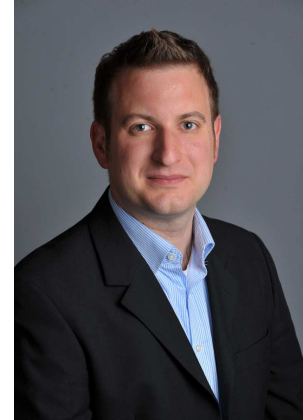# Curriculum Vitae

Cyrill Stachniss

June 1, 2015

Prof. Dr. Cyrill Stachniss
University of Bonn
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Dept. of Photogrammetry
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Areas of Interest

Probabilistic robotics; photogrammetry; perception and state estimation; simultaneous localization and mapping; mobile sensing; navigation; multi-robot coordination; learning techniques for autonomous systems

Education

- Habilitation and venia legendi in computer science   11/2009
  University of Freiburg, Germany
  Habilitation thesis: *Spatial Modeling and Robot Navigation*

- Dr. rer. nat. (Ph.D.) in computer science—*summa cum laude (with distinction)*   04/2006
  University of Freiburg, Germany
  Ph.D. thesis: *Exploration and Mapping with Mobile Robots*
  1st Reviewer: Prof. Dr. Wolfram Burgard, University of Freiburg
  2nd Reviewer: Prof. Dr. Dieter Fox, University of Washington, WA

- Diplom (M.Sc.) in computer science—*summa cum laude (with distinction)*   08/2002
  University of Freiburg, Germany
  Diploma thesis: *Goal-directed Obstacle Avoidance for Mobile Robots in Dynamic Environments*

- Vordiplom in computer science   03/2000
  University of Marburg, Germany

- Vordiplom in physics   11/1999
  University of Marburg, Germany

Academic Positions

- Full professor and chair for Photogrammetry   since 04/2014
  University of Bonn, Institute of Geodesy and Geoinformation
- University lecturer (Privatdozent und Akademischer Rat)   10/2010-03/2014
  University of Freiburg, Institute for Computer Science
- Deputy professorship at the Autonomous Intelligent Systems Lab   10/2009-09/2010
  during the sabbatical of Prof. Dr. Wolfram Burgard (W3-Lehrstuhlvertretung)
  University of Freiburg, Institute for Computer Science
- Guest lecturer   spring 2009
  University of Zaragoza (Spain), Dipartimento Informática e Ingeniería de Sistemas
- Akademischer Rat   10/2007-09/2009
  University of Freiburg, Institute for Computer Science
- Postdoc   11/2006-09/2007
  University of Freiburg, Institute for Computer Science, Lab for Autonomous Intelligent Systems
  headed by Prof. Dr. Wolfram Burgard
- Senior researcher   05/2006-10/2006
  Eidgenössische Technische Hochschule (ETH) Zurich, Department of Mechanical and Process
  Engineering, Autonomous Systems Lab headed by Prof. Dr. Roland Siegwart
- Ph.D. student and research associate   12/2002-04/2006
  University of Freiburg, Institute for Computer Science, Lab for Autonomous Intelligent Systems
  headed by Prof. Dr. Wolfram Burgard

Citation Indices

h-index: 36, i10-index: 79, citations: 6063 (determined using "Google Scholar" on Jun 1)

Honors and Awards

- ICRA 2015 Best Service Robotics Paper Finalist   2015
  for the work *Robot, Organize my Shelves! Tidying up Objects by Predicting User Preferences*
- Faculty Teaching Award (Fakultätslehrpreis)   2013
  for my lecture *Robot Mapping* taught in winter term 2012/13
- IEEE RAS Early Career Award   2013
  for my contributions to mobile robot exploration and simultaneous localization and mapping
- ICRA 2013 Best Associate Editor Award   2013
- ICRA 2013 Best Student Paper Finalist   2013
  for the work *Robust Map Optimization Using Dynamic Covariance Scaling*
- Robotics: Science and Systems Early Career Spotlight   2012
- Microsoft Research Faculty Fellow   2010
- EURON Georges Giralt Award   2008
  for *the best robotics thesis in Europe* defended in 2006
- Wolfgang-Gentner Award   2006
  for the Ph.D. thesis *Exploration and Mapping with Mobile Robots*

