# Curriculum Vitae
# for
# Dr. Henrik Iskov Christensen

## Personal Data

Name:

Henrik Iskov Christensen,
Born: Frederikshavn, Denmark

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Affiliation:

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## Professional interests:

A *systems* oriented approach to Machine Perception and Robotics, Image Interpretation and Control, Active Perception, SLAM, Information and Sensor fusion.

## Education:

1989 Ph.D, Faculty Council 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 lauda), Institute of Electronic Systems, Aalborg University, DK
Major subjects: Process Control and Image Analysis
Thesis: "Monitoring Moving Objects in Real-Time"

1981 Technical Assistant – Mechanical Engineering, Cert. of Apprenticeship (with honors), Frederikshavn Technical School, Denmark.

## Professional Experience:

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| Mar 2006 – | Director Georgia Tech Center for Robotics and Intelligent Machines (RIM@GT), an interdepartmental research center involving College of Computing, College of Engineering, and GTRI. |
| Feb 2006 – | Distinguished 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–Jul 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 specialising 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:

Member of NSF CISE Advisory Board (2011-2013)

Member of Robotics Technology Consortium (RTC) Board (2011-2012)

Member of Advisory Board - Bio-Robotics Prog. Univ. of Utah (2008–)

Member of Advisory Board - NSF Ctr. Quality of Life Technology, CMU (2007–)

Member of Scientific Advisory Board, Robotics Institute, CMU. (2004–)

Member of International Advisory Committee, Instituto Robotica e Systemas, Lisboa, Portugal, (1998–2008)

Member of the European Image Understanding Environment Design Committee, February 1994–1997.

Registered developer with Silicon Graphics Inc. (1993-1996).

Industrial Consultant:
C&S WholeSale (2010–)
MAG-IAS (2010–)
iRobot (2004-2006)
ABB (2001–2005)
Totoya Motor Company (2000–2004)
Scientific Advisor to Evolution Robotics, Glendale, CA (1998–)
Registered consultant for Apple Computers Inc. (DK) in the areas of networking and communication (1989-1995)
Development of a system for automatic real time obstacle detection on rail road crossings (DSB, 1988)

## Honors and Awards:

Engelberger Award - Innovation in Education, International Federation of Robotics (IFR - 2011)

Innovative Research Program, Faculty Award, Georgia Tech (2011)

Named IEEE Senior Technical Expert (2009–)

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

Elected Senior Member of IEEE (2008–)
An honor bestowed on less than 6% of its members

IEEE RAS Distinguished Lecturer in Robotics (2004-2006)

Elected Officer of International Foundation of Robotics Research (2003–)
There are at anytime only 24 officers – 8 from US, Asia and Europe, respectively.

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 "Behavour Coordination for Navigation in Real-World Office Environments" authored by P. Althaus and H.I. Christensen.

Jury Member of Robot Hall of Fame (2003–), 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.

**Editorial Leadership**

- Editorial Board of *Advanced in Interaction Studies*, (2010–)
- Editor in Chief of *Trends and Foundations in Robotics*, (2009–)
- Associate Editor of *Image and Vision Computing*, (2009–)
- Associate Editor of *Service Robotics*, (2005–2010)
- Associate Editor of *Autonomous Robots*, (2005-2009)
- Associate Editor of *International Journal of Robotics Research*, (2002–)
- Associate Editor of "Springer Tracts in Advanced Robotics", (2001–)
- Associate Editor of MIT Press series on "Intelligent Robotics and Autonomous Agents", (1997–)
- Associate Editor of AAAI *AI Magazine* (2000–2007)
- Associate Editor of *Journal of Pattern Recognition and Artificial Intelligence*, World Scientific Press (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)

## Patents

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)

## Publications

Books

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

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

[3] 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.

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

[5] 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.

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

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

[8] 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.

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

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

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

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

[13] 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.

[14] 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.

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

Book Chapters

[16] 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: Springe Verlag, May 2008.

[17] 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.

[18] 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.

[19] 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.

[20] 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.

[21] 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.

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

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

[24] 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.

[25] 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).

[26] 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.

[27] 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.

[28] 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.

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

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

[34] 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.

[35] 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.

[36] 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.

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

[38] 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.

[39] 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.

[40] 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.

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[44] 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

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

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

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

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

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

Refereed Jour. Papers

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

[51] 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.

[52] 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," *International Journal of Social Robotics*, 2010.

[53] 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.

[54] 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.

[55] 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.

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

[57] 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.

