative error: An eeg study of trainee surgeons during robotic-assisted surgery simulations," *Frontiers in Neuroergonomics*, vol. 3, 2023.

[65] H. Christensen, D. Paz, H. Zhang, D. Meyer, H. Xiang, Y. Han, Y. Liu, A. Liang, Z. Zhong, and S. Tang, "Autonomous vehicles for micro-mobility," *Springer - Autonomous and Intelligent Systems*, Nov 2021.

[66] H. Christensen, N. Amato, H. Yanco, M. Mataric, H. Choset, A. Drobnis, K. Goldberg, J. Grizzle, G. Hager, J. Hollerbach, S. Hutchinson, V. Krovi, D. Lee, B. Smart, J. Trinkle, and G. Sukhatme, "A roadmap for us robotics - from internet to robotics 2020 edition," *Foundations and Trends in Robotics*, vol. 8, no. 4, pp. 307–424, 2021.

[67] C. D'Ambrosia, H. Christensen, and E. Arnoff-Spenncer, "Ruling In and Ruling Out COVID-19: Computing SARS-CoV-2 infection risk from symptoms, imaging and test data," *Journal of Medical Internet Research (JMIR)*, Nov 2020.

[68] G.-Z. Yang, B. Nelson, R. Murphy, H. Christensen, S. Collins, P. Dario, K. Goldberg, K. Ikuta, N. Jacobstein, D. Kragic, R. Taylor, and M. McNutt, "Combating covid-19 – the role of robotics in managing public health and infectious diseases," *Science Robotics*, March 2020. (Editorial).

[69] G.-Z. Yang, R. J. Full, N. Jacobstein, P. Fischer, J. Bellingham, H. Choset, H. Christensen, P. Dario, B. J. Nelson, and R. Taylor, "Ten technologies of the year," *Science Robotics*, vol. 4, 2019.

[70] P. Parashar, A. Goel, B. Sheneman, and H. I. Christensen, "Towards lifelong adaptive agents: Using meta- reasoning for combining task planning and situated learning," *The Knowledge Engineering Review*, vol. 33, Oct 2018.

[71] A. Price, S. Balakirsky, and H. Christensen, "Robust grasp preimages under unknown mass and friction distributions," *Integrated Computer Aided Engineering*, vol. 25, pp. 99–110, Mar 2018.

[72] A. Cosgun and H. I. Christensen, "Context aware robot navigation using interactively built semantic maps," *Paladyn. Journal of Behavioral Robotics*, vol. 9, no. 1, pp. 254–276, 2018.

[73] F. Berman, R. A. Rutenbar, B. Hailpern, H. Christensen, S. Davidson, D. Estrin, M. Franklin, M. Martonosi, P. Raghavan, V. Stodden, and A. S. Szalay, "Realizing the potential of data science," *Communications of the ACM*, vol. 61, pp. 67–72, Apr 2018.

[74] S. Choudhary, L. Carlone, C. Nieto, J. Rogers, H. I. Christensen, and F. Dellaert, "Distributed mapping with privacy and communication constraints: Lightweight algorithms and object-based models," *The International Journal of Robotics Research*, vol. 36, no. 12, pp. 1286–1311, 2017.

[75] H. I. Christensen, A. Khan, S. Pokutta, and P. Tetali, "Approximation and online algorithms for multidimensional bin packing: A survey," *Computer Science Review*, pp. –, 2017.

[76] C. Choi and H. I. Christensen, "Rgb-d object pose estimation in unstructured environments," *Robotics and Autonomous Systems*, vol. 75, pp. 595–613, January 2016.

[77] J. M. Gomez, B. Caputo, M. Cazorla, H. I. Christensen, M. Fornoni, I. Garcìa-Varea, and A. Pronobis, "The robot vision challenge: Where are we after 5 editions?," *IEEE Robotics and Automation Magazine*, vol. 22, pp. 146–156, Dec 2015.

[78] M.Dogar, R.A.Knepper, A.Spielberg, C.Choi, H.I.Christensen, and D.Rus, "Multi-scale assembly with robot teams," *International Journal of Robotics Research*, vol. 34, pp. 1645–1659, Jul 2015.

[79] R. V. Bennett, E. M. Morzan, J. O. Huckaby, M. E. Monge, H. I. Christensen, and F. Fernandez, "Robotic plasma probe ionization mass spectrometry (RoPPI-MS) of non-planar surfaces," *Analyst*, vol. 139, pp. 2658–2662, 2014.

[80] R. Sawhney, H. I. Christensen, and G. R. Bradski, "Anisotropic agglomerative adaptive mean-shift," *CoRR*, vol. abs/1411.4102, 2014.

[81] C. Nieto-Granda, J. G. R. III, and H. I. Christensen, "Coordination strategies for multi-robot exploration and mapping," *Intl. Jour. of Robotics Research*, vol. 33, no. 4, pp. 519–533, 2014.

[82] H. I. Christensen, "Formulation of a u.s. national strategy for robotics [industrial activities]," *IEEE Robot. Automat. Mag.*, vol. 19, no. 2, pp. 10–14, 2012.

[83] C. Choi and H. I. Christensen, "Robust 3d visual tracking using particle filtering on the special Euclidean group: A combined approach of keypoint and edge features," *Intl. Jour. of Robotics Research*, vol. 31, no. 4, pp. 498–519, 2012.

[84] J. E. Young, J.-Y. Sung, A. Voida, E. Sharlin, T. Igarashi, H. I. Christensen, and R. E. Grinter, "Evaluating human-robot interaction - focusing on the holistic interaction experience," *I. J. Social Robotics*, vol. 3, no. 1, pp. 53–67, 2011.

[85] S. Elfwing, E. Uchibe, K. Doya, and H. I. Christensen, "Darwinian embodied evolution of the learning ability for survival," *Adaptive Behaviour*, vol. 19, no. 2, pp. 101–120, 2011.

[86] A. Okamura, M. Mataric, and H. I. Christensen, "Medical and health-care robotics," *Robotics and Automation Magazine*, vol. 17, pp. 26–27, Sep 2010.

[87] E. A. Topp and H. I. Christensen, "Detecting region transitions for human-augmented mapping," *IEEE Trans. on Robotics*, vol. 26, pp. 715–720, Aug 2010.

[88] J. Young, J. Sung, A. Volda, E. Sharlin, Y. Igarashi, H. I. Christensen, and B. Grinter, "Evaluating human-robot interaction: Focusing on the holistic interaction experience," *I. J. of Social Robotics*, vol. 2, no. 4, 2010.

[89] J.-Y. Sung, R. E. Grinter, and H. I. Christensen, "Domestic robot ecology - an initial framework to unpack long-term acceptance of robots at home," *International Journal of Social Robotics*, 2010.

[90] S. Frintrop, E. Rome, and H. I. Christensen, "Computational visual attention systems and their cognitive foundation: A survey," *ACM Trans. on Active Perception*, vol. 10, no. 1, p. (in press), 2010.

[91] C. Smith and H. I. Christensen, "Constructing a high-performance robot from commercially available parts," *IEEE Robotics and Automation Magazine*, vol. 16, pp. 75–83, Dec. 2009.

[92] A. Pronobis, B. Caputo, P. Jensfelt, and H. I. Christensen, "A realistic benchmark for visual indoor place recognition," *Robotics and Autonomous Systems*, Aug 2009.

[93] G. Lee, S. Yoon, N. Chong, and H. Christensen, "mobile sensor network forming concentric circles through local interaction and consensus building," *Jour. of Robotics and Mechatronics*, vol. 21, pp. 469–477, July 2009.

[94] C. Smith, M. Bratt, and H. I. Christensen, "Teleoperation for a ballcatching task with significant dynamics," *IEEE Trans on Neural Networks*, vol. 21, pp. 604–620, May 2008.

[95] Z. Zivkovic, O. Booji, B. Krose, E. A. Topp, and H. I. Christensen, "From sensors to human spatial concepts: An annotated data set"," *IEEE Trans on Robotics*, vol. 24, pp. 501–505, March 2008.

[96] S. Elfwing, E. Uchibe, K. Doya, and H. I. Christensen, "Co-evolution of shaping rewards and meta-parameters in reinforcement learning," *Adaptive Behaviour*, vol. 16, pp. 400–412, Dec 2008.

[97] N. Xiong, H. I. Christensen, and P. Svensson, "Agent negotiation of target distribution enhancing system surviveabilty," *Intl Jour. of Intelligent Systems*, vol. 22, pp. 1251–1269, dec 2007.

[98] D. Wooden, M. Powers, M. Egerstedt, H. Christensen, and T. Balch, "Hybrid system architecture for autonomous, urban driving," *Journal of Aerospace Computing, Information, and Communication*, vol. 4, pp. 1047–1058, Dec. 2007.

[99] J. Folkesson, P. Jensfelt, and H. I. Christensen, "The M-space feature representation for SLAM," *IEEE Transaction on Robotics*, vol. 23, pp. 106–115, oct 2007.

[100] C. Lundberg, H. I. Christensen, and R. Reinhold, "Long-term study of a portable field robot in Urban Terrain," *Journal of Field Robotics*, vol. 24, pp. 625–650, Sept. 2007.

[101] J. Folkesson and H. I. Christensen, "Closing the loop with Graphical SLAM," *IEEE Trans. on Robotics*, vol. 23, pp. 731–741, Aug. 2007.

[102] S. Elfwing, E. Uchibe, K. Doya, and H. I. Christensen, "Evolutionary development of hierarchical learning structures," *IEEE Trans on Evolutionary Computing*, vol. 11, pp. 249–264, apr 2007.

[103] J. Folkesson and H. I. Christensen, "Graphical SLAM for Outdoor Applications," *Journal of Field Robotics*, vol. 24, pp. 51–70, Feb. 2007.

[104] N. Xiong, H. I. Christensen, and P. Svensson, "Reactive tuning of target estimation accuracy in multi-sensor data fusion," *Cybernetics and Systems*, vol. 38, pp. 83–103, Jan. 2007.

[105] V. Kyrki, D. Kragic, and H. I. Christensen, "Measurement errors in visual servoing," *Robotics and Autonomous Systems*, vol. 54, pp. 815–827, Oct. 2006.

[106] D. Kragic, M. Björkman, H. I. Christensen, and J.-O. Eklundh, "Issues and strategies for robotic object manipulation in domestic settings," *Robotics and Autonomous Systems*, pp. 85–100, June 2005.

[107] H. I. Christensen, "EURON- European Robotics Network," *IEEE Robotics and Automation Magazine*, vol. 12, June 2005.

[108] D. Kragic and H. I. Christensen, "Robust visual servoing," *Intl Jour. of Robotics Research*, vol. 22, pp. 923–940, Oct. 2003.

[109] P. Althaus and H. I. Christensen, "Behavior coordination in structured environments," *Advanced Robotics*, vol. 17, no. 7, pp. 657–674, 2003.

[110] P. Althaus and H. I. Christensen, "Smooth task switching through behaviour competition," *Robotics and Autonomous Systems*, vol. 44, pp. 241–249, Sept. 2003.

[111] A. Orebäck and H. I. Christensen, "Evaluation of architectures for mobile robotics," *Autonomous Robots*, vol. 14, pp. 33–50, Jan. 2003.

[112] P. Jensfelt and H. I. Christensen, "Pose tracking using laser scanning and minimalistic environmental models," *IEEE Trans. on Robotics and Automation*, vol. 17, pp. 138–147, Apr. 2001.

[113] D. Kragic and H. I. Christensen, "Cue integration for visual servoing," *IEEE Trans. on Robotics and Automation*, vol. 17, pp. 18–27, Feb. 2001.

[114] M. Simoncelli, G. Zunino, H. Christensen, and K. Lange, "Autonomous poolcleaning: Self localisation and autonomous navigation for cleaning," *Autonomous Robots*, vol. 9, pp. 261–270, Dec. 2000.

[115] O. Wijk and H. Christensen, "Triangulation based fusion of sonar data with application in robot pose tracking," *IEEE Transaction on Robotics and Automation*, vol. 16, pp. 740–752, Dec. 2000.

[116] O. Wijk and H. I. Christensen, "Localisation and navigation of a mobile robot using natural landmarks extracted from sonar data," *Robotics and Autonomous Systems*, vol. 31, pp. 31–42, Apr. 2000.

[117] J. Faymann, P. Pirjanian, H. I. Christensen, and E. Rivlin, "Exploiting process integration and composition in the context of active vision," *IEEE Transaction of Systems, Man and Cybernetics*, vol. 29, pp. 73–86, Feb. 1999.

[118] E. W. Large, H. I. Christensen, and R. Bajcsy, "Scaling the dynamic approach to path planning and control: Competition amoung behavioural constriants," *Intl. Jour. of Robotics Research*, vol. 18, pp. 37–58, Jan. 1999.

[119] J. Faymann, E. Rivlin, and H. Christensen, "The av-shell," *Autonomous Robots*, 1998.

[120] P. Pirjanian, H. I. Christensen, and J. Fayman, "Application of voting to fusion of purposive modules: an experimental investigation," *Robotics and Autonomous Systems*, vol. 23, no. 4, pp. 253–266, 1998.

[121] S. Dickinson, H. I. Christensen, J. Tsotsos, and G. Olofsson, "Active object recognition integrating attention and view point control," *Computer Vision and Image Understanding*, vol. 67, pp. 239–260, Sept. 1997.

[122] J. Kosecka, H. I. Christensen, and R. Bajcsy, "Experiments in behaviour composition," *Journal on Robotics and Autonomous Systems*, vol. 19, pp. 287–318, Mar. 1997.

[123] C. B. Madsen and H. I. Christensen, "A viewpoint planning strategy for determining true angles on polyhedral objects by camera alignment," *IEEE Trans. PAMI*, vol. 19, pp. 158–163, Feb. 1997.

[124] J. Košecká, H. I. Christensen, and R. Bajcsy, "Discrete event modeling of visually guided behaviors," *Intl. Jour. on Computer Vision, Special Issue on Qualitative Vision*, vol. 8, pp. 179–191, Mar. 1995.

[125] P. Pirjanian, H. Blaasvær, and H. I. Christensen, "Amor: An autonomous mobile robot navigation system," *IEEE, International Conference on Systems, Man and Cybernetics*, vol. 3, pp. 2266–2271, Oct. 1994.

[126] H. I. Christensen and C. B. Madsen, "Purposive reconstruction," *CVGIP: Image Understanding*, vol. 60, pp. 103–108, July 1994.

[127] H. Christensen, N. Kirkeby, S. Kristensen, and L. Knudsen, "Model-driven vision for in-door navigation," *Robotics and Autonomous Systems*, vol. 12, pp. 199–207, 1994.

[128] D. W. Eggert, K. W. Bowyer, C. R. Dyer, H. I. Christensen, and D. B. Goldgof, "The scale space aspect graph," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 14, pp. 1114–1130, Dec. 1993.

[129] H. I. Christensen, "A low-cost robot camera head," *Intl. Jour. of Pattern Recognition and Artificial Intelligence. Special issue on Active Robot Vision: Camera Heads, Model Based Navigation and Reactive Control*, vol. 7, pp. 69–87, Feb. 1993.

[130] C. S. Andersen, C. B. Madsen, J. J. Sørensen, N. O. S. Kirkeby, J. P. Jones, and H. I. Christensen, "Navigation using range images on a mobile robot," *Robotics and Autonomous Systems*, vol. 10, pp. 147–160, 1992.

Ref. Conf. Papers

[131] S. Farell, C. Li, H. Yu, R. Yoshimitsu, S. Gao, and H. I. Christensen, "Safe human robot navigation in warehouse scenario," in *IEEE 21st International Conference on Automation Science and Engineering (CASE)*, (Los Angeles, CA), August 2025.

[132] A. Almuzairee, R. P. Patil, D. Bhatt, and H. I. Christensen, "Merging and disentangling views in visual reinforcement learning for robotic manipulation," in *9th Annual Conference on Robot Learning*, 2025.

[133] B. Ai, L. Dai, N. Bohlinger, D. Li, T. Mu, Z. Wu, K. Fay, H. I. Christensen, J. Peters, and H. Su, "Towards embodiment scaling laws in robot locomotion," in *9th Annual Conference on Robot Learning*, 2025.

[134] J. Hu, J. Wang, and H. Christensen, "cpRRTC: GPU-parallel RRT-connect for constrained motion planning," in *RSS WOrkshop on Paralelized Planning*, (Los Angeles, CA), June 2025.

[135] C. Li, T. Shen, S. Farrell, and H. Christensen, "Light-weight autonomous driving scooter for urban micro-mobility," in *Intl Symposium on Experimental Robotics (ISER)* (H. I. Christensen and O. Khatib, eds.), (Santa Fe, NM), IFRR, Springer Verlag, July 2025.

[136] Z. Zhang, A. Ravichandran, P. Korti, L. Wang, and H. I. Christensen, "Real-time online mapping for autonomous driving : Addressing sensor generalization and dynamic map updates in campus environments," in *Intl Symposium on Experimental Robotics (ISER)* (H. I. Christensen and O. Khatib, eds.), (Santa Fe, NM), IFRR, Springer Verlag, July 2025.

[137] A. Tumu, H. I. Christensen, M. Vazquez-Chanlatte, C. Tsuchiya, and D. Bhanderi, "Using language and road manuals to inform map reconstruction for autonomous driving," in *RSS Workshop on Robot Evaluation*, (Los Angeles, CA), June 2025.