- ICRA 2005 Best Student Paper Finalist   2005
  for the work *Supervised Learning of Places from Range Data using AdaBoost*
- ICASE-IROS 2004 Best Paper Award on Application   2005
  for the work *Grid-based FastSLAM and Exploration with Active Loop Closing*
- Förderpreis des Vereins Deutscher Ingenieure (VDI)   2003
  for the Master's thesis *Goal-directed Obstacle Avoidance for Mobile Robots in Dynamic Environments*

Research Project Coodination Activities

- Coordinator (Sprecher) of the DFG funded research unit "Mapping on Demand"   2015-2017
- Coordinator of the EC funded FP7 project ROVINA   2013-2016
- Vice-Coordinator of the EC funded FP7 project EUROPA2   2013-2014
- "Vorstandsmitglied" in the SFB-TR/8 "Spatial Cognition"   2013-2014
- Vice-Coordinator and scientific project manager of the FP7 project First-MM 2010-2013
- Vice-Coordinator and scientific project manager of the FP7 project EUROPA   2009-2012

Funded Projects

- Principal investigator of the project "Exploration for Micro Aerial Vehicles"   2015-2017
  Funded by the DFG with in the Research Unit "Mapping on Demand".
- Principal investigator of the project "Incremental Mapping from Image   2015-2017
  Sequences". Funded by the DFG with in the Research Unit "Mapping on Demand".
- Principal investigator of the project "Robust Direct Georeferencing"   2015-2017
  of Lightweight UAV. Funded by the DFG with in the Research Unit "Mapping on Demand".
- Principal investigator of the project Flourish   2015-2018
  Flourish—Aerial Data Collection and Analysis, and Automated Ground Intervention for Precision Farming. Funded by the European Commission, H2020.
- Principal investigator of the project RobDREAM   2015-2018
  RobDREAM—Optimising Robote Performance While Dreaming. Funded by the European Commission, H2020.
- Principal investigator of the project AdvancedEDC   2014-2015
  AdvancedEDC—Advanced Intracortical Neural Probes with Electronic Depth Control. Funded by the DFG with in the cluster of excellence BrainLinks–BrainTools.
- Vice-Coordinator and principal investigator of the EU project EUROPA2   2013-2016
  EUROPA2—European Robotic Pedestrian Assistant 2.0. Funded by the European Commission, FP7.
- Principal investigator of the EU project STAMINA   2013-2017
  STAMINA—Sustainable and Reliable Robotics for Part Handling in Manufacturing Automation. Participation ended with the move to the University of Bonn, FP7.
- Coordinator and principal investigator of the EU project ROVINA   2013-2016
  ROVINA—Mobile Robots for Exploration, Digital Preservation and Visualization of Archeological Sites. Evaluated in the FP7-ICT-Call 9 with 15/15 points. Funded by the European Commission, FP7.