[58] 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.

[59] 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.

[60] 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.

[61] 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.

[62] 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.

[63] 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.

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

[65] 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.

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

[67] 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.

[68] S. Elfwing, E. Uchibe, K. Doya, and H. I. Christensen, "Darwinian embodied evolution of the learning ability for survival," *Adaptive Behaviour*, 2007.

[69] 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.

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

[71] 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.

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

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

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

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

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

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

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

[80] 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.

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[85] 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.

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[88] 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.

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

[92] 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.

[93] 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.

[94] 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.

[95] 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.

Refereed Conf. Papers

[96] J. G. R. 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.

[97] 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.

[98] J. G. R. 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.

[99] J. G. R. 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.

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[233] 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.

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[254] 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.

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Theses

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

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

## Keynote / Plenary Presentations

1. "A Roadmap for Robotics", National Science Foundation, Washington DC, June 2010.
2. "A Vision for US Robotics", Booz Allen Hamilton - Distinguished Lecture, Washington DC, April 2010.
3. "Cognitive systems and a vision for the road ahead", IRT Symposium, Tokyo, May 2010.
4. "A Robotics Roadmap for the Future", AUVSI Annual Meeting, Huntsville, AL, Mar 2010.

5. "A US Roadmap for Robotics", The Netherlands Office for Science and Technology Annual Conference, The Hague, Nov 2009.
6. "Leonardo Da Vinci - Machines & Robots", High Museum of Modern Art, Atlanta, GA, June 11, 2009
7. "Robotics Roadmap: Internet to Robotics", US Congressional Caucus, Washington, DC, May 23, 2009.
8. "Human Augmented Mapping", Franklin Symposium to honor Dr. Ruzena Bajcsy, University of Pennsylvania, Philadelphia, PA. April 2009.
9. "From Internet to Robotics", Schunk Expert Days, Stuttgart, Germany, February, 2009.
10. "Mobile Manipulation Systems", *Intl. Conf on Control and Automation Systems*, Seoul, Korea, October 2008.
11. "Evaluation of Ground Robots for Military Use", *European Land Robot Trial (ELROB)*, Hammelburg, DE, July 2008.
12. "Deployment of Robots for Economic Growth", *International Conference on Advanced Robotics*, Jeju Island, Korea, August 2007.
13. "Vision for Cognitive Systems", *Scandinavian Conference on Image Analysis*, Aalborg, DK, June 2007.
14. "Industrial Applications of Robotics", *RoboBusiness 07*, Boston, MA, May 2007
15. "Personal Robots", *HRI Pioneers*, Washington, DC, March 2007
16. "Semantic Mapping", *Australian Robotics Conference*, December 2006.
17. "Cognitive Systems for Cognitive Assistance", *Australian Artificial Intelligence Conference*, December 2006.
18. "Evaluation of Robots for Human-Robot Interaction", *Performance Metrics for Intelligent Systems Workshop*, NIST, Gaithersburg, August 2006
19. "Robot Vision - Vision or Robotics?", *British Machine Vision Conference*, London, UK, June 2006.
20. "A European Perspective on Robotics", *Intl. Symposium on Robotics, Tokyo*, Dec. 2005.
21. "Personal Robotics", *Artificial Intelligence and Synthesis of Behaviour (AISB)*, Hertsfordshire, UK, April 2005
22. "A Game Theoretical Approach to Information Fusion", *Fusion-04*, Stockholm, June 2004.
23. "Domestic Robot Systems", *Mediterranean Control Conference*, Lisboa, PT, 2002.
24. "Active Vision from Multiple Cues", *Biologically Motivated Computer Vision*, Seoul, Korea, May 2000.
25. "Intelligent Robot Systems", *Intl. Joint Conf. on Artificial Intelligence*, Stockholm, August 1999.
26. "Computer Vision Systems", *European Conference on Artificial Intelligence*, Amsterdam, August 1994.

## Leadership in organisation of meetings:

IAS-12, Regional Program Chair, Seoul, Korea, 2012

ICRA-2012, General Co-Chair, May 2012

IROS-2011, Special Symposium Committee, October 2011

ISRR-2011, General Chair, Flagstaff, AZ, August 2011

Ro-Man 2011, General Chair, Atlanta, GA. August 2011

IAS-11, Program Chair, Ottawa, Canada, August 2010

Ro-Man 2009, PC - Co-Chair (Americas), Toyama - JP, September 2009.