[138] B. Ai, L. Dai, N. Bohlinger, D. Li, T. Mu, Z. Wu, K. Fay, H. I. Christensen, J. Peters, and H. Su, "Towards embodiment scaling laws in robot locomotion," in *RSS Workshop on Hardware Intelligence*, (Los Angeles, CA), June 2025.

[139] Z. He, B. Ai, Y. Liu, W. Wan, H. I. Christensen, and H. Su, "Learning dexterous deformable object manipulation through cross-embodiment dynamics learning," in *Intl Conference on Robotic and Automation (ICRA)*, (Atlanta, GA), IEEE, May 2025.

[140] H. Zhang, D. Paz, Y. Guo, X. huang, H. Christensen, and L. Ren, "MapGS: Generalizable pretraining and data augmentation for online mapping via novel view synthesis," in *36th Intelligent Vehicles Symposium (IV)*, (Cluj-Napoca, Romania), IEEE, June 2025.

[141] H. Diwanji, J.-Y. Liao, A. Tumu, H. I. Christensen, M. Vazquez-Chanlatte, and C. Tsuchiya, "SD++: Enhancing standard definition maps by incorporating road knowledge using LLMs," in *Intelligent Vehicles 2025*, (Cluj-Napoca, Romania), 2025.

[142] J. Hu, J. Szczekulski, S. Peddabomma, and H. I. Christensen, "Planning for tabletop object rearrangement," in *IEEE International Conference on Robotics and Automation (ICRA)*, (Atlanta, GA), IEEE RAS, May 2025.

[143] H. Yu, S. Farrell, R. Yoshimitsu, Z. Qin, H. Christensen, and S. Gao, "Estimating control barriers from offline data," in *IEEE International Conference on Robotics and Automation (ICRA)*, (Atlanta, GA), IEEE RAS, May 2025.

[144] J. Ye, D. Paz, H. Zhang, Y. Guo, X. Huang, H. I. Christensen, Y. Wang, and L. Ren, "SMART: Advancing scalable map priors for driving topology reasoning," in *IEEE International Conference on Robotics and Automation (ICRA)*, (Atlanta, GA), IEEE RAS, May 2025.

[145] J. Raheema, M. Hess, R. C. Provost, M. Bilinski, and H. I. Christensen, "Autonomous exploration and mapping payload integrated on a quadruped robot," in *International Symposium on Robotics Research*, SPAR, (Long Beach, CA), IFRR, Springer Verlag, Dec 2024.

[146] H. Zhang, D. Paz, Y. Guo, A. Das, X. Huang, H. Karsten, H. I. Christensen, and L. Ren, "Enhancing online road network perception and reasoning with standard definition maps," in *International Conference on Intelligent Robots and Systems (IROS)*, (Abu Dhabi, UAE), IEEE/RSJ, October 2024.

[147] J.-Y. Liao, Z. Zhang, D. Paz, and H. I. Christensen, "OSM vs HD Maps: Map representations for trajectory prediction," in *International Conference on Intelligent Robots and Systems (IROS)*, (Abu Dhabi, UAE), IEEE/RSJ, October 2024.

[148] A. Almuzairee, N. Hansen, and H. I. Christensen, "A recipe for unbounded data augmentation in visual reinforcement learning," in *Reinforcement Learning Conference*, (Amhurst, MA), Aug 2024.

[149] J. Hu, S. R. Iyer, J. Wang, and H. I. Christensen, "Motion planning in foliated manifolds using repetition roadmap," in *Robotics Science and Systems (RSS)*, (Delft, Netherlands), July 2024.

[150] N. E. Ranganatha, H. Zhang, S. Venkatramani, J. yan Liao, and H. I. Christensen, "SemVecNet: Online vector map generation with generalized sensor configurations," in *Intelligent Vehicles - 2024*, (Jeju Island), IEEE, June 2024.

[151] C. D. Ambrosia, F. Richter, Z.-Y. Chiu, N. Shinde, F. Liu, H. I. Christensen, and M. C. Yip, "Robust surgical tool tracking with pixel-based probabilities for projected geometric primitives," in *Intl. Conf. of Robotics and Automation*, (Yokohama, JP), pp. 15455–15462, IEEE, May 2024.

[152] S. R. Iyer, A. Pal, J. Hu, A. Adeleye, A. Aggarwal, and H. I. Christensen, "Household navigation and manipulation for everyday object rearrangement tasks," in *International Conference on Robotic Computing*, (Los Angeles, CA), IEEE, Dec 2023.

[153] A. Padalkar, A. Pooley, A. Jain, A. Bewley, A. Herzog, A. Irpan, A. Khazatsky, A. Rai, A. Singh, A. Brohan, A. Raffin, A. Wahid, B. Burgess-Limerick, B. Kim, B. Schölkopf, B. Ichter, C. Lu, C. Xu, C. Finn, C. Xu, C. Chi, C. Huang, C. Chan, C. Pan, C. Fu, C. Devin, D. Driess, D. Pathak, D. Shah, D. Büchler, D. Kalashnikov, D. Sadigh, E. Johns, F. Ceola, F. Xia, F. Stulp, G. Zhou, G. S. Sukhatme, G. Salhotra, G. Yan, G. Schiavi, H. Su, H.-S. Fang, H. Shi, H. B. Amor, H. I. Christensen, H. Furuta, H. Walke, H. Fang, I. Mordatch, I. Radosavovic, I. Leal, J. Liang, J. Kim, J. Schneider, J. Hsu, J. Bohg, J. Bingham, J. Wu, J. Wu, J. Luo, J. Gu, J. Tan, J. Oh, J. Malik, J. Tompson, J. Yang, J. J. Lim, J. Silvério, J. Han, K. Rao, K. Pertsch, K. Hausman, K. Go, K. Gopalakrishnan, K. Goldberg, K. Byrne, K. Oslund, K. Kawaharazuka, K. Zhang, K. Majd, K. Rana, K. Srinivasan, L. Y. Chen, L. Pinto, L. Tan, L. Ott, L. Lee, M. Tomizuka, M. Du, M. Ahn, M. Zhang, M. Ding, M. K. Srirama, M. Sharma, M. J. Kim, N. Kanazawa, N. Hansen, N. Heess, N. J. Joshi, N. Suenderhauf, N. D. Palo, N. M. M. Shafiullah, O. Mees, O. Kroemer, P. R. Sanketi, P. Wohlhart, P. Xu, P. Sermanet, P. Sundaresan, Q. Vuong, R. Rafailov, R. Tian, R. Doshi, R. MartÃn-MartÃn, R. Mendonca, R. Shah, R. Hoque, R. Julian, S. Bustamante, S. Kirmani, S. Levine, S. Moore, S. Bahl, S. Dass, S. Song, S. Xu, S. Haldar, S. Adebola, S. Guist, S. Nasiriany, S. Schaal, S. Welker, S. Tian,

S. Dasari, S. Belkhale, T. Osa, T. Harada, T. Matsushima, T. Xiao, T. Yu, T. Ding, T. Davchev, T. Z. Zhao, T. Armstrong, T. Darrell, V. Jain, V. Vanhoucke, W. Zhan, W. Zhou, W. Burgard, X. Chen, X. Wang, X. Zhu, X. Li, Y. Lu, Y. Chebotar, Y. Zhou, Y. Zhu, Y. Xu, Y. Wang, Y. Bisk, Y. Cho, Y. Lee, Y. Cui, Y. hua Wu, Y. Tang, Y. Zhu, Y. Li, Y. Iwasawa, Y. Matsuo, Z. Xu, and Z. J. Cui, "Open X-Embodiment: Robotic learning datasets and RT-X models," in *Conference on Robot Learning*, (Atlanta, GA), November 2023.

[154] A. Pal, S. Wadhwa, A. Jaiswal, X. Zhang, Y. Wu, R. Chada, P. Natarajan, and H. I. Christensen, "FashionNTM: Multi-turn fashion image retrieval via cascaded memory," in *International Conf. on Computer Vision*, (Paris), IEEE, Oct 2023.

[155] L. Wang, R. Guo, Q. Vuong, Y. Qin, H. Su, and H. I. Christensen, "A real2sim2real method for robust object grasping with neural surface reconstruction," in *19th IEEE CASE Conference*, (Auckland, NZ), IEEE, Aug 2023.

[156] Y. Qiu and H. I. Christensen, "3d scene graph prediction on point clouds using knowledge graphs," in *19th IEEE CASE Conference*, (Auckland, NZ), IEEE, Aug 2023.

[157] J. Hu, Z. Tang, and H. I. Christensen, "Multi-modal planning on rearrangement for stable manipulation," in *2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, October 2023.

[158] R. Patil, A. Langley, and H. Christensen, "Scaling up multi-agent patrolling in urban environments," in *Open Architecture/Open Business Model Net-Centric Systems and Defense Transformation 2023* (R. Suresh, ed.), vol. 12544, p. 125440G, International Society for Optics and Photonics, SPIE, 2023.

[159] J. Hu, A. Adeleye, and H. I. Christensen, "Place-and-pick-based re-grasping using unstable placement," in *ISRR - Robotics Research*, (Geneva, CH), IFRR, Springer Verlag, Sep 2022.

[160] A. Adeleye, J. Hu, and H. Christensen, "Putting away the groceries with precise semantic placements," in *18th International Conference on Automation Science and Engineering (CASE)*, (Mexico City), IEEE, Aug. 2022.

[161] J. Hu and H. I. Christensen, "Rotational slippage minimization in object manipulation," in *18th International Conference on Automation Science and Engineering (CASE)*, (Mexico City), IEEE, Aug. 2022.

[162] H. Zhang, J.-Y. Liao, D. Paz, and H. Christensen, "Robust human identity anonymization using pose estimation," in *18th International Conference on Automation Science and Engineering (CASE)*, (Mexico City), IEEE, Aug. 2022.

[163] H. S. Hoej, H. I. Christensen, S. Hansen, and E. Svanebjerg, "Scan matching and probabilistic stationary global localization in an airport environment," in *18th International Conference on Automation Science and Engineering (CASE)*, (Mexico City), IEEE, Aug. 2022.

[164] S. Madhavan, A. Pal, and H. I. Christensen, "Role of reward shaping in object-goal navigation," in *CVPR*, (New Orleans, LA), IEEE, June 2022.

[165] D. Paz, H. Xiang, A. Liang, and H. I. Christensen, "TridentNetV2: Lightweight graphical global plan representations for dynamic trajectory generation," in *Intl Conf of Robotics and Automation (ICRA)*, (Philadelphia, PA), IEEE, May 2022.

[166] A. Langley, V. Dhiman, and H. Christensen, "Heterogeneous multi-robot adversarial patrolling using polymatrix games," in *Advances in Automation, Mechanical and Design Engineering* (M. A. Laribi, G. Carbone, and Z. Jiang, eds.), (Cham), Springer International Publishing, 2021.

[167] P. Parashar, A. Naik, J. Hu, and H. I. Christensen, "A hierarchical model to enable plan reuse and repair in assembly domains," in *IEEE Conference on Automation Science and Engineering*, (Lyon, France), pp. 387–394, Aug 2021.

[168] C. Nieto-Granda, S. Wang, J. G. Rogers III, and H. I. Christensen, "Distributed heterogeneous multi-robot source seeking using information based sampling with visual recognition," in *17th International Symposium on Experimental Robotics.*, SPAR, (Malta), Springer Verlag, Nov 2021.

[169] Y. Han, Y. Liu, D. Paz, and H. I. Christensen, "Auto-calibration method using stop signs for urban autonomous driving applications," in *International Conference on Robotics and Automation*, (Xian), IEEE, May 2021.

[170] D. Paz, H. Zhang, and H. I. Christensen, "TridentNet: A conditional generative model for dynamic trajectory generation," in *Intelligent Autonomous Systems-16*, (Singapore), June 2021. (Best paper).

[171] Y. C. Qui, A. Pal, and H. I. Christensen, "Target driven visual navigation exploiting object relationships," in *The Conference on Robotic Learning*, (Boston, MA), November 2020.

[172] J. Li, Q. Vuong, S. Liu, M. Liu, K. Ciosek, H. Christensen, and H. Su, "Multi-task batch reinforcement learning with metric learning," in *Advances in Neural Information Processing Systems* (H. Larochelle, M. Ranzato, R. Hadsell, M. Balcan, and H. Lin, eds.), vol. 33, pp. 6197–6210, Curran Associates, Inc., 2020.

[173] D. Paz, P.-J. Lai, N. Chan, Y. Jianf, and H. I. Christensen, "Autonomous vehicle benchmarking using unbiased metrics," in *International Conference on Intelligent Robots and Systems (IROS)*, (Las Vegas, NV), IEEE/RSJ, Oct 2020.

[174] D. Paz, H. Zhang, Q. Li, H. Xiang, and H. I. Christensen, "Probabilistic semantic mapping for urban autonomous driving applications," in *International Conference on Intelligent Robots and Systems (IROS)*, (Las Vegas, NV), IEEE/RSJ, Oct 2020.

[175] A. Pal, S. Mondal, and H. I. Christensen, ""looking at the right stuff" - guided semantic-gaze for autonomous driving," in *Computer Vision and Pattern Recognition (CVPR)*, (Seattle, WA), IEEE/PAMI, June 2020.

[176] R. White, G. Caiazza, A. Cortesi, Y. I. Cho, and H. I. Christensen, "Black block recorder: Immutable black box logging for robots via blockchain," in *International Conference on Intelligent Robots and Systems*, (Macau), pp. 1–8, IEEE/RSJ, Oct 2019.

[177] P. Parashar, L. Sanneman, H. I. Christensen, and J. A. Shah, "A taxonomy for characterizing modes of interactions in goal-driven, human-robot teams," in *International Conference on Intelligent Robots and Systems*, (Macau), IEEE/RSJ, Oct 2019.

[178] A. Pal, C. Nieto, and H. I. Christensen, "DEDUCE: Diverse scEne Detection methods in Unseen Challenging Environments," in *International Conference on Intelligent Robots and Systems*, (Macau), IEEE/RSJ, Oct 2019.

[179] S. Wang, X. Liu, J. Zhao, and H. Christensen, "Robotic reliability engineering: A story of long-term tritonbot development," in *Field and Service Robotics*, (Tokyo, JP), August 2019.

[180] D. Paz, P.-J. Lai, S. Harish, H. Zhang, N. Chan, C. Hu, S. Binnani, and H. Christensen, "Lessons learned from deploying autonomous vehicles at UC San Diego," in *Field and Service Robotics*, (Tokyo, JP), August 2019.

[181] R. White, G. Caiazza, C. Jiang, X. Ou, Z. Yang, A. Cortesi, and H. Christensen, "Network reconnaissance and vulnerability excavation of secure dds systems," in *Workshop on Software Security for Internet of Things*, (Stockholm, Sweden), IEEE and Euro S&P, June 2019.

[182] P. Parashar, L. M. Sanneman, H. I. Christensen, and J. A. Shah, "Enabling efficient team cooperation by understanding modes of human-robot interactions," in *Intl. Conf. Robotics and Automation*, (Montreal), May 2019.

[183] S. Li and H. I. Christensen, "WaveToFly: wavetofly: Control a uav using body gestures," in *Intl. Conf. Robotics and Automation*, (Montreal), IEEE, May 2019.

[184] S. Wang, X. Liu, J. Zhao, and H. I. Christensen, "Rorg: Service robot software management with linux containers," in *Intl. Conf. Robotics and Automation*, (Montreal), IEEE, May 2019.

[185] N. Fung, J. G. Rogers III, C. Nieto-Granda, H. I. Christensen, S. Kemna, and G. Sukhatme, "Coordinating multi-robot systems through environment partitioning for adaptive informative sampling," in *Intl. Conf. Robotics and Automation*, (Montreal), IEEE, May 2019.

[186] P. Parashar, A. Goel, and H. I. Christensen, "Using hierarchical expectations ground in percpetion for reasonign about failures during task execution," in *AAAI 2018 Symposium - Real-World Systems for Long-Term Autonomy*, Oct 2018.

[187] C. Nieto, J. Rogers, N. Fung, S. Kemna, H. I. Christensen, and G. Sukhatme, "On-line Coordination Task for Multi-robot Systemsusing Adaptive Informative Sampling," in *Intl. Symp. Exp. Robotics*, STAR, (Buenos Aires), IFRR, Springer, Nov 2018.

[188] R. White, G. Caiazza, H. I. Christensen, and A. Cortesi, "Procedurally provisioned access control for robotic systems," in *RosCon*, (Madrid), Oct 2018.

[189] A. Huamán Quispe, H. Ben Amor, and H. I. Christensen, *A Taxonomy of Benchmark Tasks for Robot Manipulation*, pp. 405–421. Cham: Springer International Publishing, 2018.

[190] S. Wang and H. I. Christensen, "Tritonbot: First lessons learned from deployment of a long-term autonomy tour guide robot," in *RoMan*, (Nanjing, China), IEEE/RSJ, August 2018.

[191] R. Sawhney, F. Li, H. I. Christensen, and C. L. Isbell, "Purely geometric scene association and retrieval - a case for macro-scale 3d geometry," in *Intl. Conf. on Robotics and Automation*, (Brisbane), IEEE, May 2018.

[192] B. Shih, D. Drotman, C. Christianson, Z. Huo, R. White, H. I. Christensen, and M. T. Tolley, "Custom soft robotic gripper sensor skins for haptic object visualization," in *Intelligent Robots and Systems (IROS), 2017 IEEE/RSJ International Conference on*, pp. 494–501, IEEE, 2017.