- Principal investigator of a project with ifm automotive   2012
  on the automatic evaluation of an obstacle detection systems for cars. Funded by ifm automotive GmbH.
- Principal investigator of a project in 3rd phase of the SFB/TR-8   2011-2014
  SFB/TR-8 "Spatial Cognition", Project A3-MultiBot, funded by the German Research Foundation (DFG).
- Principal investigator of the EU project TAPAS   2010-2014
  TAPAS—Robotics-enabled Logistics and Assistive Services for the Transformable Factory of the Future. Funded by the European Commission.
- Vice-Coordinator and principal investigator of the EU project First-MM   2010-2013
  First-MM—Flexible Skill Acquisition and Intuitive Robot Tasking for Mobile Manipulation in the Real World. Funded by the European Commission, FP7.
- Vice-Coordinator and principal investigator of the EU project EUROPA   2009-2012
  EUROPA—European Robotic Pedestrian Assistant. Funded by the European Commission. The proposal has been evaluated as the best among all STREP and IP proposals in the April 2008 FP7-ICT-Call 3 on robotics and cognitive systems
- Principal investigator of a project on service robotics in industrial applications   2008-2010
  Funded by the MT Robotik AG.
- Principal investigator of a project in the 2nd phase of the SFB/TR-8   2007-2010
  SFB/TR-8 "Spatial Cognition", Project A3-MultiBot, funded by the German Research Foundation (DFG).
- Principal investigator of the EU project RAWSEEDS   2007-2009
  RAWSEEDS—Robotics Advancements through Web-publishing of Sensorial and Elaborated Extensive Data Sets. Funded by the European Commission.
- Principal investigator of a project on navigation and service robotics   2007-2009
  Funded by Toyota Europe.
- Principal investigator of a project on robust simultaneous localization and mapping   2006
  Funded by Toyota Europe. Involved in the acquisition and realization of this project.
- Contributions to projects without being a principal investigator
  - EU project BACS   2006-2009
  - BMBF project DESIRE   2006-2009
  - EU project CoSy   2004-2008
  - SFB/TR-8 "Spatial Cognition", 1st phase   2003-2006
  - EU project WebFAIR   2001-2003

Consulting for Industry

- KUKA Roboter/KUKA Laboratories, Augsburg, Germany   2008-2014
- Numovis Inc., Menlo Park, CA, USA   2010-2011
- MT Robotik AG, Zwingen, Switzerland   2008-2010

Invited Talks

- Tag der Geodäsie 2015 (Geodesy Day 2015), Bonn, Germany   05/2015
  Vermessung mit Oktokoptern

- DVW Seminar on Multi-Sensor-Systems, Hamburg, Germany   09/2014
  Tutorial on Particle Filters for State Estimation

- Abschlusskolloquium SFB/TR-8 Spatial Cognition, Bremen, Germany   09/2014
  Localization, Mapping, and Exploration – Achievments and Open Challenges

- Plenary talk at the Int. Conf. on Intelligent Autonomous Systems, Padua, Italy   07/2014
  Flexible Longterm Navigation for Mobile Robots Operating in the Real World

- Tag der Geodäsie 2014 (Geodesy Day 2014), Bonn, Germany   05/2014
  Wie Roboter die Welt verstehen

- University of Stuttgart, Germany   02/2014
  Autonomous Navigation for Mobile Robots in the Real World

- KUKA Tec Camp, Augsburg, Germany   02/2014
  Probabilistic State Estimation

- Forum für Mathematik und Naturwissenschaften, Freiburg, Germany   05/2013
  Robots and Probabilities – A Success Story

- Meeting of the German National Academy of Sciences Leopoldina, Section 2   02/2013
  Robots in Urban Environments

- Technical University of Cottbus, Germany   02/2013
  Probabilistische Methoden für die Roboternavigation

- Radboud University Nijmegen, The Netherlands   02/2013
  Towards Lifelong Navigation for Mobile Robots

- University of Bonn, Germany   01/2013
  Probabilistische Methoden für die Perzeption und Entscheidungsfindung – von grundlegenden Problemen zu realen Systemen

- Robotics: Science and Systems Early Carrer Spotlight, Sydney, AUS   07/2012
  Towards Lifelong Navigation for Mobile Robots

- RSS Workshop on Stochastic Motion Planning, Sydney, AUS   07/2012
  Mutual Information for Effective Localization, Mapping and Exploration

- University of Stuttgart, Germany   11/2011
  Probabilistische Methoden für Autonome Roboter – von grundlegenden Problemen zu realen Systemen

- University of Amsterdam, The Netherlands   10/2011
  Probabilistic Techniques for Intelligent, Robust, and Autonomous Robots