International Symposium on Robotics Research, US Program Chair, Lucerne, CH, September 2009.

Human Robot Interaction - 2008, Senior Programme Committee Member, Amsterdam, April 2008,

International Symposium on Robotics Research, US Program Chair, Nagasaki, November 2007.

Intl. Conference of Robotics and Automation, Programme Co-chair – Europe, Rome, April 2007.

Human Robot Interaction - 2007, Senior Program Committee, Washington, March 2007.

Human Robot Interaction - 2006, Senior Programme Committee Member, Utah, March 2006,

19th Intl Joint Conf on Artificial Intelligence, Edinburgh, Senior Program Committee Member, August 2005.

Intl. Conference of Robotics and Automation, 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.

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

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

Wallenberg Symposium 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 (w. B. Caputo and C. Wallraven), December 2003

Cognitive Vision Systems, Dagstuhl Seminar, Co-organiser (w H. H. Nagel), October 2003

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

Intl Conference on Vision Systems, Member of Steering Committee, Graz, March 2003.

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

International Conference on Robot Systems (IROS), European/African Programme Chair, Lausanne, October, 2002.

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

Workshop on Robot Dependability, IARP, Member of Organisation Committee, October 2002.

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

Summerschool on “Simultaneous Localisation and Mapping”, Organiser, Stockholm, August 2002.

European Conference on Aritificial Intelligence, Vision-Robotics Chair, Toulouse, August 2002.

International Conference on Pattern Recognition, Computer Vision Co-Chair, Quebec City, August 2002.

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

3rd Ws. on Emperical Evaluation Methods in Computer Vision, Co-Chair, Maui, December 2001.

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

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

First Swedish Autonomous Robotics Symposium, Co-chair, Örebro, October 2000.

European Conference on Artificial Intelligence, Area Chair (Robotics and Vision), Berlin, August 2000.

2nd International Workshop on Performance Characterisation, European Programme Chair, Dublin, June 2000.

First International Conf. on Computer Vision Systems, Las Palmas, Programme Chair, January 1999.

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

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

5th Symposium on Intelligent Robotics Systems, Programme Chair, Stockholm, July 1997.

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

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

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

SPIE Applications of Artificial Intelligence X: Machine Vision and Robotics, Member of Programme Committee, Organiser and chairman of 2 session on ”How to Design a Robot Head”. Orlando, April 1992.

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

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

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

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

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

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

## Professional Service

**Academic Service**

- Member of Board - Danish Foundation for Strategic Research - Panel on Strategic Growth Technologies (2011-2013)
- 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 (2002-2007). Appointed by the Swedish Government.
- Served on Ph.D committees in Norway, Sweden, U.S.A., Portugal, France, Belgium, Canada, Australia, Spain, U.K. and Denmark for a number of candidates
- GT - Chair Search Committee for Chair of School of Computer Science, College of Computing, 2011
- GT - HUSCO-Ramierez Search Committee, School of Mechanical Engineering, Spring 2011
- GT - Member of Selection Committee for Dean of College of Computing, Spring 09-Spring 10
- GT - Member of School Chair Evaluation Committee - Interactive Computing, Spring 09
- GT - Member of Selection Committee for Appointment of Senior Vice Provost for Research and Innovation (SVPRI), Spring 07

**Involvement with professional organizations**

- IEEE Senior Member (2008-), Member (1988–2007), Computer Society, and Robotics and Automation Society.
  - 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 (1992–1993), 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)

**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, Zaragosa, 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 29-August 1, 2003.
- International Conference on Advanced Robotics, Member of Programme Committee, Coimbra, June 2003.
  item Meditteranean 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 Aritificial Intelligence, Member of Programme Committee, Brighton (UK), 23-28 August 1998

- Emperical 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**

- 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, and U.S.A.

**Reviews for funding agencies**

- Danish Research Foundation - Board Member for Strategic Growth Technologies (2011-2012)
- SSF Successful Research Leaders - Sweden, Spring 2011
- US Army Basic Research Review Panel, July 2010
- SSF Future Research Leaders - Sweden, June 2010
- High Technology Foundation - Denmark, May 2010
- 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 committe 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.

**Research Grants:**

NSF: Robotics Virtual Organization ($70k, 2011-2012), PI

Boeing: Wing Assembly ($1.4M, 2011-2014), 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, 2009-2012), 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)

Micro Autonomous Systems Technology - Army Research Laboratory CTA: Autonomy (2008-2012) - 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:

Coca Cola Bottling Company: $1M 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)

## Teaching Experience:

Supervised or Co-supervised many ($>$60) M.Sc. level projects, many basic and advanced B.Sc. projects ($> 30$) in Electronic Engineering, Computer Engineering and Computer Science.