[193] S. Brahmbhatt, H. Christensen, and J. Hays, "Stuffnet: Using "stuff" to improve object detection," in *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2017.

[194] R. White, H. I. Christensen, and M. Quigley, "SROS: Securing ROS over the wire, in the graph and through the kernel," in *Humanoids 2016*, (Cancun), IEEE/RSJ, Nov 2016.

[195] M. Zafar and H. I. Christensen, "Whole body control of wheeled inverted pendulum humanoids," in *Intl. Conf. on Humanoid Robotics*, (Cancun, MX), pp. 89–95, IEEE-RAS, Nov 2016.

[196] S. Choudhary, L. Carlone, C. Nieto, J. Rogers, Z. Liu, H. I. Christensen, and F. Dellaert, "Multi robot object-based SLAM," in *Intl. Symp. on Experimental Robotics*, (Tokyo, JP), IFRR, Oct 2016.

[197] V. Murali, C. Nieto, S. Choudhary, and H. I. Christensen, "Active planning based extrinsic calibration of exteroceptive sensors in unkown environments," in *International Conference on Intelligent Robots and Systems*, (Daejeon, Korea), IEEE/RSJ, Oct 2016.

[198] K. Lee, S. Joo, and H. I. Christensen, "An assembly sequence generation of a product family for robot programming," in *International Conference on Intelligent Robots and Systems*, (Daejeon, Korea), IEEE/RSJ, Oct 2016.

[199] J. Scholz, N. Jindal, M. Levihn, C. Isbell, and H. I. Christensen, "Navigation among movable obstacles with learned dynamic constraints," in *International Conference on Intelligent Robots and Systems*, (Daejeon, Korea), IEEE/RSJ, Oct 2016.

[200] A. Cosgun, A. Sisbot, and H. I. Christensen, "Anticipatory robot path planning in human environments," in *The 25th IEEE International Symposium on Robot and Human Interactive Communication*, (New York, NY), IEEE, Aug 2016.

[201] A. Huaman, H. Ben-Amor, and H. I. Christensen, "Combining arm and hand metrics for sensible grasp modeling," in *Conf. on Automation Science and Engineering (CASE)*, (Austin, TX), IEEE, Aug 2016.

[202] A. Price, S. Balakirsky, A. Bobick, and H. Christensen, "Affordance-feasible planning with manipulator wrench spaces," in *Intl. Conf of Robotics and Automation (ICRA)*, (Stockholm), IEEE, May 2016.

[203] T. Kunz, A. Thomaz, and H. Christensen, "Hierarchical rejection sampling for informed kinodynamic planning in high-dimensional spaces," in *Intl. Conf of Robotics and Automation (ICRA)*, (Stockholm), IEEE, May 2016.

[204] S. Choudhary, L. Carlone, C. Nieto, J. Rogers III, H. I. Christensen, and F. Dellaert, "Distributed trajectory estimation with privacy and communication constraints: a two-stage distributed gauss-seidel approach," in *Intl. Conf of Robotics and Automation (ICRA)*, (Stockholm), IEEE, May 2016.

[205] M. Levihn and H. I. Christensen, "Using environment objects as tools in unknown environments," in *Intl. Conf. on Humanoid Robots*, (Seoul, KR), IEEE-RAS, Nov 2015.

[206] A. H. Quispe, H. Ben-Amor, and H. Christensen, "A taxonomy of benchmark tasks for bimanual manipulators," in *Intl. Conf. Robotics Research*, (Italy), IFRR, Sep 2015.

[207] S. Choudhary, L. Carlone, H. I. Christensen, and F. Dellaert, "Exactly sparse memory efficient SLAM using the multi-block alternating direction method of multipliers," in *IEEE/RSJ International Conference on Intelligent Robots and Systems*, (Hamburg, DE), IEEE/RSJ, Sep 2015.

[208] S. Brahmbhatt, H. Ben-Amor, and H. I. Christensen, "Occlusion aware object localization, segmentation and pose estimation," in *British Machine Vision Conference*, (Swansea, UK), Sep 2015.

[209] S. Choudhary, V. Indelman, H. I. Christensen, and F. Dellaert, "Information based reduced landmark slam," in *ICRA*, (Seatle, WA), IEEE, May 2015.

[210] A. H. Quispe, B. Melville, C. Erdogan, H. B. Amor, H. Christensen, and M. Stilman, "Efficient manipulation planning with basic primitives," in *ICRA*, (Seattle, WA), IEEE, May 2015.

[211] J. Scholz, M. Levihn, C. Isbell, H. Christensen, and M. Stilman, "Learning non-holonomic object models for mobile manipulation," in *ICRA*, (Seattle, WA), IEEE, May 2015.

[212] C. Nieto-Granda, S. Choudhary, J. G. Rogers III, J. N. Twigg, V. Murali, and H. I. Christensen, "Towards contextual awareness in robot mapping: extracting semantic hierarchy from point cloud data," in *Unmanned Systems Technology XVII*, vol. 9468, (Baltimore, MD), SPIE, April 2015.

[213] S. Hickson, I. Essa, and H. I. Christensen, "Semantic instance labeling leveraging hierarchical segmentation," in *Winter Conference on Applications of Computer Vision (WACV)*, (Hawaii), IEEE, Jan 2015.

[214] N. Dantam, H. B. Amor, H. Christensen, and M. Stilman, "Online multi-camera registration for bimanual workspace trajectories," in *Proceedings of the International Conference on Humanoid Robots (HUMANOIDS)*, (Barcelona, ES), IEEE/RSJ, Nov 2014.

[215] S. Choudhary, A. J. B. Trevor, H. I. Christensen, and F. Dellaert, "SLAM with object discovery, modeling and mapping," in *IROS-2014*, (Chicago, IL), IEEE/RSJ, Sep 2014.

[216] D. Portugal, C. Pippin, R. P. Rocha, and H. I. Christensen, "Finding optimal routes for multi-robot patrolling in generic graphs," in *IROS-2014*, (Chicago, IL), IEEE-RAS / RSJ, Sep 2014.

[217] J. Huckaby and H. I. Christensen, "A Case for SysML in Robotics," in *International Conference on Automation Science and Engineering (CASE)*, (Taipei, TW), pp. 333–338, IEEE, Aug 2014.

[218] S. Hickson, S. Birchfield, I. Essa, and H. Christensen, "Efficient Hierarchical Graph-Based Segmentation of RGBD Videos," in *Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, IEEE Computer Society, June 2014.

[219] N. Dantam, H. Ben-Amor, H. Christensen, and M. Stilman, "Online camera registration for robot manipulation," in *Proceedings of the 2014 International Symposium on Experimental Robotics (ISER)*, (Marocco), IFRR, Springer Verlag, June 2014.

[220] C. Nieto-Granda, S. Choudhary, J. G. Rogers, J. Twigg, V. Murali, and H. I. Christensen, "Object guided autonomous exploration for mobile robots in indoor environments," in *SPIE Defense+Security*, (Baltimore, MD), pp. 90840–90846, SPIE, Apr 2014.

[221] J. Huckaby and H. I. Christensen, "Modeling robot assembly tasks in manufacturing using SysML," in *ISR/Robotik*, (Munich, DE), IFR, Jun 2014.

[222] A. Cosgun, E. A. Sisbot, and H. I. Christensen, "Vibro-tactile belt interface for robotic human navigation," in *ICRA*, (Hong Kong), IEEE/RSJ, Jun 2014.

[223] A. J. B. Trevor, J. G. Rogers III, and H. I. Christensen, "Omnimapper: A modular multimodal mapping framework," in *ICRA*, (Hong Kong), IEEE/RSJ, Jun 2014.

[224] C. Pippin and H. I. Christensen, "Trust modeling in multi-robot patrolling," in *ICRA*, (Hong Kong), IEEE/RSJ, Jun 2014.

[225] G. Piliouras, C. Nieto-Granda, H. Christensen, and J. Shamma, "Persistent patterns: Multi-agent learning beyond equilibrium and utility," in *13th International Conference on Autonomous Agents and Multiagent Systems (AAMAS2014)*, 2014.

[226] C. Choi, A. Trevor, and H. I. Christensen, "RGB-D Edge Detection and Edge-Based Registration," in *IROS*, (Tokyo), IEEE/RSJ, Nov 2013.

[227] C. Choi, A. Trevor, and H. I. Christensen, "RGB-D Object Tracking: A Particle Filter Approach on GPU," in *IROS*, (Tokyo), IEEE/RSJ, Nov 2013.

[228] J. Huckaby, S. Vassos, and H. I. Christensen, "Planning with a task modeling framework in manufacturing robotics," in *IROS*, (Tokyo, JP), IEEE/RSJ, Nov 2013.

[229] A. Cosgun, M. Bunger, and H. I. Christensen, "Accuracy analysis of skeleton trackers for safety in hri," in *Workshop on Safety and Comfort of Humanoid Coworker and Assistant (Humanoids 2013)*, (Atlanta, GA), IEEE/RSJ, Oct. 2013.

[230] C. Nieto-Granda, J. G. Rogers III, and H. Christensen, "Multi-robot exploration strategies for tactical tasks in urban environments," in *SPIE Defense, Security, and Sensing*, pp. 87410B–87410B, International Society for Optics and Photonics, 2013.

[231] C. E. Pippin, H. Christensen, and L. Weiss, "Dynamic, cooperative multi-robot patrolling with a team of uavs," in *SPIE Defense, Security, and Sensing*, pp. 874103–874103, International Society for Optics and Photonics, 2013.

[232] J. G. Rogers, S. H. Young, J. M. Gregory, C. Nieto-Granda, and H. I. Christensen, "Robot mapping in large-scale mixed indoor and outdoor environments," in *SPIE Defense, Security, and Sensing*, pp. 874107–874107, International Society for Optics and Photonics, 2013.

[233] C. Pippin, H. Christensen, and L. Weiss, "Performance based task assignment in multi-robot patrolling," in *Proceedings of the 28th Annual ACM Symposium on Applied Computing*, pp. 70–76, ACM, 2013.

[234] C. E. Pippin and H. Christensen, "Learning task performance in market-based task allocation," in *Intelligent Autonomous Systems 12*, pp. 613–621, Springer Berlin Heidelberg, 2013.

[235] A. Cosgun, D. Florencio, and H. Christensen, "Autonomous person following for telepresence robots," in *Intl. Conf. on Robotics and Automation*, (Karlsruhe), IEEE/RSJ, May 2013.

[236] J. G. Rogers III and H. I. Christensen, "Robot planning with a semantic map," in *Intl. Conf. on Robotics and Automation*, (Karlsruhe, Germany), IEEE/RSJ, May 2013.

[237] A. J. B. Trevor, J. G. Rogers III, A. Cosgun, and H. I. Christensen, "Interactive object modeling & labeling for service robots," in *HRI*, pp. 421–422, 2013.

[238] A. J. B. Trevor, A. Cosgun, J. Kumar, and H. I. Christensen, "Interactive map labeling for service robots," in *Workshop on Active Semantic Perception in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2012)*, (Algave, Portugal), IEEE/RSJ, Oct 2012.

[239] C. Choi and H. I. Christensen, "3D textureless object detection and tracking: An edge-based approach," in *Intl. Conf on Intelligent Robotics and System*, (Faro, Portugal), IEEE/RSJ, Oct 2012.

[240] C. Choi and H. I. Christensen, "3D pose estimation for daily objects using and RGB-D camera," in *Intl. Conf on Intelligent Robotics and System*, (Faro, Portugal), IEEE/RSJ, Oct 2012.

[241] P. Kolhe and H. Christensen, "Finding graph topologies for feasible multirobot motion planning," in *Intl. Conf on Intelligent Robotics and System*, (Faro, Portugal), IEEE/RSJ, Oct 2012.

[242] C. Pippin and H. I. Christensen, "Performance based monitoring using statistical control charts on multi-robot teams," in *15th Intl. Conf on Information fusion*, (Singapore), July 2012.

[243] J. Huckaby and H. I. Christensen, "A taxonomic framework for task modeling and knowledge transfer in manufacturing robotic," in *Eighth International Cognitive Robotics Workshop*, Jul 2012.

[244] C. Pippin and H. I. Christensen, "Learning task performance in market-based task allocation," in *Proc. 12th Intl. Autonomous Systems*, (Jeju, Korea), Springer Verlag, June 2012.

[245] N. Dantam, C. Nieto, H. I. Christensen, and M. Stilman, "Linguistic composition of semantic maps and hybrid controllers," in *13th Intl. Symp. on Experimental Robotics*, (Montreal, Canada), June 2012.

[246] J. G. Rogers III, C. Nieto, and H. I. Christensen, "Coordination strategies for multi-robot exploration and mapping," in *13th Intl. Symp. on Experimental Robotics*, (Montreal, Canada), June 2012.

[247] J. G. Rogers III and H. I. Christensen, "A conditional random field model for place and object classification," in *Intl. Conf. On Robotics and Automation*, (St. Paul, MN), IEEE, May 2012.

[248] A. J. B. Trevor, J. G. Rogers III, and H. I. Christensen, "Planar Surface SLAM with 3D and 2D Sensors," in *Intl. Conf. On Robotics and Automation*, (St. Paul, MN), IEEE, May 2012.

[249] J. G. Rogers III, E. A. Stump, S. Young, L. C. Sadler, and H. I. Christensen, "Autonomous 3D exploration and mapping with unmanned ground robots," in *SPIE Defense, Security and Sensing*, (Baltimore, MD), April 2012.

[250] C. E. Pippin and H. I. Christensen, "Performance based dynamic team formation in multi-agent auctions," in *SPIE Defense, Security and Sensing - Symposium 8398*, (Baltimore, MD), April 2012.

[251] C. Pippin and H. Christensen, "Incentive based cooperation in multi-agent auctions," in *AAAI Spring Symposium*, AAAI, Mar. 2012.

[252] J. G. Rogers III, A. Trevor, C. Nieto, and H. I. Christensen, "Slam with learned object recognition and semantic data association," in *IROS*, (San Francisco, CA), IEEE/RSJ, Oct. 2011.

[253] V. Emeli and H. I. Christensen, "Enhancing the robot service experience through social media," in *IEEE ws. on Roman and Human Interactive Communication (ROMAN)*, (Atlanta, GA), Aug 2011.

[254] A. Trevor, J. Rogers III, C. Nieto, and H. I. Christensen, "Feature-based mapping with grounded landmark and place labels," in *RSS Workshop on Grounding Human-Robot Dialog for Spatial Tasks*, (Los Angeles, CA), June 2011.

[255] C. Choi and H. I. Christensen, "Robust 3D visual tracking using particle filtering on the SE(3) group," in *Intl. Conf. on Robotics and Automation*, (Shanghai, China), pp. 4384–4391, IEEE, May 2011.

[256] J. G. Rogers III, A. Cunningham, M. Paluri, H. I. Christensen, F. Dellaert, N. Michael, V. Kumar, and L. Mathies, "Cooperative mapping of indoor environments," in *Defense, Security and Sensing*, (Orando, Fl.), SPIE, April 2011.

[257] J. Burke and H. I. Christensen, "Hri: The real world," in *HRI 2011 - Proc. of 6th ACM–IEEE Intl. Conf on Human Robot Interaction*, (Lausanne), March 2011.

[258] S. Balakirski, F. Proctor, T. Kramer, P. Kolhe, and H. I. Christensen, "Using simulation to assess the effectiveness of pallet stacking methods," in *Simulation, Modeling, and Programming for Autonomous Robots* (N. Ando, T. Hemker, M. Reggiani, and O. von Stryk, eds.), vol. 6472 of *LNAI*, (Berlin), pp. 336–349, 2010.

[259] J. G. Rogers III, A. J. B. Trevor, C. Nieto-Granda, A. Cunningham, M. Paluri, N. Michael, and H. I. Christensen, "Effects of sensory precision on mobile robot localization and mapping," in *International Symposium on Experimental Robotics*, (Delhi, India), IFRR, Dec 2010.

[260] J. G. Rogers III, A. J. B. Trevor, C. Nieto-Granda, and H. I. Christensen, "Slam with expectation maximization for moveable object tracking," in *IROS*, (Taiwan), pp. 2077–2082, IEEE, Oct 2010.

[261] C. Nieto-Granda, J. G. Rogers III, A. J. B. Trevor, and H. I. Christensen, "Semantic map partitioning in indoor environments using regional analysis," in *IROS*, (Taiwan), pp. 1451–1456, IEEE, Oct 2010.

[262] A. Trevor, J. Rogers III, C. Nieto-Granda, and H. I. Christensen, "Tables, counters, and shelves: Semantic mapping of surfaces in 3d," in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2010) Workshop on Semantic Mapping and Autonomous Knowledge Acquisition*, (Taiwan), IEEE/RSJ, Oct 2010.

[263] C. Choi and H. Christensen, "Real-time 3d model-based tracking using edge and keypoint features for robotic manipulation," in *ICRA-2010*, (Anchorage), pp. 4048–4055, IEEE RAS, May 2010.

[264] A. Trevor, J. G. Rogers III, C. Nieto, and H. I. Christensen, "Applying domain knowledge to slam using virtual measurements," in *ICRA-2010*, (Anchorage), pp. 5389–5396, IEEE RAS, May 2010.

[265] J. G. Rogers III and H. I. Christensen, "Normalized graph-cuts for large scale visual SLAM," in *IEEE/RSJ Intl. Conf. on Intell. Robots and Systems*, (St. Louis, MO), pp. 918–923, IEEE, Oct. 2009.