- DGR-Tage 2011, Karlsruhe, Germany   10/2011
  Autonomous Intelligent Systems

- Georgia Tech, Atlanta, GA   09/2011
  Probabilistic Techniques for Autonomous Intelligent Robots

- Int. Symposium on Robotics Research (ISRR), Flagstaff, AZ   08/2011
  Pose Graph Compression for Laser-based SLAM

- University of Stuttgart, Germany   05/2011
  Probabilistische Techniken für intelligente, robuste und autonome Roboter
- Universitá La Sapienza, Rome, Italy   03/2011
  Articulation Models for Mobile Manipulation Tasks
- PAIL Seminar, Stanford University, Palo Alto, CA   10/2010
  Modeling Articulated Objects for Mobile Manipulation
- Microsoft Research, Redmond, WA   04/2010
  Probabilistic Robotics
- USC Distinguished Lecture Day of Robotics, University of Southern California (USC), Los
  Angeles, CA   03/2010
  Hierarchical Optimization on Manifolds
- Technical University of Munich, Germany   04/2009
  Probabilistic Approaches for Cognitive Robots
- University of Oxford, UK   03/2009
  Learning Kinematic Models for Articulated Objects
- Kolloq. Mathematik und Informatik, Philipps University, Marburg, Germany   09/2008
  Building Maps with Mobile Robots
- Kolloq. Mechatronik und Intelligente Sensorik, University of Bielefeld, Germany   02/2008
  Extracting Semantic Information About the Environment from Sensor Data Using Machine Learning Techniques
- Invited Tutorial at ECMR 2007, Freiburg, Germany   09/2007
  Mapping with Rao-Blackwellized Particle Filters
- RSS Workshop on Sensor Networks, Atlanta, GA   06/2007
  Cooperative Multi-Robot Exploration
- German-American Frontiers of Engineering, Hamburg, Germany   04/2007
  Probabilistic Techniques for Robot Navigation
- Fraunhofer IPA, Stuttgart, Germany   10/2006
  Vision-Based Localization for Mobile Robots
- University of Southern California (USC), Los Angeles, CA   04/2006
  Improving Robot Navigation by Using Semantic Place Information
- Massachusetts Institute of Technology (MIT), Boston, MA   04/2006
  Information Gain-based Exploration for Mobile Robots Using Rao-Blackwellized Particle Filters
- IROS 2005 Advanced Tutorial on SLAM, Edmonton, Canada   08/2005
  Rao-Blackwellized Particle Filters and Loop Closing
- Universitá La Sapienza, Rome, Italy   06/2005
  Mapping and Exploration Using Rao-Blackwellized Particle Filters
- Carnegie Mellon University (CMU), Pittsburgh, PA   07/2002
  Goal-Directed Obstacle Avoidance in Dynamic Environments Under Dynamic Constraints

Teaching Activities

- Lecturer for *Photogrammetry I*   Summer 2015
  Lecture, 5 h/week

- Lecturer for *Introduction to C++ for Image Processing*   Summer 2015
  Großes Wahlpflichtmodul, 4 h/week

- Lecturer for *Mobile Mapping with Multi-Sensor Systems*   Summer 2015
  Master Project, 5 h/week

- Lecturer for *Photogrammetry and Remote Sensing*   Winter 2014/15
  Lecture, 3 h/week

- Lecturer for *Photogrammetry II*   Winter 2014/15
  Lecture, 4 h/week

- Lecturer for *Autonomous Exploration for 3D Reconstruction*   Winter 2014/15
  Großes Wahlpflichtmodul, 4 h/week

- Lecturer for *Photogrammetry I*   Summer 2014
  Lecture, 5 h/week

- Lecturer for *Exploration of Unknown Environments with Mobile Platforms*   Summer 2014
  Großes Wahlpflichtmodul, 4 h/week