Chairman – Engineering of Computer Based Systems education at KTH (detailed proposal submitted - 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. specialisation in E.E. entitled “Industrial Computer Engineering”, Aalborg University, in 1994. The specialisation was successfully implemented on a trial basis (June 1994–July 1996).

Coordinator of E.E. Specialisation in Computer Engineering (June 1993–December 1995)

Ph.D supervision

1. "Semantic Mapping", Carlos Nieto (2013)
2. "Model Based Object Recognition", Changhyun Choi (2013)
3. "Mobile Manipulation", Jake Huckaby (2013)
4. "Vision Based SLAM", John Rogers (2012)
5. "SLAM Framework", Alexander Trevor (2012)
6. "HRI for Domestic Robots", Ja-Young Sung (2010) (Co-supervisor)
7. "High Performance Manipulation", Christian Smith (Dec. 2009)
8. "Semantic SLAM", Elin-Anna Topp (Lic. Oct 2006, Oct 2008)
9. "Deployment of Field Robots in Hazardous Environments", Carl Lundberg (Dec 2007)
10. "Evolutionary Learning for CyberRodents", Stefan Elfwing (Nov 2007)
11. "Information Fusion", Ronnie Johansson, (Lic. - Dec. 2003, Apr. 2006)
12. "Large Scale SLAM", John Folkesson, (Oct 2005)
13. "Architectures for Autonomous Systems", Anders Orebäck (Dec. 2004)
14. "Attention Systems", Ola Ramström, (Lic. Nov 2004)
15. "Learning in Behaviour Based Systems", Philipp Althaus, (November 2003)
16. "Structure from Motion", Marco Zucchelli, (June 2002)
17. "A Framework for Integration of Processes", Lars Petersson, (Mar 2002)
18. "Sensor Fusion for Navigation", Guido Zunino, (Lic. Feb 2002)
19. "Architectures for Autonomous Mobile Robot Navigation", Paolo Pirjanian, (April 1998)
20. "Sensor Planning for Mobile Robot Navigation", Steen Kristensen. (August 1996)
21. "A Framework for Control of a Camera Head", Claus S. Andersen (March 1996)
22. "View Planning for Quantification of Local Geometry", Claus Madsen (Oct. 1994).
23. "Towards Human-Robot Interaction", Kristian Simsarian, (Mar. 2000)
24. "Sonar Based World Modelling", Olle Wijk (April 2001)
25. "Approaches to Mobile Robot Localisation in Indoor Environments", Patric Jensfelt (June 2001)
26. "Visual Servoing for Manipulation: Robustness and Integration Issues", Danica Kragic, (June 2001)

Courses taught:

1. Software Engineering in Robotics (CS8803 – 2010)
2. Applied Estimation for Mobile Robotics (CS8803 – 2009, 2010)
3. Introduction to Robotics and Perception (CS3630 – 2008, 2009)
4. Mobile Manipulation (CS4632B/8803 – 2007, 2008)
5. Freshman Leap - Section Lead (CS1101 – 2007, 2009)
6. Motion Analysis (Graduate)
7. Biological Vision (Graduate)
8. Discrete Mathematics (Graduate)
9. Expert Systems (Graduate)
10. Behaviour Based Robotics (Graduate)

11. Computer Vision Techniques and Projective Geometry (Graduate)
12. Mobile Robotics (Graduate)
13. Structured programming (Undergraduate)
14. C-programming (Undergraduate)
15. Analysis and Design of Algorithms and Data-structures (Undergraduate)
16. Autonomous Systems (undergraduate)
17. Artificial Intelligence – An Introduction (undergraduate)
18. Autonomous Robots (Industrial)
19. Expert System Technology (Industrial)
20. Urban Robotics (Industrial)

As part of his supervision of graduate and Ph.D. students foreign placement at University of Rochester, University of Pennsylvania, University of Tennessee, University of Genoa, Institut National Polytechnique de Grenoble, University of California - San Diego, UC Berkeley, Daimler Benz Research, Carnegie Mellon University, Columbia University, Xerox PARC, George Mason University, Australian National University, University of Southern California, Evolution Robotics, Zaragoza, MIT, ATR, Sony Corp. and the Oak Ridge National Laboratory have been organised and implemented.

August 7, 2011