[266] J. Wu, J. Rehg, and H. I. Christensen, "Visual Place Categorization: Problem, Dataset, and Algorithm," in *IEEE/RSJ Intl. Conf. on Intell. Robots and Systems*, (St. Louis, MO), IEEE, Oct. 2009.

[267] S. Chandrababu and H. I. Christensen, "Adding diagnostics to intelligent service robots," in *IEEE/RSJ Intl. Conf. on Intell. Robots and Systems*, (St. Louis, MO), pp. 3961–3967, IEEE, Oct. 2009.

[268] C. Choi and H. I. Christensen, "Cognitive vision for efficient scene processign and object categorization in highly cluttered environments," in *IEEE/RSJ Intl. Conf. on Intell. Robots and Systems*, (St. Louis, MO), IEEE, Oct. 2009.

[269] C. Smith and H. I. Christensen, "Wii-mote robot control using human motion models," in *IEEE/RSJ Intl. Conf. on Intell. Robots and Systems*, (St. Louis, MO), IEEE, Oct. 2009.

[270] C. Smith and H. I. Christensen, "A minimum jerk predictor for teleoperation with variable time delay," in *IEEE/RSJ Intl. Conf. on Intell. Robots and Systems*, (St. Louis, MO), IEEE, Oct. 2009.

[271] J. Sung, B. Grinter, and H. Christensen, "Sketching the future: Assessing user needs for domestic robots," in *18th IEEE International Symposium on Robot and Human Interactive Communication*, (Toyama, JP), pp. 153–158, Sep 2009.

[272] J.-K. Ryu, N.-Y. Chong, and H. I. Christensen, "Adaptive CPG based coordinated control of healthy and robotics lower limb movement," in *18th IEEE International Symposium on Robot and Human Interactive Communication*, (Toyama, JP), pp. 122–127, Sep 2009.

[273] G. Lee, N. Y. Chong, and H. I. Christenen, "Adaptive trinagular mesh generation of self-configuring robot swarms," in *ICRA*, (Kobe, JP), pp. 2737–2742, IEEE/RAS, May 2009.

[274] L. P. Ellekilde and H. I. Christensen, "Control of mobile manipulator using the dynamical systems approach," in *ICRA*, (Kobe, JP), pp. 1370–1376, IEEE/RAS, May 2009.

[275] J.-Y. Sung, R. E. Grinter, and H. I. Christensen, "Pimp my Roomba: designing for personalization," in *ACM Conf on Human Factors in Computer Systems - CHI-09*, (Boston, MA), Apr 2009.

[276] J.-Y. Sung, H. Christensen, and B. Grinter, "Robots in the wild: understanding long-term use," in *ACM Conf. on Human Robot Interaction - HRI-09*, (San Diego, CA), Mar 2009.

[277] H. I. Christensen and J. P. Case, "Mobile manipulation in everyday environments," in *Intl. Conf on Control, Automation and Systems*, (Seoul, Korea), pp. 24–29, IEEE, Oct 2008.

[278] E. A. Topp and H. I. Christensen, "Detecting structural ambiguities and transistions during a guided tour," in *2008 IEEE Intl. Conf. on Robotics and Automation*, (Pasadena, CA), pp. 2564–2571, May 2008.

[279] M. M. Ullah, A. Pronobis, B. Caputo, J. Luo, P. Jensfelt, and H. I. Christensen, "Towards robust place recognition for robot localization," in *2008 IEEE Intl. Conf. on Robotics and Automation*, (Pasadena, CA), pp. 530–537, May 2008.

[280] J.-Y. Sung, R. E. Grinter, H. I. Christensen, and L. Guo, "Housewives or technophiles?: understanding domestic robot owners," in *HRI-08: Proc of 3rd ACM/IEEE Intl Conf on Human Robot Interaction*, (Amsterdam), March 2008.

[281] J. Folkesson and H. I. Christensen, "SIFT based graphical SLAM on a packbot," in *Field and Service Robotics* (C. Laugier and R. Siegwart, eds.), vol. 42 of *Springer Tracts in Advanted Robotics*, (Heidelberg, Germany), pp. 317–328, Springer Verlag, Mar. 2008.

[282] C. Lundberg and H. I. Christensen, "Assessment of man-portable robots for law enforcement agencies," in *PerMis* (R. Madhavan and E. Messina, eds.), (Gaithersburg, MD), ACM/IEEE, Aug 2007.

[283] C. Smith and H. I. Christensen, "Using COTS to construct a high performance robot arm," in *ICRA-2007*, (Rome, IT), IEEE, April 2007.

[284] J.-Y. Sung, L. Guo, R. E. Grinter, and H. I. Christensen, "My roomba is rambo: Intimate home appliances," in *9th Intl Conf on Ubiquitous Computing*, (Insbruck, A), Sept. 2007.

[285] F. Bertolli, P. Jensfelt, and H. I. Christensen, "Slam using visual scan-matching with distinguishable 3d points," in *IROS-06*, (Beijing, CH), IEEE/JRS, Oct. 2006.

[286] M. Bratt, C. Smith, and H. I. Christensen, "Design of a control strategy for teleoperation of a platform with significant dynamics," in *Proc. IEEE/RSJ Intl Conf on Intell. Robots and Systems (IROS-06)*, (Beijing, CH), pp. 1700–1705, RSJ/IEEE RAS, Oct. 2006.

[287] S. Frintrop, P. Jensfelt, and H. I. Christensen, "Attentional landmark selection for visual slam," in *IROS-06*, (Beijing, CH), IEEE/JRS, Oct. 2006.

[288] S. Frintrop, P. Jensfelt, and H. I. Christensen, "Pay attention when selecting features," in *Intl Conf of Pattern Recognition*, (Hong Kong), IEEE/IARP, Aug. 2006.

[289] P. Jensfelt, J. Folkesson, D. Kragic, and H. I. Christensen, "Exploiting distinguishable image features in robotic mapping and localisation," in *European Robot Symposium – 2006*, vol. 22 of *STAR*, (Heidelberg, DE), pp. 143–158, EUROS, Springer Verlag, Mar. 2006.

[290] G. Kruijff, H. Zender, P. Jensfelt, and H. Christensen, "Clarification dialogues in human-augmented mapping," in *Human-Robot Interaction*, (Salt lake City, UT), IEEE/ACM, Mar. 2006.

[291] G.-J. Kruijff, H. Zender, P. Jensfelt, and H. Christensen, "Clarification dialogues in human augmented mapping," in *ROMAN-06*, (Hartfordshire, UK), IEEE, Sept. 2006.

[292] H. Huettenrauch, K. Severinson-Eklundh, A. Green, E. A. Topp, and H. I. Christensen, "What's in the gap? interaction transistions that make HRI work," in *ROMAN-06*, (Jeju, Korea), IEEE, Sep 2006.

[293] C. Lundberg, H. I. Christensen, and R. Reinhold, "Long-term study of portable field robots in urban terrain," in *PERMIS-2006*, (Gaitersburg, MD), ACM, Aug. 2006.

[294] E. Pacchierotti, H. I. Christensen, and P. Jensfelt, "Design of an office-guide robot for social interaction studies," in *Intl Conf on Intelligent Robots and Systems (IROS)*, (Beijing, China), RSJ/IEEE, Oct. 2006.

[295] E. Pacchierotti, H. I. Christensen, and P. Jensfelt, "Evaluation of passing distance for social robots," in *Workshop on Robot and Human Interactive Communication (ROMAN)* (K. Dautenhahn, ed.), (Hertfordshire, UK), IEEE, Sept. 2006.

[296] A. Pronobis, B. Caputo, P. Jensfelt, and H. Christensen, "A discriminative approach to robust visual place recognition," in *IROS*, (Beijing, CH), IEEE/JSR, Oct. 2006.

[297] E. A. Topp, H. Huttenrauch, H. I. Christensen, and K. Severinson-Eklundh, "Acquiring a shared environment representation," in *Human-Robot Interaction*, (Salt lake City, UT), IEEE/ACM, Mar. 2006.

[298] E. A. Topp, H. Hüttenrauch, H. I. Christensen, and K. S. Eklundh, "Bridging together human and robotics environmental representations / a pilot study," in *Proc. IEEE/RSJ Intl Conf on Intell. Robots and Systems (IROS-06)*, (Beijing, CH), Oct. 2006.

[299] E. A. Topp and H. I. Christensen, "Topological modelling of human augmented mapping," in *Proc. IEEE/RSJ Intl Conf on Intell. Robots and Systems (IROS-06)*, (Beijing, CH), RSJ/IEEE RAS, Oct. 2006.

[300] H. I. Christensen and E. Pacchierotti, "Embodied social interaction for robots," in *AISB-05* (K. Dautenhahn, ed.), (Hertsfordshire), pp. 40–45, Apr. 2005.

[301] S. Elfwing, E. Uchibe, K. Doya, and H. I. Christensen, "Biologically inspired embodied evolution of survival," in *IEEE Congress on Evolutionary Computation*, (Edinburgh, UK), Sept. 2005.

[302] J. Folkesson, P. Jensfelt, and H. I. Christensen, "Graphical SLAM using vision and the measurement subspace," in *Intl Conf. on Intelligent Robotics and Systems (IROS)*, (Edmundton, Canada), pp. 3383–3390, IEEE/JRS, Aug. 2005.

[303] J. Folkesson, P. Jensfelt, and H. Christensen, "Vision slam in the measurement subspace," in *Intl Conf. on Robotics and Automation*, (Barcelona, ES), IEEE, Apr. 2005.

[304] A. Hedström, H. I. Christensen, and C. Lundberg, "A wearable GUI for field robots," in *Field and Service Robotics*, (Brisbane, AU), pp. 488–497, IEEE, July 2005.

[305] C. Lundberg, H. I. Christensen, and A. Hedström, "The use of robotics in harsh and unstructured field applications," in *IEEE ws. on Roman and Human Interactive Communication (ROMAN)*, (Nashville, TN), pp. 143–1501, Aug. 2005.

[306] E. Pacchierotti, H. I. Christensen, and P. Jensfelt, "Embodied social interaction for service robots in hallway environments," in *Field and Service Robotics*, (Brisbane, AU), pp. 476–487, IEEE, July 2005.

[307] E. Pacchierotti, H. Christensen, and P. Jensfelt, "Embodied social interaction in hallway settings: a user study," in *IEEE ws. on Roman and Human Interactive Communication (ROMAN)*, (Nashville, TN), pp. 164–171, Aug. 2005.

[308] O. Ramström and H. I. Christensen, "A method for following of unmarked roads," in *Intelligent Vehicles '05*, (Las Vegas, NV), pp. 650–655, IEEE, June 2005.

[309] E. A. Topp and H. I. Christensen, "Tracking for following and passing persons," in *Intl Conf. on Intelligent Robotics and Systems (IROS)*, (Edmundton, Canada), pp. 70–77, Aug. 2005.

[310] P. Althaus, H. Ishiguro, T. Kanda, T. Miyashita, and H. Christensen, "Navigation for human-robot interaction tasks," in *IEEE Intl. Conf. on Robotics and Automation - 04*, (New Orleans), pp. 1894–1900, Apr. 2004.

[311] D. Arno, D. Kragic, and H. I. Christensen, "Artificial potential biased probabilistic roadmap method," in *ICRA-04*, (New Orleans), pp. 461–469, IEEE, Apr. 2004.

[312] H. Christensen, "Path planning," in *Robotics Research-03* (R. Chatila and P. Dario, eds.), STAR, (Heidelberg, Germany), Springer Verlag, Apr. 2004.

[313] H. Christensen, J. Folkesson, A. Hedström, and C. Lundberg, "Ugv technology for urban intervention," in *SPIE – Home Security*, (Orlando, Fl), May 2004.

[314] S. Elfwing, E. Uchine, K. Doya, and H. Christensen, "Multi-agent reinforcement learning: Using macro actions to learn a mating task," in *IROS-04*, (Sendai, JP), pp. 3164–3169, IEEE/JSR, Sept. 2004.

[315] J. Folkesson and H. I. Christensen, "Graphical slam - a self-correcting map," in *ICRA-04*, (New Orleans), pp. 383–389, IEEE, Apr. 2004.

[316] J. Folkesson and H. I. Christensen, "Robust SLAM," in *IAV-2004*, (Lisboa, PT), July 2004.

[317] V. Kyrki, D. Kragic, and H. I. Christensen, "Measurement errors in visual servoing," in *ICRA-04*, (New Orleans), pp. 1861–1869, IEEE, Apr. 2004.

[318] V. Kyrki, D. Kragic, and H. Christensen, "New shortest path approaches to visual servoing," in *IROS-04*, (Sendai, JP), pp. 349–354, IEEE/JSR, Sept. 2004.

[319] W. Li, H. I. Christensen, A. Oreback, and D. Chen, "An architecture for indoor navigation," in *ICRA-04*, (New Orleans), pp. 1783–1793, IEEE, Apr. 2004.

[320] O. Ramström and H. Christensen, "Object based visual attention: searching for objects defined by size," in *Workshop on Attention Processes in Computer Vision – WAPCV*, (Prag, CZ), May 2004.

[321] O. Ramström and H. Christensen, "Object detection using background context," in *ICPR*, (Cambridge, UK), Aug. 2004.

[322] E. A. Topp, D. Kragic, P. Jensfelt, and H. I. Christensen, "An interactive interface for service robots," in *ICRA-04*, (New Orleans), pp. 3469–3475, IEEE, Apr. 2004.

[323] O. Wulf, K.-A. Arras, H. Christensen, and B. Wagner, "2d mapping of cluttered indoor environments by means of 3d perception," in *ICRA-04*, (New Orleans), pp. 4204–4209, IEEE, Apr. 2004.

[324] P. Althaus and H. Christensen, "Automatic map acquisition for navigation in domestic environments," in *ICRA-03*, (Taipei), pp. 1551–1556, IEEE, Sept. 2003.

[325] R. M. Johansson, N. Xiong, and H. I. Christensen, "A game theoretic model for management of mobile sensors," in *Information Fusion-03*, (Cairns, AU), July 2003.

[326] D. Kragic and H. I. Christensen, "Biologically movitaed visual servoing and grasping of real world tasks," in *Intl Conf. on Intelligent Robotics and Systems (IROS)*, (Las Vegas, NV), IEEE, Oct. 2003.

[327] D. Kragic and H. I. Christensen, "Confluence of parameters in model-based tracking," in *Intl Conf on Robotics and Automation*, (Taipei), IEEE, Sept. 2003.

[328] D. Kragic, S. Crinier, D. Bruun, and H. I. Christensen, "Vision and tactile sensing for real-world tasks," in *Intl Conf on Robotics and Automation*, (Taipei), IEEE, Sept. 2003.

[329] A. Miller, S. Knopp, H. Christensen, and P. Allen, "Automatic grasp planning using shape primitives," in *Intl Conf on Robotics and Automation*, (Taipai, Taiwan), IEEE, Sept. 2003.

[330] P. Althaus and H. Christensen, "Behaviour coordination for navigation in real-world office environments," in *IROS-02* (R. Siegwart, ed.), (Lausanne), pp. 2298–2304, IEEE, Oct. 2002.

[331] P. Althaus and H. I. Christensen, "Smooth task switching through behaviour coordination," in *Intelligent Autonomous Systems 7 – IAS7* (M. Gini, W.-M. Shen, C. Torras, and H. Yuasa, eds.), (Marina Del Ray, CA), pp. 9–17, IOS Press, Mar. 2002.

[332] D. Kragic and H. I. Christensen, "Vision techniques for robotics manipulation and grasping," in *International Symposium on Robotics*, (Stockholm, SE), IFR, Oct. 2002.

[333] D. Kragic and H. I. Christensen, "Weak models and cue integration for real-time tracking," in *Proc. of 2002 IEEE Intl. Conf on Robotics and Automation*, vol. 2, (Washington, DC), pp. 3044–3039, IEEE, May 2002.

[334] L. Petersson, P. Jensfelt, D. Tell, M. Strandberg, D. Kragic, and H. Christensen, "Systems integration for real-world manipulation tasks," in *Proc. of 2002 IEEE Intl. Conf on Robotics and Automation*, (Washington, DC), pp. 2500–2506, IEEE, May 2002.

[335] M. Zucchelli, J. Santos-Victor, and H. I. Christensen, "Constrained structure and motion estimation from optical flow," in *Intl. conf. on Pattern Recognition* (R. Kasturi, D. Laurendeau, and C. Suen, eds.), vol. 1, (Quebec, QC), IARP/IEEE, Aug. 2002.

[336] M. Zucchelli, J. Santos-Victor, and H. Christensen, "Maximum likelihood structure and motion estimation integrated over time," in *Intl. conf. on Pattern Recognition* (R. Kasturi, D. Laurendeau, and C. Suen, eds.), vol. 4, (Quebec, QC), IEEE/IAPR, Aug. 2002.

[337] P. Althaus, H. Christensen, and F. Hoffmann, "Using the dynamical system approach to navigate in realistic real-world environments," in *IROS*, (Maui, HW – USA), pp. 1023–1029, IEEE, Oct. 2001.

[338] H. I. Christensen, D. Kragic, and F. Sandberg, "Vision for interaction," in *Intelligent Robot Systems* (G. Hager, H. Christensen, F. Klein, and H. Bunke, eds.), LNCS, (Heidelberg, DE), Springer Verlag, 2001.