- Lecturer for *Robot Mapping*   Winter 2013/14
  Lecture, 4 h/week

- Lecturer for *Einführung in die Informatik* (Introduction to CS)   Summer 2013
  Lecture, 4 h/week

- Lecturer for *Introduction to Mobile Robotics*   Summer 2013
  Lecture, 4 h/week, shared teaching

- Lecturer for *Robot Mapping*   Winter 2012/13
  Lecture, 4 h/week

- Lecturer for *People Localization*   Winter 2012/13
  Practical Course, 4 h/week

- Lecturer for *Introduction to Mobile Robotics*   Summer 2012
  Lecture, 4 h/week, shared teaching

- Lecturer for *Einführung in die Informatik* (Introduction to CS)   Summer 2012
  Lecture, shared teaching

- Lecturer for *Humanoid Robots*   Summer 2012
  Seminar, 2 h/week, 9 students, shared teaching

- Lecturer for *Advanced Techniques for Mobile Robotics/Robotics II*   Winter 2011/12
  Lecture, 4 h/week, approx. 20 students, shared teaching

- Lecturer for *Introduction to Mobile Robotics*   Summer 2011
  Lecture, 4 h/week, approx. 35 students, shared teaching

- Lecturer for *Einführung in die Informatik* (Introduction to CS)   Summer 2011
  Lecture, 4 h/week, approx. 140 students

- Lecturer for *Probabilistic Graphical Models*   Summer 2011
  Seminar, 2 h/week, 10 students, shared teaching

- Lecturer for *Simultaneous Localization and Mapping*   Winter 2010/11
  Practical Course, 4 h/week, 13 students

- Lecturer for *Advanced Techniques for Mobile Robotics/Mobile Robotics II*   Winter 2010/11
  Lecture, 4 h/week, shared teaching

- Lecturer for *Introduction to Mobile Robotics*   Summer 2010
  Lecture, 4 h/week, approx. 16 students, shared teaching (main instructor)

- Lecturer for *Einführung in die Informatik für Mikrosystemtechniker*   Summer 2010
  Lecture, 4 h/week, approx. 100 students

- Lecturer for *Humanoid Robots*   Summer 2010
  Seminar, 2 h/week, 10 students, shared teaching

- Lecturer for *Advanced Techniques for Mobile Robotics/Mobile Robotics II*   Winter 2009/10
  Lecture, 4 h/week, 18 students, shared teaching (main instructor)

- Lecturer for *Robot Navigation*   Winter 2009/10
  Seminar, 2 h/week, 10 students, shared teaching

- Guest lecturer for a Ph.D. course on *Simultaneous Localization and Mapping* at the University
  of Zaragoza, Spain   Summer 2009

- Lecturer for *Introduction to Mobile Robotics*   Summer 2009
  Lecture, 4 h/week, approx. 35 students, shared teaching

- Lecturer for *Einführung in die Informatik für Mikrosystemtechniker*   Summer 2009
  Lecture, 4 h/week, approx. 100 students, shared teaching (main instructor)

- Lecturer for *Autonomous Slotcar Racing*   Winter 2009/08
  Practical Course, 4 h/week, 8 students

- Lecturer for *Introduction to Mobile Robotics*   Summer 2008
  Lecture, 4 h/week, approx. 35 students, shared teaching

- Lecturer for *Einführung in die Informatik für Mikrosystemtechniker*   Summer 2008
  Lecture, 4 h/week, approx. 85 students, shared teaching

- Lecturer for *Location-based Services*   Winter 2007/08
  Practical Course, 4 h/week, 12 students

- Lecturer for *Motion Planning*   Winter 2007/08
  Seminar, 2 h/week, 12 students, shared teaching

- Lecturer for *Introduction to Mobile Robotics*   Summer 2007
  Lecture, 4 h/week, approx. 40 students, shared teaching

- Lecturer for *Einführung in die Informatik für Mikrosystemtechniker*   Summer 2007
  Lecture, 4 h/week, approx. 70 students, shared teaching

- Co-Lecturer for *Informatik I*   Winter 2006/07
  Lecture, 6 h/week, teaching in case Prof. Dr. Burgard was unavailable

- Co-Lecturer for *Autonomous Mobile Systems*   Winter 2005/06
  Seminar, 2 h/week, 14 students, shared teaching

- Co-Lecturer for *Informatik I*   Winter 2005/06
  Lecture, 6 h/week, teaching in case Prof. Dr. Burgard was unavailable

- Co-Lecturer for *Autonomous Mobile Systems*   Summer 2005
  Seminar, 2 h/week, 12 students, shared teaching

- Co-Lecturer for *Introduction to Mobile Robotics*   Summer 2005
  Lecture, 4 h/week, approx. 25 students, teaching in case Prof. Dr. Burgard was unavailable
- Co-Lecturer for *The Robot Photographer*   Winter 2004/05
  Practical Course, 4 h/week, 12 students

External Ph.D. Committee Memberships

- University of Freiburg, Germany   2014, 2015
- University of Oxford, UK   2014
- Queensland University of Technology, Australia   2014
- KTH Stockholm, Sweden   2012
- University of Sydney, Australia   2011
- Polytechnic University of Catalonia, Barcelona, Spain   2011
- University of Zaragoza, Spain   2008

Advisory Board Membership

- ILIAD – Intra-Logistics with Integrated Automatic Deployment   since 2015

Services for Journals

- Senior Editor
  - IEEE Robotics and Automation Letters (RA-L)   since 2015
- Associate Editor
  - IEEE Transactions on Robotics (T-RO)   2008-2013
- Guest Editor
  - Journal of Field Robotics for the special issue on Visual Mapping and Navigation Outdoors
                               2009/2010
- Reviewing
  - Journal of Geodesy (JOGE)   2015
  - ISPRS Journal of Photogrammetry and Remote Sensing   2014
  - IEEE Transactions on Robotics (T-RO)   since 2004
  - Autonomous Robots (AuRo)   2004-2008,2010,2011,2014
  - Int. Journal on Robotics Research (IJRR)   2006, 2008, 2009, 2011-2014
  - Robots and Autonomous Systems (RAS)   since 2005
  - Journal of Field Robotics (JFR)   2007-2010
  - Artificial Intelligence   2013
  - IEEE Transactions on Mechatronics (T-MECH)   2012
  - IEEE Transactions on Autonomous Mental Development   2012
  - RSJ Advanced Robotics   2005, 2010
  - Ad Hoc Networks   2011

– IEEE Sensors Journal	2010
– IEEE Transactions on Systems, Man, and Cybernetics	2010
– Journal of Artificial Intelligence Research (JAIR)	2008
– Annals of Mathematics and Artificial Intelligence (AMAI)	2007,2013
– Int. Journal of Pattern Recognition and Artificial Intelligence (IJPRAI)	2007

Conference Services

- Program Chair

– Spatial Cognition (SC)	2012

- Area Chair

– Robotics: Science and Systems (RSS)	2010, 2012
– Int. Joint Conf. on Artificial Intelligence (IJCAI)	2013

- Associate Editor

– IEEE Int. Conf. on Robotics & Automation (ICRA)	2009-2015
– IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)	since 2011

- Workshop Chair

– Robotics: Science and Systems (RSS)	2011

- Publicity Chair

– Spatial Cognition (SC)	2012
– Robotics: Science and Systems (RSS)	2007

- Publication Chair

– Robotics: Science and Systems (RSS)	2007

- Local Arrangement

– IEEE Int. Conf. on Advanced Intelligent Mechatronics (AIM)	2007

- Conference Management System

– Robotics: Science and Systems (RSS)	2006
– IEEE Int. Conf. on Advanced Intelligent Mechatronics (AIM)	2007