[339] H. I. Christensen, D. Kragic, and F. Sandberg, "Vision for robot interaction," in *M2VIP* (S. Chen, ed.), (HongKong City University), IEEE, Aug. 2001.

[340] J.-O. Eklundh and H. Christensen, "Computer Vision:Past and Future," in *Informatics: 10 Years Back, 10 Years Ahead* (R. Wilhelm, ed.), Lecture Notes in Computer Science, pp. 328–340, Springer-Verlag, 2001.

[341] L. Petersson, D. Austin, and H. Chistensen, "Dca: A distributed control architecture for robotics," in *IROS-2001*, (Maui, HW – USA), IEEE, Oct. 2001.

[342] M. Zucchelli and H. I. Christensen, "Resursive flow based structure from parallax with automatic rescaling," in *British Machine Vision Conference*, (Leeds, UK), Aug. 2001.

[343] G. Zunino and H. I. Christensen, "Simultaneous mapping and localisation in domestic environments," in *Multi-Sensory Fusion and Integration for Intelligent Systems* (R. Dillmann, ed.), (Baden-Baden, DE), pp. 67–72, Aug. 2001.

[344] G. Zunino and H. I. Christensen, "Slam in realistic environments," in *Symposium on Intelligent Robotic Systems* (M. Devy, ed.), (Toulouse, F), Aug. 2001.

[345] H. Christensen, H. Hüttenrauch, and K. Severinsson-Eklundh, "Human-robot interaction for service robots," in *Robotik-2000*, (Berlin, Germany), pp. 315–324, VDI, June 2000. (Keynote).

[346] C. Eberst, M. Andersson, and H. I. Christensen, "Vision-based door–traversal for autonomous mobile robots," in *IROS-2000, Takamatsu*, vol. 1, pp. 620–625, IEEE/RSJ, Nov. 2000.

[347] P. Jensfelt, D. Austin, and H. I. Christensen, "Towards task oriented localisation," in *Intelligent Autonomous Systems – 6* (E. Pagelle, F. Groen, T. Aria, R. Dillmann, and A. Stenz, eds.), (Venice, IT), pp. 612–619, IAS, IOS Press, July 2000.

[348] D. Kragic and H. I. Christensen, "A framework for visual servoing," in *Intelligent Autonomous Systems – 6* (E. Pagelle, F. Groen, T. Aria, R. Dillmann, and A. Stenz, eds.), (Venezia, IT), pp. 835–842, IAS, IOS Press, July 2000.

[349] D. Kragic and H. I. Christensen, "Tracking techniques for visual servoing tasks," in *ICRA-2000* (O. Khatib, ed.), vol. 2, (San Francisco, CA), pp. 1663–1669, IEEE, May 2000.

[350] M. Lindström, A. Orebäck, and H. Christensen, "Berra: A research architecture for service robots," in *Intl. Conf. on Robotics and Automation* (Khatib, ed.), vol. 4, (San Francisco), pp. 3278–3283, IEEE, May 2000.

[351] L. Petersson, D. Austin, D. Kragić, and H. Christensen, "Towards an intelligent robot system," in *Proceedings of the Intelligent Autonomous Systems 6, IAS-6*, (Venice), pp. 704–709, July 2000.

[352] L. Petersson, D. Austin, D. Kragic, and H. I. Christensen, "Towards an intelligent service robot system," in *Proc. 6th Intelligent Autonomous Systems*, (Venezia, IT), pp. 704–709, IAS, July 2000.

[353] M. Seiz, P. Jensfelt, and H. I. Christensen, "Active exploration for feature based global localisation," in *IROS-2000, Takamatsu*, vol. 1, pp. 281–288, IEEE/RSJ, Nov. 2000.

[354] M. Zucchelli and H. I. Christensen, "A comparison of stereo based and flow based structure from parallax," in *SIRS-00* (M. Devy, ed.), (Toulouse), July 2000.

[355] M. Asada and H. I. Christensen, "Robotics for the home, office and playing field," in *IJCAI-99* (T. Dean, ed.), vol. 2, (Stockholm, SE), AAAI Press, Aug. 1999. Invited.

[356] M. Eriksson, H. I. Christensen, and J.-O. Eklundh, "Vision based servoing and grasping with multiple control schemes," in *SIRS '99 – 7th International Symposium on Intelligent Robotic Systems* (H. Araujo and J. Dias, eds.), (Coimbra, PT), pp. 51–60, July 1999.

[357] P. Jensfelt and H. Christensen, "Laser based pose tracking," in *Proc. of the IEEE International Conference on Robotics and Automation (ICRA'99)*, vol. 4, (Detroit, Michigan, USA), pp. 2994–3000, IEEE, May 1999.

[358] D. Kragic and H. Christensen, "Integration of visual cues for active tracking of an end effector," in *Proc. IEEE/RSJ international Conference on Intelligent Robots and Systems*, (Kyongju, Korea), pp. 362–368, Oct. 1999.

[359] D. Kragić and H. Christensen, "Using a redundant coarsely calibrated vision system for 3d grasping," in *Proc. of CIMCA'99*, 1999.

[360] L. Petersson and H. I. Christensen, "A framework for mobile manipulation," in *SIRS '99 – 7th International Symposium on Robotics Systems* (H. Araujo and J. Diaz, eds.), (Coimbra, PT), pp. 359–368, July 1999.

[361] L. Petersson, M. Egerstedt, and H. Christensen, "A hybrid control architecture for mobile manipulation," in *Proc. of International Robotics Symposium '99 – IROS*, vol. 3, (Korea), pp. 1285–1291, IEEE, Oct. 1999.

[362] H. Sidenbladh, D. Kragic, and H. Christensen, "A person following behaviour," in *ICRA-99*, vol. 1, (Detroit, MI), pp. 670–675, IEEE, May 1999.

[363] O. Wijk and H. I. Christensen, "Sonar based pose tracking using natural landmarks," in *SIRS '99 – 7th International Symposium on Robotic Systems* (H. Araujo and J. Dias, eds.), (Coimbra, PT), pp. 245–254, July 1999.

[364] C. Bräutigam, J.-O. Eklundh, and H. Christensen, "Voting based cue integration," in *5th Euopean Conference on Computer Vision* (B. Neumann and H. Burkhardt, eds.), LNCS, (Heidelberg), Springer Verlag, May 1998.

[365] H. Christensen and J.-O. Eklundh, "Visual-based navigation – a survey," in *CESA-98*, vol. 4, (Tunesia), pp. 47–53, IEEE, CS Press, Apr. 1998.

[366] P. Jensfelt and H. Christensen, "Laser based position acquisition and tracking in an indoor environment," in *Proc. of the International Symposium on Robotics and Automation*, vol. 1, (Saltillo, Coahuila, Mexico), pp. 331–338, IEEE, Dec. 1998.

[367] O. Wijk and H. Christensen, "Extraction of natural landmarks and localization using sonars," in *Proc. of the International Symposium on Intelligent Robotic Systems (SIRS'98)*, (Edinburgh, Scotland), July 1998.

[368] O. Wijk, P. Jensfelt, and H. I. Christensen, "Triangulation based fusion of ultrasonic sonar data," in *IEEE Conf. on Robotics and Automation*, pp. 3419–3436, IEEE, May 1998.

[369] H. I. Christensen and P. Pirjanian, "Theoretical methods for planning and control in mobile robotics," in *1st International Conference on Conventional and Knowledge Based Intelligent Electronic Systems (KES-97)*, vol. 1, pp. 81–86, IEEE Computer Society, Apr. 1997.

[370] J. Faymann, P. Pirjanian, and H. I. Christensen, "Fusion of redundant visual behaviours," in *IEEE International Conference on Robotics and Automation 1997*, vol. 1, pp. 425–430, May 1997.

[371] E. Large, H. I. Christensen, and R. Bajcsy, "Dynamic robot planning: Cooperation through competition," in *IEEE International Conference on Robotics and Automation 1997*, vol. 3, pp. 2306–2312, IEEE, IEEE Computer Society, May 1997.

[372] P. Pirjanian and H. I. Christensen, "Behaviour coordination using multiple objective decision making," in *Proc. Conf. on Intelligent Systems and Advanced Manufacturing*, (Pittsburgh, PA, USA), SPIE, Oct. 1997.

[373] P. Pirjanian, H. I. Christensen, and J. Fayman, "Experimental evaluation of voting schemes for fusion of redundant purposive modules," in *Proc. of 5th Intl. Symp. on Intell. Robotic Systems* (C. B. H.I. Christensen and C. Ridderström, eds.), (Stockholm, Sweden), pp. 131–140, KTH, July 1997.

[374] C. S. Andersen and H. I. Christensen, "Integration of visual processes for control of fixation," in *Proceedings of the 4th International Symposium on Intelligent Robotic Systems'96* (J. Santos-Victor and J. Crowley, eds.), pp. 155–164, Instituto de Sistemas e Robotica, Lisbon, PT, July 1996.

[375] H. I. Christensen, G. Matas, and J. Kittler, "Using grammars for scene interpretation," in *Proceedings from International Conference on Image Processing* (P. Delogne, ed.), vol. 2, pp. 793–796, IEEE Signal Processing Society, Sept. 1996.

[376] S. Kristensen and H. I. Christensen, "Decision-theoretic multisensor planning and integration for mobile robot navigation.," in *Proceedings of the 1996 IEEE International Conference on Multisensor Fusion and Integration for Intelligent Systems (MFI'96)* (M. Ishikawa, ed.), IEEE Computer Society, Dec. 1996.

[377] O. Causse and H. I. Christensen, "Hierarchical control design based on petri-net modelling for an autonomous for mobile robot," in *Proceedings from the Intelligent Autonomous Systems IV*, Mar. 1995.

[378] H. I. Christensen, J. Horstmann, and T. Rasmussen, "A control theoretic approach to active vision," in *Proceedings from the Second Asian Conference on Computer Vision*, pp. 364–369, IEEE, IEEE Computer Society, Dec. 1995.

[379] J. Faymann, E. Rivlin, and H. I. Christensen, "The active vision shell," in *Proceedings of the Third International Symposium on Intelligent Robotic Systems'95, SIRS-95*, pp. 315–322, July 1995.

[380] J. Kosecka and H. I. Christensen, "Experiments in behaviour composition," in *Proceedings from The International Symposium on Intelligent Robotic Systems 95*, (Pisa), pp. 1–8, July 1995.

[381] C. B. Madsen and H. I. Christensen, "Modelling and testing the stability of edge segment; length and orientation," in *Proceedings of the 9th Scandinavian Conference on Image Analysis*, pp. 1011–1019, Swedish Society for Automated Image Analysis, June 1995.

[382] D. Sinclair, H. I. Christensen, and C. Rothwell, "Using the relation between a plane projectivity and the fundamental matrix," in *Proceedings of the 9th SCIA*, pp. 181–188, Swedish Society for Automated Image Analysis., June 1995.

[383] C. S. Andersen and H. I. Christensen, "Using multiple cues for controlling and agile camera head," in *Proceedings from The IAPR Workshop on Visual Behaviours, Seattle 1994.*, pp. 97–101, IEEE Computer Society, June 1994.

[384] H. I. Christensen and E. Granum, "Active vision - a survey.," in *Proceedings of the 11th European Conference on Artificial Intelligence, ECAI'94* (A. Cohn, ed.), pp. 1–6, John Wiley & Sons, Aug. 1994.

[385] S. J. Dickinson, H. I. Christensen, J. Tsotsos, and G. Olofsson, "Active object recognition integrating attention and viewpoint control," in *Proceedings from the Third European Conference on Computer Vision, Stockholm* (J.-O. Eklundh, ed.), vol. 801 of *Lecture Notes in Computer Science*, pp. 3–14, Springer Verlag, May 1994.

[386] S. J. Dickinson, P. Jasiobedzki, G. Olofsson, and H. I. Christensen, "Qualitative tracking of 3-d objects using active contour networks," in *Proceedings from The International Conference on Computer Vision and Pattern Recognition.* (K. W. Bowyer, ed.), pp. 812–817, IEEE, June 1994.

[387] S. Kristensen and H. I. Christensen, "Reconstruction of 3d planes with an image-enhanced estimator," in *Proceedings of the International Workshop on Intelligent Robotic Systems '94.*, pp. 271–278, July 1994.

[388] J. Liang, H. I. Christensen, and F. V. Jensen, "Qualitative recognition using bayes reasoning," in *Proceedings from Pattern Recognition in Practice IV*, Elsevier Publishers, June 1994.

[389] C. B. Madsen and H. I. Christensen, "Determining angles with a movable observer," in *Proceedings of the 12th IAPR International Conference on Pattern Recognition : Conference A: Computer Vision and Image Processing* (P. Storms, ed.), vol. 1, pp. 280–284, IEEE Computer Society Press, Oct. 1994.

[390] C. B. Madsen and H. I. Christensen, "Localizing un-calibrated, reactive camera motion in an object centered coordinate system," in *Proceedings: IEEE Workshop on Visual Behaviours.*, pp. 119–123, IEEE, June 1994.

[391] C. B. Madsen and H. I. Christensen, "Reactive view planning for quantification of local geometry," in *Proceedings from IEEE Conference on Computer Vision and Pattern Recognition, Seattle, Washington*, pp. 823–828, June 1994.

[392] O. Bergem, C. S. Andersen, and H. I. Christensen, "Using match uncertainty in the kalman filter for a sonar based positioning system," in *Proceedings of the 8th Scandinavian Conference on Image Analysis.* (K. A. Høgda, B. Braathen, and K. Heia, eds.), vol. 1, pp. 405–410, NOBIM, May 1993.

[393] H. I. Christensen, N. O. S. Kirkeby, S. Kristensen, and L. F. Knudsen, "Model-driven vision for in-door navigation," in *Proceedings from Conference on Sensor Fusion VI, Boston, 1993* (P. S. Schenker, ed.), vol. 2059, pp. 408–419, SPIE, Sept. 1993.

[394] J. L. Crowley and H. I. Christensen, "Vision as process: Integration and control of a real time active vision system," in *Proceedings of the Swiss Vision 93*, pp. 1–8, Sept. 1993.

[395] S. J. Dickinson, G. Olofsson, and H. I. Christensen, "Qualitative prediction in active recognition," in *Proceedings of the 8th Scandinavian Conference on Image Analysis* (K. A. Høgda, B. Braathen, and K. Heia, eds.), vol. 1, pp. 337–344, NOBIM, Norwegian Society for Image Processing and Pattern Recognition, May 1993.

[396] J. P. Jones, O. H. Dorum, C. S. Andersen, S. B. Jacobsen, M. S. Jensen, N. O. S. Kirkeby, S. Kristensen, C. B. Madsen, H. M. Nielsen, E. Sørensen, J. J. Sørensen, and H. I. Christensen, "Experiments in mobile robot navigation and range imaging," in *Proceedings of the 8th Scandinavian Conference on Image Analysis.* (K. A. Høgda, B. Braathen, and K. Heia, eds.), vol. 1, pp. 371–387, NOBIM, May 1993.

[397] S. Kristensen and H. I. Christensen, "Continuous reconstruction of scene objects," in *Proceedings from Conference on Sensor Fusion VI, Boston, 1993* (P. S. Schenker, ed.), vol. 2059, pp. 272–281, SPIE, Sept. 1993.

[398] S. Kristensen, H. M. N. Henrik, and H. I. Christensen, "Cooperative depth extraction," in *Proceedings of the 8th Scandinavian Conference on Image Analysis* (K. A. Høgda, B. Braathen, and K. Heia, eds.), vol. 1, pp. 321–328, NOBIM, May 1993.

[399] C. B. Madsen and H. I. Christensen, "Qualitative scene models from sparse 3d data," in *Proceedings of the 8th Scandinavian Conference on Image Analysis* (K. A. Høgda, B. Braathen, and K. Heia, eds.), vol. 1, pp. 427–433, IAPR, NOBIM, May 1993.

[400] E. Sørensen and H. I. Christensen, "Monitoring of road traffic," in *Proceedings of the 8th Scandinavian Conference on Image Analysis (=SCIA 93)* (K. A. Høgda, B. Braathen, and K. Heia, eds.), vol. 2, pp. 1085–1091, NOBIM, May 1993.

[401] C. S. Andersen, C. B. Madsen, J. J. Sørensen, N. O. S. Kirkeby, J. P. Jones, and H. I. Christensen, "Laser range guided robot vehicle," in *Proceedings of the Second Nordic Workshop on Industrial Machine Vision*, pp. 1–6, 1992.

[402] C. S. Andersen, H. I. Christensen, N. O. S. Kirkeby, L. F. Knudsen, and C. B. Madsen, "Vinav, et system for vision støttet navigation," in *Proceedings Nordic Summer School on Active Vision and Geometric Modeling, Aalborg, 1992* (H. I. Christensen, ed.), pp. 251–257, Laboratory of Image Analysis, Sept. 1992.

[403] H. I. Christensen, "The auc robot camera head," in *Proceedings of SPIE Conference on Application of Artificial Intelligence X : Machine Vision and Robotics* (K. W. Bowyer, ed.), vol. 1708, pp. 26–33, SPIE, Apr. 1992.

[404] H. I. Christensen, C. S. Andersen, and E. Granum, "Control of percpetion in dynamic vision," in *Mobile Robotics III*, (Bostom, MA), SPIE, Oct. 1992.