- Program Committee

– Robotics: Science and Systems (RSS)	since 2005
– Europ. Conf. on Artificial Intelligence (ECAI)	2012
– National Conf. on Artificial Intelligence (AAAI)	2006
– Int. Conf. on Autonomous Agents and Multiagent Systems (AAMAS)	2008
– Int. Conf. on Advanced Robotics (ICAR)	2007, 2009
– Int. Conf. on Intelligent Autonomous Systems (IAS)	2012
– European Conf. on Mobile Robots (ECMR)	since 2007 (biannual)
– Spatial Cognition (SC)	2012, 2014
– German Conf. on Artificial Intelligence (KI)	2011
– Int. Conf. on Robot Communication and Coordination (ROBOCOMM)	2007
– Int. Conf. on Informatics in Control, Automation, and Robotics (ICINCO)	2008
– ACM Symp. on Applied Computing, Embedded Systems and Robotics track	2008

- – ACM Symp. on Applied Computing, Intelligent Robotics Systems track   2009
- Poster Program Committee
    - – IEEE Int. Conf. on Robotics & Automation (ICRA)   2006
- Reviewing
    - – Int. Conf. on Computer Vision (ICCV)   2015
    - – Conf. on Computer Vision and Pattern Recognition (CVPR)   2015
    - – Int. Joint Conf. on Artificial Intelligence (IJCAI)   2003, 2005, 2007
    - – National Conf. on Artificial Intelligence (AAAI)   2005, 2006
    - – Robotics: Science and Systems (RSS)   since 2005
    - – IEEE Int. Conf. on Robotics & Automation (ICRA)   since 2003
    - – IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)   since 2002
    - – ACM/IEEE Int. Conf. on Human-Robot Interaction (HRI)   2014
    - – Int. Conf. on Field and Service Robotics (FSR)   2007
    - – Annual Meeting of the Cognitive Science Society (CogSci)   2013
    - – IEEE Conf. on Local Computer Networks (LCN)   2006
    - – Int. Conf. on Automation and Robotics (ICAR)   2005, 2007
    - – Int. Conf. on Intelligent Autonomous Systems (IAS)   2008
    - – European Conf. on Mobile Robots (ECMR)   since 2003 (biannual)
    - – Int. Conf. on Social Robotics (ICSR)   since 2011
    - – Mexican Int. Conf. on Artificial Intelligence (MICAI)   2005
    - – Intelligent Autonomous Vehicles (IAV)   2004, 2007
    - – Spatial Cognition (SC)   2004, 2006, 2008
    - – Robotik   2004, 2006

Workshop/Symposia Services

- Organizer
    - – ICRA Workshop on "What Sucks in Robotics and How to Fix It - Lessons Learned from Building Complex Systems"   2014
    - – FAIM Workshop on Cognitive Technical Systems   2014
    - – RSS Workshop on Robotic Exploration, Monitoring, and Information Collection   2013
    - – ICRA Workshop on Visual Mapping and Navigation in Outdoor Environments   2009
- Program Committee
    - – RSS Workshop on multiple view geometry in robotics (MVIGRO)   2014, 2015
    - – ICRA Workshop Proposal "Got rejected? Let the community review your paper!"   2015
    - – Int. Workshop on the Algorithmic Foundations of Robotics (WAFR)   2012
    - – Starting Artificial Intelligence Research Symposium (STAIRS)   2012
    - – RSS Workshop on Long-term Operation in Changing Environments   2012
    - – ICCV Workshop on Challenges and Opportunities in Robot Perception   2011
    - – ICRA Workshop on Intelligent Transportation Systems   2010
    - – ICRA Workshop on Visual Mapping and Navigation in Outdoor Environments   2009

- ICRA Workshop on Safe Navigation in Open and Dynamic Environments – Application to Autonomous Vehicles 2009
- RSS Workshop Inside Data Association 2008
- IROS Workshop on Planning, Perception and Navigation for Intelligent Vehicles 2008, 2015