[405] D. W. Eggert, K. W. Bowyer, C. R. Dyer, H. I. Christensen, and D. B. Goldgof, "The scale space aspect graph," in *Proceedings from the IEEE Conference on Computer Vision and Pattern Recognition, June 1992, Urbana, Illinois*, pp. 335–340, June 1992.

[406] E. Granum, H. I. Christensen, J. L. Crowley, A. Chehikian, J.-O. Eklundh, G. Granlund, J. Kittler, and J. Illingworth, "Vision as process," in *Proceedings of ESPRIT DAY at the Second European Conference on Computer Vision 1992* (P. V. Hove, ed.), CEC DG, pp. 1–10, Commission of the European Communities (=CEC), May 1992.

[407] F. V. Jensen, H. I. Christensen, and J. Nielsen, "Bayesian methods for interpretation and control in multi-agent vision systems," in *Proceedings of SPIE Conference on Application of AI X: Machine Vision and Robotics* (K. W. Bowyer, ed.), vol. 1708, pp. 536–548, SPIE, Apr. 1992.

[408] C. S. Andersen, , J. J. Sørensen, and H. I. Christensen, "An analysis of three depth recovery techniques," in *Proceedings of the 7'th Scandinavian Conference on Image Analysis.* (P. Johansen and S. Olsen, eds.), vol. 1, pp. 114–126, Pattern Recognition Society of Denmark ., Aug. 1991.

[409] C. B. Knudsen and H. I. Christensen, "On methods for efficient pyramid construction," in *Proceedings of the 7th Scandinavian Conference on Image Anal* (P. Johansen and S. Olsen, eds.), vol. 1, pp. 29–39, IAPR, Pattern Recognition Society of Denmark, Aug. 1991.

[410] C. B. Madsen, N. O. S. Kirkeby, and H. I. Christensen, "A graph based approach to 3d qualitative scene modelling," in *Proceedings of the 7th Scandinavian Conference on Image Analysis* (P. Johansen and S. Olsen, eds.), vol. 1, pp. 324–337, IAPR, Pattern Recognition Society of Denmark, Aug. 1991.

[411] E. Granum and H. I. Christensen, "Basic control issues in a continuously operating vision system," in *Proc. ESPRIT BR Workshop on Control of Perception in Active Vision, 2nd ECCV*, Apr. 1990.

[412] H. I. Christensen and J. P. Jones, "Concurrent multi-resolution image analysis," in *Proc. Fourth Conference on Hypercube Concurrent Computers and Applications*, pp. 1031–1038, ACM, May 1989.

[413] H. I. Christensen, "Concurrent processing for real time motion detection," in *Proceedings of the 6th Scandinavian Conference on Image Analysis* (M. Pietkäinen, ed.), vol. II, pp. 1164 – 1171, Pattern Recognition Society of Finland, June 1989.

[414] H. I. Christensen, "Concurrent spatio-temporal image analysis," in *Proc. Fourth Conference on Concurrent Hypercube Computers*, pp. 991–994, ACM, May 1989.

[415] E. Granum and H. I. Christensen, "On principles of motion analysis in real time," in *Image Processing II. Proceedings of SPIE Topical Conference on Image Processing, Hamburg, 1988* (P. J. S. Hutzler and A. Oosterlinck, eds.), vol. 1027, pp. 113–120, SPIE-The International Society for Optical Engineering, 1989.

[416] H. I. Christensen and E. Granum, "On multi scale motion analysis," in *Proceedings fra NOBIM-konferansen 1988*, Rapport, pp. 83–87, Norsk Regnesentral, June 1988.

[417] E. Granum and H. I. Christensen, "Methods for real-time motion analysis," in *Proc. 2nd Hungarian Workshop on Image Analysis*, pp. 95–107, Hungarian Academy of Science, June 1988.

Theses

[418] H. I. Christensen, *Aspects of Real-Time Image Sequence Analysis*. PhD thesis, Aalborg University, Aug. 1989.

[419] H. I. Christensen, "Monitoring moving objects in real-time," M.Sc. thesis, Aalborg University, Aalborg, Denmark, June 1987.

Reports

[420] H. Christensen, J. Biswas, M. Buehler, T. Danko, M. Gini, P. Khargonekar, M. Mataric, A. Okamura, N. Papanikolopoulos, B. Smart, M. Tolley, H. Yanco, and W. Zhang, "A roadmap for US robotics - robotics for a better tomorow," tech. rep., UC San Diego, Computing Community Consortium and Engineering Research Visioning Alliance, La Jolla, CA, April 2024.

[421] D. Paz, N. E. Ranganatha, S. K. Srinivas, Y. Yao, and H. I. Christensen, "Occlusion-aware 2d and 3d centerline detection for urban driving via automatic label generation," 2023.

[422] H. I. Christensen and H. Yanco, "Mid-cycle Update to the National Robotics Roadmap," tech. rep., Computing Community Consortium (CCC), Washington, DC, Mar 2023.

[423] Q. Vuong, Y. Qin, R. Guo, X. Wang, H. Su, and H. Christensen, "Single rgb-d camera teleoperation for general robotic manipulation," 2021.

[424] H. I. Christensen (Ed.), "From internet to robotics - a US national robotics roadmap - 4th edition," tech. rep., Computing Community Consortium & U.C. San Diego, Washington, DC, September 2020.

[425] H. I. Christensen, A. Okamura, V. Kumar, G. Hager, and H. Choset, "Next generation robotics," tech. rep., Computing Community Consortium, Washington, DC, June 2016.

[426] G. Hager, D. Rus, V. Kumar, and H. I. Christensen, "Towards a science of autonomy for physical systems," tech. rep., Computing Community Consortium, Washington, DC, October 2015.

[427] H. I. Christensen, V. Kumar, G. Hager, M. Mason, J. Hollerbach, A. Okamura, and M. Mataric, "From Internet to Robotics - a US National Robotics Roadmap - 2nd edition," tech. rep., Computing Community Consortium, Washington, DC, Sep 2013.

[428] H. I. Christensen, V. Kumar, G. Hager, M. Mason, J. Hollerbach, A. Okamura, and M. Mataric, "From internet to robotics - a US national robotics roadmap - 1st edition," tech. rep., Computing Community Consortium, Washington, DC, May 2009.

Keynote / Plenary Presentations

1. "A world perspective on robotics and AI", *LGIM Symposium*, London, Jun 2026
2. "A ten year perspective on AI and Robotics", *Hamlyn Symposium*, London, Jun 2026
3. "Investing in Robotics and AI", *WEF 2026*, Davos, Jan 2026
4. "Systems Integration for Micro-Mobility", *IEEE/SICE International Symposium on System Integration (SII 2026)*, Cancun, MX, Jan 2026
5. "How AI/Robotics is impacting the workforce", Singapore President and Advisors, Aug 2025
6. "How AI is changing manufacturing", AI MfG @ Singapore, Apr. 2025
7. "A perspective on Robotics and AI", *Exchange 2025*, Las Vegas, Mar. 2025
8. "AI by 2030", Temasek Connection, Singapore, Nov 2024
9. "The 2024 US National Robotics Roadmap", US Congress, Apr 2024
10. "Robot Autonomy — A perspective", *Xponential 2024*, San Diego, Apr 2024
11. "A Perspective on AI", *LGIM Economic Forum*, London, Apr 2024
12. "Micro-mobility", *Norte Dame*, Distinguished Lecture, Feb 2024
13. "A perspective on robotics", *MnRobotics*, Minneapolis, Nov 2023
14. "A perspective on robotics", *Robots and Drones*, FF Ventures, New York, Nov 2023
15. "A perspective on robotics", *Wild Robots*, Aarhus, Aug 2023
16. "Sensor Fusion for Autonomous Driving", *Fusion 2023*, Charleston, SC, June 2023
17. "Futures of Robotics", *GE Edge* Conference, Sep 2022
18. "Mega-Trends and Robotics", Keynote, *NVIDIA GTC*, Sep. 2022
19. "Manipulation in Clutter", Keynote, *The 2022 IEEE Intl Conf. on Mechatronics and Automation*, Guilin, Guangxi, China, Aug 2022.
20. "Autonomous vehicles for micro-mobility in urban environments", USC Distinguished Lecture, Apr 2022
21. "People Centered Robotics", *FIRE conference*, San Diego, Mar 2022

22. "Empowering People using Robots", *AAAS Annual Meeting*, Philadelphia, Feb 2022
23. "Robotics for Good", *UN/ITU Symposium on AI for Good*, Geneva, September 2021
24. "Robot Assembly in Clutter", *IEEE Conf on Mechatronics*, Beijing, August 2021
25. "Challenges in Robotics", *UBS Investor Forum*, August 2021
26. "A perspective on robotics — Update on 2020 Roadmap", *AUVSI Annual Meeting*, July 2021
27. "Long-term deployment of micro-mobility systems", *CVPR Workshop on Robot Systems for Unstructured Environments*, June 2021
28. "A perspective on robotics", *CLSA Tokyo Economic Forum*, Tokyo, May 2021
29. "Robotics and Automation for US", *Wells Fargo — CEO Forum*, New York, NY May 2021
30. "The Future of Automation", *Wellington Capital*, Singapore, April 2021
31. "Robotics in a Post-COVID Society", *COSGUN-2020*, Seoul, November 2020
32. "What is next in Robotics", *Robotics and Automation*, September 2020
33. "Addressing COVID-19", *Briefing to Congressional Staff*, Washington DC, July 2020
34. "Impact of AI Research", *Congressional Briefing*, Washington DC, December 2019
35. "Autonomous Driving Vehicles", *AAA Summit*, San Diego, November 2019
36. "Robotics and AI", *Collaborative Robotics, AI and Vision*, San Jose, November 2019
37. "A Perspective on Robotics", General Electric Leadership Summit, New York, October 2019
38. "Human-Robot Collaboration", ISRR, Hanoi, October 2019
39. "A Perspective on AI", Danish Innovation Fund, September 2019
40. "Exploration and mapping by mixed human-robot teams", *IEEE Intl. Symp. on Safety, Security and Rescue Robotics*, Wurzburg, Sept. 2019.
41. "Advances in Robotics", *A.T. Kearney CEO Forum*, Mallorca — Spain, July 2019
42. "A perspective on Robotics", *RSS Pioneer Keynote*, Freiburg, June 2018
43. "What to expect for 2020?", *Robot Summit 2019*, Boston, June 2019
44. "A Perspective on consumer robotics", *Consumer Technology Association*, San Francisco, May 2019
45. "AI for Even Better Robots", *LG Keynote at CES*, Las Vegas, Jan 2019
46. "Robots, Fog and Clouds in a New Economy", *ROS-Industrial 2018*, Stuttgart, Dec 2018
47. "The New Robot Economy", *New York Stock Exchange*, Oct 2018
48. "Multi-Modal Processing for Intelligent Systems", *IEEE Intl. Conf on Multi-Media*, San Diego, CA, Jul 2018
49. "Semantics for Mobile Robots", *IEEE Semantic Computing*, Riverside, CA, Feb 2018
50. "A perspective on service robotics", *ISRR 2017*, Puerto Varas, Chile, Dec 2017
51. "Robotics in China", *US China Commission*, Washington DC, March 2017 (testimony)
52. "Opportunities and Challenges in Robotics", *MARS*, Palm Springs, March 2017
53. "A perspective on robotics", *RoboUniverse*, San Diego, December 2016
54. "A vision for robotics", *CTO Forum*, Half Moon Bay, November 2016
55. "Metrology for the new industry", Zeiss Forum, Detroit, November 2016
56. "A perspective on manufacturing", *IEEE Futures Forum*, October 2016

57. "The Future of Everything", *US-Austria Summit*, September, 2016
58. "A Roadmap to the future", *RoboBusiness-2016*, Odense, June 2016
59. "An Overview of Collaborative Robots", RIA Collaborative Robotics Symposium, Boston, May 2016
60. "A perspective on robotics", CUNY Lectures on Design and Technology, April 2016
61. "Robot Opportunities with a Focus on Asia", CLSA, Tokyo, Dec. 2015
62. "Collaborative Robotics — A Perspective", RIA/Collaborative Robotics Workshop, Pittsburgh, Oct 2015.
63. "A perspective on robotics", Carnegie, Copenhagen, Oct. 2015
64. "Futures of Manufacturing", ConfigIt Summit, Georgia, Sep 2015
65. "2D and 3D Vision for Robotics", *ICVS-2015*, Copenhagen, Jul. 2015
66. "Vision based robotics", BAU Futures of Robotics, Istanbul, Jun. 2015
67. "Collaborative Robotics", ISR/Automate 2015, Chicago, March 2015
68. "The Future of Fabrication", IEEE *Time Symposium*, San Jose, October 2014
69. "A perspective on collaborative robotics", *RIA Collaborative Robotics*, San Jose, October 2014
70. "Robot Dreaming", *CLSA Asian Forum*, Hong Kong, Sep 2014
71. "The confluence of robotics and automation", *CASE Keynote*, Taipei, August 2014
72. "Collaborative Robotics", RIA Workshop, Boston, April 2014
73. "Future opportunities in Robotics", *Economic Forum*, Tokyo, March 2014
74. "Cognitive Robotics", Karles Invitational, *Navy Research Laboratory*, January 2014
75. "A perspective on the future of robotics", *GE Leadership Conference on Robotics*, Albany, Dec 2013.
76. "Design of cooperative robot systems". UT Arlington *Distinguished Engineering Lecture*, Dec. 2013.
77. "Economic driver for robotics", *Robot Business*, St. Monica, Oct. 2013
78. "Robots for Everyone", *TEDxEmory*, Atlanta, April, 2013
79. "Examples of next generation robot systems", 5th Annual IEEE International Conference on Technologies for Practical Robot Applications (TePRA), Boston, April 2013.
80. "The impact of robotics on economic growth", *Automate/ProMAT*, Chicago, IL, Jan 2013.
81. "A perspective on robotics", IROS — International Research Panel, Oct 2012.
82. "Robotics and autonomous cars", *AUVSI Driverless cars symposium*, Detroit, June 2012
83. "Setting an agenda for robotics", Dutch Government Conference, Amsterdam, June 2012.
84. "A vision for robotics", USC Futures of Robotics Symposium, Los Angeles, CA. Dec. 2011
85. "A vision for the future of robotics", Intl. Symposium on Robot Systems, San Francisco, CA, Oct 2011
86. "A Roadmap for Robotics", National Science Foundation, Washington DC, June 2010.
87. "A Vision for US Robotics", Booz Allen Hamilton — Distinguished Lecture, Washington DC, April 2010.
88. "Cognitive systems and a vision for the road ahead", IRT Symposium, Tokyo, May 2010.
89. "A Robotics Roadmap for the Future", AUVSI Annual Meeting, Huntsville, AL, Mar 2010.

90. "A US Roadmap for Robotics", The Netherlands Office for Science and Technology Annual Conference, The Hague, Nov 2009.
91. "Leonardo Da Vinci — Machines & Robots", High Museum of Modern Art, Atlanta, GA, June 11, 2009
92. "Robotics Roadmap: Internet to Robotics", US Congressional Caucus, Washington, DC, May 23, 2009.
93. "Human Augmented Mapping", Franklin Symposium to honor Dr. Ruzena Bajcsy, University of Pennsylvania, Philadelphia, PA. April 2009.
94. "From Internet to Robotics", Schunk Expert Days, Stuttgart, Germany, February, 2009.
95. "Mobile Manipulation Systems", *Intl. Conf on Control and Automation Systems*, Seoul, Korea, October 2008.
96. "Evaluation of Ground Robots for Military Use", *European Land Robot Trial (ELROB)*, Hammelburg, DE, July 2008.
97. "Deployment of Robots for Economic Growth", *International Conference on Advanced Robotics*, Jeju Island, Korea, August 2007.
98. "Vision for Cognitive Systems", *Scandinavian Conference on Image Analysis*, Aalborg, DK, June 2007.
99. "Industrial Applications of Robotics", *RoboBusiness 07*, Boston, MA, May 2007
100. "Personal Robots", *HRI Pioneers*, Washington, DC, March 2007
101. "Semantic Mapping", *Australian Robotics Conference*, December 2006.
102. "Cognitive Systems for Cognitive Assistance", *Australian Artificial Intelligence Conference*, December 2006.
103. "Evaluation of Robots for Human-Robot Interaction", *Performance Metrics for Intelligent Systems Workshop*, NIST, Gaithersburg, August 2006
104. "Robot Vision - Vision or Robotics?", *British Machine Vision Conference*, London, UK, June 2006.
105. "A European Perspective on Robotics", *Intl. Symposium on Robotics, Tokyo*, Dec. 2005.
106. "Personal Robotics", *Artificial Intelligence and Synthesis of Behaviour (AISB)*, Hertsfordshire, UK, April 2005
107. "A Game Theoretical Approach to Information Fusion", *Fusion-04*, Stockholm, June 2004.
108. "Domestic Robot Systems", *Mediterranean Control Conference*, Lisboa, PT, 2002.
109. "Active Vision from Multiple Cues", *Biologically Motivated Computer Vision*, Seoul, Korea, May 2000.
110. "Intelligent Robot Systems", *Intl. Joint Conf. on Artificial Intelligence*, Stockholm, August 1999.
111. "Computer Vision Systems", *European Conference on Artificial Intelligence*, Amsterdam, August 1994.

Patents and Invention Disclosures

Mobile Robot, P. Jensfelt & H.I. Christensen, World Patent (EP1804149).

Förfarande för en anordning på hjul (Eng: Methods for a thing on wheels), G. Zunino & H.I. Christensen, Swedish Patent (SE0200197)

Position Estimation Method, H.I. Christensen & G. Zunino, World patent (WO03062937)

FoD Detection using Laser Scanning, A. Trevor & H. I. Christensen, GT Invention 5850 / Prov. Patent 61/694,361

Verification of as Built Structures, A. Trevor & H.I. Christensen, GT Invention 5851 / Prov. Patent 61/694,378

CAD Simplification for Visual Servoing. C. Choi & H.I. Christensen, GT Invention 5162

Mapping with Virtual Measurements, J. G. Rogers, A. Trevor and H. I. Christensen, GT Invention 5160

Optical Measurements of Drilled Holes, K. Hatzilias, H. Bergman, & H. I. Christensen, US Patent 8,842,273

A method for relieve confusion in Alzheimer patients based on in-Ear EEG monitoring, H. I. Christensen & T. Anderson (Provisional 2016)

Robotic Destination Dispatch Sytem for Elevators and Methods for Making and Using Same,, S. Park, M. Bray, A. Cosgun & H. I. Christensen, US Patent (US20190345000A1), 2018

VI. SERVICE

Professional Service

Academic Community Service

- Chair of Advisors, Robotics Program, MBZUAI, Abu Dhabi 2023–2024
- World Robotics Summit — Advisory Board (NEDO) 2016–2020
- UMD Maryland Robotics Center — Member of advisory board 2019–2025
- Data Ethics Expert Group — Danish Department of Commerce . . . . Jan—Oct 2018
- National Research Council / National Academies - Panel on "Automation / IT and it impact on Employment" 2015–2017
- Founder and Coordinator of US Robotics Virtual Organization 2012–2016
- Member of College Industry Council on Material Handling Education (CICHME) w. Material Handling Industry of America 2012–2014
- Member of Board — Danish Foundation for Strategic Research - Strategic Growth Technologies 2011–2014
- Member of NSF CISE Advisory Board 2011–2015
- Member of Robotics Technology Consortium (RTC) Board 2011–2014
  Senior Technology Seat/CTO (2013–2014)
- Chair of CCC road-mapping committee for formulation of a national strategy for robotics 2008–2009
- Member of Advisory Board — Bio-Robotics Prog. Univ. of Utah 2008–2013
- Member of Advisory Board — NSF Ctr. Quality of Life Technology, CMU . 2007–2014
- Member of Scientific Advisory Board, Robotics Institute, CMU. 2004–2018
- IEEE RAS Distinguished Lecturer in Robotics 2004–2006
- Member of academic board for KTH 2003–2007
- Member of the Board of Trustees the Swedish Foundation for International Cooperation in Research and Higher Education – STINT, Appointed by the Swedish Government 2002–2007

- Served on Ph.D committees in Norway, Sweden, U.S.A., Portugal, France, Belgium, Canada, Australia, Netherlands, Germany Spain, U.K. and Denmark for a number of candidates

Involvement with professional organizations

- A3 Committee on AI 2018–
- Robot Industry Association (RIA) — Board Member at Large 2013–2016
- IEEE liaison with Congressional Caucus on Robotics 2015–2019
- IEEE Fellow 2015
  Senior Member 2008–2014
  Member 1988–2007
  Computer Society, and Robotics and Automation Society.
  - IEEE Fellow Selection Committee 2017–2021
  - RAS TAB Member at Large 2008–2009
  - RAS Award Nominations Co-Chair 2008, 2009
  - RAS STCP Member 2006–2009
- Founding chairman for the Danish OS-9 User Group 1992–1992
  Board member 1994–1996
- Danish Chapter of the International Association of Pattern Recognition, Secretary 1989–1994
- Founding chairman of the Danish Silicon Graphics Users Group 1993–1995
- Co-editor of UN/IFR World Robotics — Section on Service Robotics (w. Martin Hägele & Jan Karlsson) 2002–2003

Campus Service

- SCIDS Founding Dean, Search Committee 2024–2025
- CSE MSCOM member . . . . . 2017 —
- Robotics Area Hiring Chair . . . . . 2017 —
- CSE Robotics Concentration Chair . . . . . 2017 —
- HDSI Senior Recruiting Committee 2019–2020
- Robotics Area Chair (IC/CoC) 2015–2016
- Devices Thread Coordinator (CoC) 2015–2016
- Member of CoC Dean 5 year review committee 2015
- PhD Recruiting Chair, SIC 2014–2015
- Member of AE faculty hiring committee 2013–2014
- Member of ISYE Coca-Cola Chair Search Committee 2013–2014
- Member of External Faculty Board, Georgia Tech Manufacturing Institute 2012–2014
- Member of Interim Steering Committee for Institute for Big Data 2012–2013
- Chair Search Committee for Chair of School of Computer Science, CoC, ... 2011–2012

- HUSCO-Ramierez Search Committee, School of Mechanical Engineering, Spring 2011–2013
- Co-chair of IC Awards Committee, ... 2012
- Member of IC Awards Committee, ... 2011
- Member of CoC RPT Committee, ... 2009–2013
- Member of Selection Committee for Dean of College of Computing, . . . 2009–2010
- Member of School Chair Evaluation Committee — Interactive Computing, . . . 2009
- Member of Selection Committee for Senior Vice Provost for Research and Innovation (SVPRI), ... 2007

Reviews for conferences and journals

- Performed journal reviews for IEEE Trans. on Patt. Anal. Mach. Intell., Pattern Recognition, Pattern Recognition Letters, Intl. Jour. of Patt. Recog. and Artificial Intelligence, Artificial Intelligence Journal, Robotics and Autonomous Systems, Medical and Biological Engineering, Image and Vision Computing, Computer Vision and Image Understanding, IEE Proceedings: Signals, Speech and Vision, IEEE Signal Processing, IEEE Robotics and Automation, Machine Vision and Applications, IJCV, and Artificial Intelligence.
- Intl. Conf. on Patt. Rec., Technical Program Committee, Istanbul, August, 2010.
- Robotics Science and Systems, Associate Editor, Zaragoza, Jun 2010.
- Intl. Conf on Robotics and Automation, Associate Editor, Kobe, JP, May 2009
- BioRobotics 2006, PC member, Pisa, February 2006.
- International Symposium on Robot Systems (IROS), PC-member, Sendai, September 2004.
- Intl Symposium on Robotics, member of programme committee, Paris, June 2004.
- Information Fusion 2004, PC-member, Stockholm, June 2004.
- Intl. Conf on Robotics and Automation, member of prog. committee, Sendai, May 2004.
- Intl. Conf on Robotics and Automation, Member of Programme Committee, Taiwan, Sept. 2003.
- Multi-Sensory Fusion, MFI-2003, Member of Programme Committee, NINII, Tokyo, July Award29-August 1, 2003.
- International Conference on Advanced Robotics, Member of Programme Committee, Coimbra, June 2003.
- Mediterranean Control and Automation Conference, Member of Programme Committee, Lisboa, July 2002
- European Workshop on Robot Learning, Member of programme committee, Prague, September 2001.
- IARP Workshop on Technical Challenge for Dependable Robots in Human Environments, Member of Programme Committee, Seoul, Korea, May 2001.
- Scandinavian Conference on Artificial Intelligence, Member of PC, Odense, Denmark, February, 2001.
- International Conference on Robot Systems (IROS), Member of Programme Committee, Tokyo, Japan, October 2000.
- International Conference on Pattern Recognition, Member of Programme Committee, Barcelona, August 2000.

- Intelligent Autonomous Systems — 6, Member of International Advisory Board, Venice, July 2000.
- 6th European Conference of Computer Vision, Member of Programme Committee, Dublin, June 2000.
- International Joint Conference of Artificial Intelligence, Member of Programme Committee, August 1999.
- European Conference of Artificial Intelligence, Member of Programme Committee, Brighton (UK), 23–28 August 1998
- Empirical Evaluation of Methods in Computer Vision, IEEE Workshop, Member of Programme Committee, Santa Barbara, Ca, June 1998.
- 5th European Conference on Computer Vision, Member of Programme Committee, Freiburg, June 1998.
- Sensory Fusion and Decentralized Control in Autonomous Robotic Systems, SPIE Conference 3209, Pittsburgh, PA, Member of Programme Committee, October 1997.
- 5th International Robotics Symposium (IROS), Member of Programme Committee, Japan, August 1996.
- 14th Intl Conf on Pattern Recognition, Member of Program Committee, Vienna, August 1996.
- 4th Symposium on Intelligent Robotics Systems, member of programme committee, Lisbon, Portugal, July 1996.
- 4th European Conference on Computer Vision, Member of Programme Committee, Cambridge, May 1996.
- IEEE Workshop on Computer Vision. Member of Program Committee, Miami, December 1995.
- Symposium on Intelligent Robotics Systems ’95: Member of Programme Committee, Pisa, July 1995.
- 9th Scandinavian Conference on Image Analysis: Danish Member of Program Committee, Uppsala, May 1995.
- IEEE Applications of Computer Vision, Member of program committee, Sarasota, Fl., December 1994.
- Intelligent Robotics Systems ’94: Member of Program Committee, Grenoble, July 1994.
- Intelligent Robotic Systems ’93: Member of Program committee, Zakopane, July 1993.
- SPIE Application of AI XI: Machine Vision and Robotics, Member of Programme Committee and Session Chair. Orlando, April 1993.

Professional reviews

- Review of Graduate Programs, Faculty of Engr., Aalborg University, Aug 2018.
- Project and lecture reviewer at Faculty of Engr., University of Trondheim, Norway, 1994–1997.
- Served on professional appointment committees in Denmark, Spain, Sweden, Norway, United Kingdom, Belgium, Italy, France, Germany, Switzerland, South Korea, UAE, and U.S.A.

Reviews for funding agencies

- European Commission — Center Grants . . . . . Sep. 2023
- DFG — SFB Panel in Robotics / Embedded Systems, Bonn, . . . Jun. 2018, Oct. 2023
- EPSRC UK Robotics and Artificial Intelligence Hubs in Extreme and Challenging Environments . . . . . Jun. 2017
- EPSRC UK Robotics Research . . . . . Jan. 2017
- Italian Institute of Technology (RPT) . . . . . Jun. 2015
- JST — ERATO Selection Committee . . . . . Jan. 2014
- EU Cognitive Systems, IP Reviewer, ... , 2013
- NSF Expedition Panel (phase II), ... , Spring 2012
- SSF Successful Research Leaders — Sweden, ... Spring 2011
- US Army Basic Research Review Panel, ... July 2010
- SSF Future Research Leaders — Sweden, ... June 2010, June 2013
- High Technology Foundation — Denmark, ... May 2010
- NSF ad-hoc project reviews . . . . . , 2009–
- NSF IGERT Panel, ... May/June 2009.
- NSF Computer Infrastructure Grant Panel, ... Nov. 2008
- Army Research Laboratory, Basic Research Review, ... Spring 2008
- Adviser/Expert to EU DG-III Long Terms Research Office in the areas of "robotics" and "computational vision" 1995–2006
- Scientific Advisor to the Swedish Foundation for International Cooperation in Research and Higher Education, STINT 2000–2002
- Member of the Danish Reviewer Panel for Computer Science, Ministry of Education, ... 1995–1998, 2003–2005.
- Proposal reviewer for ESPRIT DG-XIII Basic Research office for the ESPRIT III and IV call for proposals and DG-III Long Term Research Office . . . . . 1999–2004.
- Member of SSF Japan committee for Swedish — Japanese Collaboration on Interdisciplinary Research 2001–2002
- Member of the Danish Reviewer Panel for Electronic Engr., Ministry of Education, ... 1995–1998.
- Action reviewer for ESPRIT DG-III Basic Research, Long Term Research, and Essential Technologies offices for several EU Projects 1993–1998
- Member of International Review Panel: "Embedded Systems" for the Swedish National Board for Industrial and Technical Development, NUTEK, ... May 1996.

Editorial Leadership

Advisory Editor *IEEE Robotics and Automation Practice*, ... 2024–

Associate Editor *IEEE Trans. Field Robotics*, ... 2019–

Associate Editor for *Science Robotics*, ... 2017–

Associate Editor of MIT Press series on "Intelligent Robotics and Autonomous Agents", ... 1997–

Editorial Board of *Advanced in Interaction Studies*, ... 2010–2024

Advisory Board Member *AI Magazine* 2021–2023

Chair Advisor board for *IEEE Transactions on Automation Science and Engineering (T-ASE)* 2014–2015

Co-editor-in-chief for *Briefs in AI*, Atlantic Press, ... 2015–2018

Associate Editor *Journal of Field Robotics* 2014–2020

Advisor board for *IEEE Transactions on Automation Science and Engineering (T-ASE)* 2013–2014

Senior Advisory Board *Journal of Human-Robot Interaction* 2012–2016

Co-Editor in Chief of *Trends and Foundations in Robotics*, ... 2009–2020

Associate Editor of *Image and Vision Computing*, ... 2009–2015

Associate Editor of *Service Robotics*, ... 2005–2010

Associate Editor of *Autonomous Robots*, ... 2005–2009

Associate Editor of *International Journal of Robotics Research*, ... 2002–2021

Associate Editor of "Springer Tracts in Advanced Robotics", ... 2001–2015

Associate Editor of AAAI *AI Magazine* 2000–2007

Associate Editor of *Journal of Pattern Recognition and Artificial Intelligence*, WSP 1997–2005

Associate Editor of *Journal of Machine Vision and Applications*, Springer Verlag 1996–2004

Associate Editor of IEEE *Transactions on Pattern Analysis and Machine Intelligence* 1999–2003

Associate Editor *Robotics and Autonomous Systems* journal, Elsevier, Competition Corner, ... 1999–2002

Leadership in organisation of meetings:

ICRA-2028, General co-chair, Guadaljara, MX . . . . . May 2028

IROS-2026, Finance co-chair, Pittsburgh, PA . . . . . October 2026

ISER-2025, Co-Organizer, Santa Fe, NM, ... July 2025

ISRR-2024, Co-organizer, Los Angeles, CA . . . . . November 2024

EON - Edge of Now, Advisor, Laguna Beach, ... September 2023

Intl Conference on Vision Systems - PC-Co-Chair, Vienne, ... Oct 2023

EON - Edge of Now, Chief Advisor, Palm Springs, ... October 2022

Gordon Research Conference on Robotics, General Chair, Ventura, ... , August 2022

ICPR-2022 - General Co-Chair, Montreal, ... August 2022

ICRA-2022 - Chair of Forums, Philadelphia, ... May 2022

IROS Corporate Relations, Prague . . . . . Sep 2021
Intl Conference on Vision Systems - PC-Co-Chair, Vienne, ... Sep 2021
ISER-2021 - Organizing Committee, Malta . . . . . Mar 2021
IROS-2020 - Corporate Relations, ... Oct 2020
ISRR-2019 - Co-organizer, Hanoi . . . . . Oct 2019
ICRA-2018 - Government Forum Co-Chair . . . . . June 2018
ICRA-2017 - US Program Co-Chair, Singapore . . . . . May 2017
ISRR-2015 - US Chair, Italy . . . . . Sep. 2015
5th IDEAS - Surgical Robotics WS, Harvard Medical School, Co-organizer, . . . Mar. 2015
IAS-13, Steering Committee, Venice, ... Jul. 2014
4th IDEAS - Surgical Robotics WS, Harvard Medical School, Co-organizer, ... Apr. 2014
8th Schunk Expert Days, Co-Chair, Lauffen, DE, ... Feb 2014
ISRR-2013, Finance/US Chair, Singapore, ... Dec. 2013
3rd IDEAS - Surgical Robotics WS, Harvard Medical School, Co-organizer, . . . Apr. 2013
7th Schunk Expert Days, Co-Chair, Lauffen, DE, ... Feb 2013
IROS-2012, Senior Program Committee, Portugal, ... Oct. 2012
IAS-12, Regional Program Chair, Seoul, Korea, ... Aug. 2012
ICRA-2012, General Co-Chair, ... May 2012
2nd IDEAS Symposium, Co-organizer, Harvard Medical School, ... April 2012
IROS-2011, Special Symposium Committee, ... Oct. 2011
ISRR-2011, General Chair, Flagstaff, AZ, ... Aug. 2011
Ro-Man 2011, General Chair, Atlanta, GA. . . . . Aug. 2011
Schunk Expert Days, Co-Chair, Lauffen, DE, ... Feb 2011
IAS-11, Program Chair, Ottawa, Canada, ... Aug. 2010
Schunk Expert Days, Co-Chair, Lauffen, DE, ... Feb 2010
Ro-Man 2009, PC - Co-Chair (Americas), Toyama - JP, ... Sep. 2009.
IROS-2009, US Program Chair, Lucerne, CH, ... Sep. 2009.
Schunk Expert Days, Co-Chair, Lauffen, DE, ... Feb 2009
HRI - 2008, Senior Programme Committee, Amsterdam, ... April 2008,
IROS, US Program Chair, Nagasaki, ... Nov. 2007.
ICRA-2007, Programme Co-chair – Europe, Rome, ... April 2007.
HRI 2007, Senior Program Committee, Washington, ... March 2007.
HRI 2006, Senior Programme Committee, Utah, ... March 2006,
19th Intl Joint Conf on Artificial Intelligence, Edinburgh,
Senior Program Committee, ... Aug. 2005.

ICRA-2005, European Programme Co-Chair, Spain, ... April 2005.