Other Reviewing Services

- U.S.-Israel Binational Science Foundation 2015
- European Commission, ERC Grants 2014
- Deutsche Forschungsgemeinschaft (DFG) 2014
- Alexander von Humboldt Foundation 2014, 2015
- Netherlands Organisation for Scientific Research (NWO) 2010, 2013
- Microsoft Research Faculty Fellowships 2011
- Springer STAR series 2010

Software Project Involvements

- HOG-Man—Hierarchical Optimization for Pose Graphs on Manifolds since 2009
  Developer of the open source mapping software HOG-Man, which performs hierarchical optimization on manifolds to estimate accurate models of large-scale 3D environments.
- OpenSLAM.org since 2007
  Initiator and developer of the web-based platform OpenSLAM for sharing SLAM algorithms.
- TORO—Tree-based Network Optimizer 2007-2010
  Developer of the open source software TORO, which is an efficient approach to learn environment maps that are encoded as constraint networks and it is designed to deal with bad initial configurations.
- SmartTer—Smart All Terrain Vehicle 2006
  Joint software project between ETH Zurich, EPFL, and the University of Freiburg for building an instrumented car for mapping and autonomous navigation. Participation in the European Land Rover Trials in 2006. I was coordinating the developments in Freiburg.
- GMapping 2004-2008
  Developer of the open source mapping software GMapping, which employs a Rao-Blackwellized particle filter for solving the simultaneous localization and mapping problem in 2D.
- CARMEN 2003-2010
  Developer of the open source robot control software CARMEN—Carnegie Mellon Robot Navigation Toolkit.

Publication List

Cyrill Stachniss

Peer-Reviewed Journal/Magazine Articles

[1] Pratik Agarwal, Wolfram Burgard, and Cyrill Stachniss. A survey of geodetic approaches to mapping and the relationship to graph-based slam. *IEEE Robotics & Automation Magazine*, 2014.

[2] R. Kümmerle, M. Ruhnke, B. Steder, C. Stachniss, and W. Burgard. Autonomous robot navigation in highly populated pedestrian zones. *Journal of Field Robotics*, 2014.

[3] B. Frank, C. Stachniss, R. Schmedding, M. Teschner, and W. Burgard. Learning object deformation models for robot motion planning. *Robots and Autonomous Systems*, 2014.

[4] C. Stachniss and W. Burgard. Particle filters for robot navigation. *Foundations and Trends in Robotics*, 3(4):211–282, 2012. Published 2014.

[5] W. Burgard and C. Stachniss. Gestatten, Obelix! *Forschung – Das Magazin der Deutschen Forschungsgemeinschaft*, 1, 2013. In German, invited.

[6] D. Maier, C. Stachniss, and M. Bennewitz. Vision-based humanoid navigation using self-supervised obstacle detection. *The Int. Journal of Humanoid Robotics (IJHR)*, 2013.

[7] K.M. Wurm, C. Dornhege, B. Nebel, W. Burgard, and C. Stachniss. Coordinating heterogeneous teams of robots using temporal symbolic planning. *Autonomous Robots*, 2013.

[8] K.M. Wurm, H. Kretzschmar, R. Kümmerle, C. Stachniss, and W. Burgard. Identifying vegetation from laser data in structured outdoor environments. *Robots and Autonomous Systems*, 2013.

[9] A. Hornung, K.M. Wurm, M. Bennewitz, C. Stachniss, and W. Burgard. OctoMap: An efficient probabilistic 3d mapping framework based on octrees. *Autonomous Robots*, 34:189–206, 2013.

[10] H. Kretzschmar and C. Stachniss. Information-theoretic pose graph compression for laser-based SLAM. *The Int. Journal of Robotics Research (IJRR)*, 31:1219–1230, 2012.

[11] J. Sturm, C. Stachniss, and W. Burgard. A probabilistic framework for learning kinematic models of articulated objects. *Journal on Artificial Intelligence Reserach (JAIR)*, 41:477–526, 2011.

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