Field deployable robots, NATO IST Workshop, Co-chair, Bonn, ... Sept 2004

RAS-IFRR Summer school on "Human-Robot Interaction", Co-organiser,
Volterra, ... July 2004.

Robotics demining, Brussels, co-organiser, Belgium, ... June 2004.

Wallenberg Symp. on Sensing and Feeling, Co-organiser, ... May 2004.

Educational Robotics, Co-organiser, ICRA-04 Workshop, New Orleans, ... April 2004.

Challenges in Cognitive Vision, NIPS workshop, Co-organiser, ... Dec. 2003

Cognitive Vision Systems, Dagstuhl Seminar, Co-organiser, ... Oct. 2003

Nobel Symposium on Neural Control of Skilled Hand Movements:
Cognitive and Computational Aspects, Stockholm, Co-organiser, ... June 2003.

Intl Conference on Vision Systems, Steering Committee, Graz, ... Mar. 2003.

WS on Control Problems in Robotics and Automation,
General Chair, Las Vegas, ... Dec. 2002.

IROS-2002, European/African Programme Chair, Lausanne, ... Oct. 2002.

International Symposium on Robotics, Service Robotics Chair, Stockholm, . . . Oct. 2002.

WS on Robot Dependability, IARP, Organising Committee, ... Oct. 2002.

Wallenberg Symp. on Learning and Memory: Brains to Robots,
Member of Organisation Committee, Stanford, ... Oct. 2002.

Summerschool on "Simultaneous Localisation and Mapping",
Organiser, Stockholm, ... Aug. 2002.

ECAI, Vision-Robotics Chair, Toulouse, ... Aug. 2002.

ICPR, Computer Vision Co-Chair,
Quebec City, ... Aug 2002.

Tutorial on "Mobile Robot Programming Paradigms", Co-organiser
(with Greg Hager, JHU), ICRA-2002, Washington, ... May 2002.

3rd Ws. on Empirical Eval. Methods in Comp. Vis., Co-Chair, Maui, ... Dec. 2001.

WS on Computer Vision Systems, Co-Chair, Victoria, Canada, ... July 2001

Modeling of Sensor Based Intelligent Robot Systems,
Co-organizer, Dagstuhl, Wadern, ... Oct. 2000.

1st Swedish Autonomous Robotics Symposium, Co-chair, Örebro, ... Oct. 2000.

ECAI, Area Chair (Robotics and Vision), Berlin, ... Aug. 2000.

2nd International WS on Perf Char., European Programme Chair, Dublin, ... June 2000.

1st ICVS, Las Palmas, Programme Chair, ... Jan. 1999.

Environmental Modelling for Mobile Robotics, Schloss Dagstuhl Workshop,
Weidern, Co-organiser, ... Sep. 1998.

Knowledge Based Methods for Computer Vision, Schloss Dagstuhl Workshop, Weidern,
Co-organiser, ... Dec. 1997.

5th SIRS, Programme Chair, Stockholm, ... July 1997.

Performance Characteristics of Vision Algorithms, Co-chair programme committee with Prof. W. Förstner, Cambridge, UK, ... April 1996.

Active Vision Hardware Workshop, Co-Organiser w. Prof. J.L. Crowley, Grenoble, France, ... Feb. 1995.

Nordic Summer School on Active Vision and Geometric Modelling, Organiser. Rebild Bakker, Aalborg, ... Aug. 1992.

SPIE Applications of Artificial Intelligence X: Machine Vision and Robotics, Programme Committee, Organiser and chairman of session on "How to Design a Robot Head". Orlando, ... April 1992.

7th Scandinavian Conference on Image Analysis. Chair of Local Arrangements. Aalborg, ... Aug. 13–16, 1991.

Topical Workshop on Symbolic Reasoning in Scene Interpretation, Co-organiser, LIFIA, France. ESPRIT Vision Workshop Week. Crete, ... Sep. 1990.

Topical Workshop on Perceptual Control, Co-organiser, Aalborg University. ESPRIT Vision Workshop Week. Crete, ... Sep. 1990.

4th Aalborg Symposium on Vision: Concurrent Computer Vision '89, Co-organiser, Institute of Electronic Systems, Aalborg, ... Jan. 24–26, 1989.

3rd Aalborg Symposium on Vision: Hybrid Methods '87, Co-organiser, Institute of Electronic Systems, Aalborg, ... Dec. 10–11, 1987.

2nd Aalborg Symposium on Vision: Robot Vision '86, Co-organiser, Institute of Electronic Systems, Aalborg, ... Dec. 15–17, 1986.

Research Grants:

SAAB: Sensor Fusion and AI for Security Applications ($100k, 2025), PI

IHI: Evaluation of scaleable navigation framework for the real-time multi-robot coordination, ($500k/yr, 2023–2026), PI

Nissan: Mapping, Estimation and Planning for Intelligent Vehicles ($160k/yr, 2023–2025), PI

ONR: Naval Innovation and Translation ($12.5M, 2023–2027), Co-PI

Qualcomm: Behavior Prediction for Autonomous Vehicles ($80k, 2023–2024), PI

ARL: Distributed Collaborative Intelligent Science and Technology ($2.9M (UCSD), 2022–2027), Co-PI

Qualcomm: Intent Recognition of Unprotected Road Users ($80k, 2022–2023), PI

Qualcomm: Behavior Based Path-Planning ($80k, 2022–2023), PI

ONR: DURIP — Computing Resources for Machine Learning ($575k, 2022–2023), Co-PI

Amazon: Pedestrian Dataset ($248k, 2022–2023), PI

Qualcomm: Open Source Robotics Platform ($320k, 2021–2022), PI

NSF: AI Institute for Learning-Enabled Optimization at Scale (TILOS) ($20M, 2021–2027), Co-PI

NSF: Human-centered, integrated mobility for disadvantaged communities in the San Diego region ($50k, 2021), Co-PI

Qualcomm: Innovation Fellowship ($100k, 2020–2021), PI

ONR: DURIP — Instrumentation for the AeroDrome ($500k, 2020) Co-PI

LGe: ROS 2.0 Service Robot ($150k, 2019), PI

RPD Innovation: Robotics and Artificial Intelligence (AI) System for Industry 4.0, ($574k, 2019–2020), PI

SPAWAR: Intelligent Diagnostics of V-22 Osprey ($1M, 2020), Co-PI

SPAWAR: Data Science Support for SPAWAR 4.0 Logistics ($500k, 2018–2020), PI

TuSimple — Assessment of Level 4 Autonomy in Trucks, ($250k, 2018–2019), PI

ARL: Autonomous Resilient Cognitive Heterogeneous Swarms (DCIST) — ($6.3M, 2018–2022), UCSD PI

LGe: Tools for embedded robots development ($125k, 2017), PI

Qualcomm: Long-Term Autonomy ($80k, 2017), PI

NSF: NRI:Workers, Firms, and Industries in Robotic Regions ($784k, 2016–2017), Co-PI

NSF: Revision of the national robotics roadmap ($35k, 2016), PI

Boeing: Fixture Less Machining ($200k, 2016–2017), PI

Boeing: Assembly Inspection using Augmented Reality ($49k, 2015), PI

Thyssen Krupp: Robot Control for Elevators, ($80k, 2014–2015), PI

Boeing: Augmented Reality ($49k, 2014)

NSF: NRI: Representing and Anticipating Actions in Human-Robot Collaborative Assembly Tasks ($800k, 2014-2016), Co-PI.

NSF: NRI PI Meeting ($114k, 2014), PI

NSF: EAGER - Physical Flow and other Industrial Challenges, ($300k, 2014-2015), Co-PI

NSF: Opportunities in Manufacturing, Robotics and Computer Science ($48k, 2013-2014), PI

Boeing: High precision robot manufacturing ($600k, 2013-2015), PI

Boeing: Vision for Augmented Reality ($17k, 2013), PI

NSF: NRI PI Meeting ($104k, 2013), PI

Micro Autonomous Systems Technology - Army Research Laboratory CTA: Autonomy (2013-2017) - PI for GT ($1.9M). Lead UPENN (Total $20M)

PSA: Robotics for Automotive Assembly ($910k, 2013-2015), PI

BMW; Support on the Shop-Floor Using Modern Robots ($750k, 2012-2015), Co-PI

Mitsui/Motoman: Laboratory Automation ($164k, 2012-2014), PI

NIST: Robots for Kitting ($99k. 2012-2014). PI

Boeing: Wing Assembly ($1.4M, 2011-2014), PI

NSF: Robotics Virtual Organization ($100k, 2011-2013), PI

NSF: Motion Grammer Laboratory - Equipment Grant ($330k, 2011-2013), Co-PI

Boeing: UGV Navigation for OmniMove ($146k, 2010), PI

MSR: Computer Vision Library for RDS ($25k, 2010), PI

MSR: Software Engineering for Robotics ($75k, 2010), PI

NIST: Mixed Palletizing ($170k, 2009-2012), PI

KOTEF: Cognitive Consumer Robots ($2.4M, 2009-2011), GT-PI

NSF: Young Researchers Workshop - 2009 ($24k), PI

NRL: Disruptive Technologies for General Infra-structure ($25k, 2008-2009), PI

GM: Factory CoWorker - ($400k/yr, 2008-2010), Co-PI

Boeing: Factory of the Future - Robotics ($700k, 2008-2014), PI

KUKA: UGV Survey, KUKA Roboter, Germany, Oct. 2008 ($6k) PI

Micro Autonomous Systems Technology - Army Research Laboratory CTA: Autonomy (2008-2013) - Co-PI for GT ($4M). Lead UPENN (Total $33M)

CCC: From Internet to Robotics: The Next Transformational Technology ($200k, 2008-2009), PI

KUKA: Unlayering, KUKA Roboter, Germany, Jul. 2008 ($18k)

KUKA: Exploratory research on diagnostics and navigation, KUKA Roboter, Germany, Spring 2008 ($55k)

CEC: CoSy - Cognitive Systems for Cognitive Assistants, IP Project, Coordinator (11M EUR, 2004-2008)

VR: Multi-Modal Mapping (1.7M SEK, 2006-2008), PI.

CEC: Neurobotics – Neuroscience/Robotics, IP Project, Co-investigator (6.4 M EUR, 2004-2007)

CEC: Cognitive Companion – Cogniron, IP Project, Co-investigator (6.8M EUR, 2004-2007)

CEC: EURON-II – EU Network of excellence within “beyond robotics” – Coordinator (5.8M EUR, 2004-2007)

SSF, Autonomous Systems, Principal Investigator – Director (7 M SEK, 2003–2006)

FMV: Intelligent Unmanned Vehicles, Technology Demonstrator, Coordinator, (8M SEK, 2001-6).

FMV: UGV control using the universal control station, 2005 (200k SEK)

CEC: Cognitive AI Enabled Computer Vision network, Research Co-ordinator, (3.4 M EUR, 2002-2005).

STINT: Institutional Grant for KTH-ANU Collaboration in the area of Collaborative Robotics, Co-chair (2M SEK, 2001-2005).

CEC: CogVis – “Cognitive Vision”, IST Research Project (IST-2000-29375), Coordinator, (4 M EUR, 2001–2004).

FOI: “Information Fusion”, academic co-chair, (1.8M SEK, 2001-2004).

CEC: OROCOS – “Open Robot Controller Software”, (IST-2000-31064), Co-investigator (60k EUR, 2001-2003).

CEC: EURON – European Robotics Research Network (IST-2000-26048), Coordinator, (1.035M EUR, 2000-2003)

CEC: PCCV – “Performance Characterisation of Computer Vision”, co-principal investigator, (180k EUR, 2000-2003)

NUTEK Complex Technical Systems “Sensory Fusion for Robot Navigation”, (1.8M SEK, 1999-2001)

NUTEK Complex Technical Systems “Architectures for Mobile Robotics”, (2.2M SEK, 1999–2001)

Foundation for Strategic Research: Centre for Autonomous Systems (63M SEK, 1997-2001). Scientific Director.

CEC: TMR network “CAMERA”, co-principal investigator (104k EUR, 1998-2001)

NUTEK Exploratory Grant “Intelligent Crane Control”, co-principal investigator, (450 k SEK, 1999-2000)

NUTEK Exploratory Programme Grant “Intelligent Outdoor Vehicles”, (200k SEK, 1999)

STINT Visiting Professor Grant (for Prof. Ronald Arkin) (755k SEK, 1997–1998).

CEC: TMR Network on “Vision for Robot Guidance”, Co-proposer and local manager (1.4M EUR, 1996–1997).

CEC: TMR Network on “Sensory Mobile Autonomous Robot Technology II”, Co-proposer and local manager. (2.3M EUR, 1996–1997).

Danish Technical Research Council: “Reconstruction and Visualisation of 3D Structures based on In-vivo Image Analysis”, Principal Investigator (1.014M DKK, 1995–1998).

EEC: European Network of Excellence in Computer Vision, Co-proposer and Principal Investigator (2M EUR, 1994–1998).

EEC: HCM Network on “RETINA: Active Vision”, Co-proposer and local manager. (3M EUR, 1994–1997).

LUKAS/SPIN: Software Process Improvement Network. Funded by EU and Regional Council for North Jutland. Member of Board and Principal Investigator (8M DKK, 1995–1996).

EEC: HCM Network on "Sensory Mobile Autonomous Robot Technology", Co-proposer and local manager. (2.9M EUR, 1993–1995).

DOAP: Data Acquisition, - Analysis, and Presentation, LUKAS – Regional Development Fund, North Jutland Regional Council, Co-Proposer and Technical Coordinator. (6M DKK, 1993–1995). Member of Executive Board for the LUKAS software quality assurance project (1994–1995).

EEC: Vision as Process-II, P-7108-VAP-II, Co-proposer and local manager (3M EUR, 1992–1995).

NorFa: Nordic Research Network on Computer Vision, Co-proposer and ass. coordinator. (150k DKK, 1992–1995)

EEC: Vision as Process, BR-3038-VAP, Co-proposer and local manager (4.7M EUR, 1989–1992).

NorFa: Nordic Ph.D Summer School, Rebild, August 1992, Proposer and coordinator. (200 k DKK)

Gifts:

Qualcomm: Computing support for CSE276A Class ($40k, 2025)

Qualcomm: Autonomous Driving Project ($100k, 2025)

Northrup Grumman: Human-AI teaming ($100k, 2024–2025)

IHI: Warehouse Logistics ($150k, 2024–2025)

Mercedes-Benz: 4D-NERF study ($50k, 2024)

ILA: Robot Manipulator Testbed ($300k, 2023)

Nissan: Scene Modeling & Planning ($50k, 2023)

Northrup Grumman: Autonomous Systems ($320k, 2021–2023)

Qualcomm: Robotics using the Qualcomm Platform ($350k, 2021–2022)

LGe: Next Generation Home Robots ($120k, 2019–2020)

Qualcomm/UCSD: Digital Collaboratory in Smart Transportation ($350k, 2017–2018)

Honda, Collaborative Robotics ($50k, 2018, 2019)

Northrup Grumman Group, AUS systems ($100k, 2018)

Qualcomm: Contextual Robotics ($800k, 2017–2018)

Qualcomm: Long-term autonomy ($125k, 2017)

Kelly Family: $20k grant for distinguished lecture series on robotics and employment (2015–2016)

Intel: $10k equipment donation (2015)

National Instruments: $80k equipment donation (2011–2012).

Coca Cola Bottling Company: $2M equipment donation for setup of a logistics laboratory (2011).

Private Donation: $5k award money for the Dick Volz PhD Award (2011)

General Motors: $12k for promotion of next generation manufacturing (2010)

KUKA: Endowment ($1.5m, 2016)

Honors and Awards:

ICRA-2024 - Best Paper Award - Open X-embodiment: Robotic Learning Datasets and RT-X, May 2024

IAS-16 Best Paper Award - TridentNet w. D. Paz, H. Zhang, June 2021

Silicon Valley Robotics - Community Champion Award, 2020

Elected Fellow, Institute of Electrical and Electronic Engineers (2015)

Honorary Doctorate in Engineering (Dr. Techn. h.c.), Aalborg University (2014)

Elected Fellow, American Association for the Advancement of Science (2013)

Boeing Supplier of the Year Award (2012)

Dean's Award, College of Computing, GT (2012)

The Joseph Engelberger Award, Robot Industry Associations (RIA - 2011)

Outstanding Innovation in Research, Faculty Award, Georgia Tech (2011)

Named IEEE Senior Technical Expert (2009–2012)

Peter Freeman Award, College of Computing, GT (2008)

Elected Senior Member of IEEE (2008–2014)

Elected Officer of International Foundation of Robotics Research (2003–)
There are at anytime only 24 officers – 8 from US, Asia and Europe, respectively.
Treasurer/Secretary for Technical Activities - Executive Officer (2010–)

ICRA-2004 Short-listed for best vision paper "Measurement Errors in Visual Servoing" authored by V. Kyrki, D. Kragic and H. I. Christensen.

ICRA-2003 Best Paper on Manipulation: "Automatic Grasp Planing using Shape Primitives" authored by A. Miller and S. Knopp, H.I. Christensen and P. Allen.

IROS-2002 Best Paper Award "Behavior Coordination for Navigation in Real-World Office Environments" authored by P. Althaus and H.I. Christensen.

Jury Member of Robot Hall of Fame (2003–2013), Carnegie Mellon University, Pittsburgh, PA.

The Foundation Vision North 1991 Research Award.
Contribution to advancement of research at the Laboratory of Image Analysis, Aalborg University.
August 1991.

December 27, 2025