



andreas nüchter

Employment

- Aug. 2009, ongoing **Professor** of Computer Science, *Jacobs University Bremen gGmbH*, Germany.
- Dec. 2008 Offer of the **W1 Professorship** of Computer Science at the Graduate School of Computational Engineering, *Technical University Darmstadt*, Germany.
- Dec. 2008 Offer of the **Assistant Professorship** of Computer Science, *Jacobs University Bremen*, Germany.
- Feb. 2007 – May 2009 **External Lecturer / Visiting Professor**, *Jacobs University Bremen gGmbH (former International University Bremen)*, Germany.
Teaching of courses for EECS students.
- Oct. 2004 – July 2009 **Research Associate**, *University of Osnabrück*, Germany.
Research interests: 3D computer and robot vision, robotics, control theory, cognitive science, artificial intelligence.
Teaching: Lectures, exercises, labs and practical courses.
- Oct. 2007 – Feb. 2008 **External Lecturer**, *The University of Koblenz-Landau*, Germany.
Teaching of the lecture “Autonome mobile Systeme” for computer science and computer visualistics students.
- Sept. 2000 – Sept. 2004 **Research Assistant**, *Fraunhofer Institute for Autonomous Intelligent Systems*, St. Augustin, Germany, former GMD GmbH (German National Research Center for Information Technology).
- Sept. 2002 – Feb. 2003 **External Lecturer**, *Fachhochschule Bonn-Rhein-Sieg*, Sankt Augustin, Germany.
Teaching of the lecture “Control Theory” for mechanical engineers.
- Sept. 1999 – July 2000 **Teaching Assistant**, *University of Bonn*, Germany.
Teaching tutorials of an upper undergraduate level lecture of theoretical computer science (algorithms, automata theory, logic, NP-completeness).
- Jan. 1999 – May 1999 **Teaching Assistant**, *Washington State University*, Pullman, U.S.A.
Teaching exercises for lecture Data Structures in C++.
- 1996 – 1999 **Working Student**, *RWE Energie AG*, Essen, Germany.
Programming small C, C++, REXX, Visual Basic applications for Windows NT and MVS/TSO, creating small database applications with MS Access and Oracle, developing of setup programs with Install Shield, analyzing software.

Education

- 1999 – 2006 **Doctoral Student**, *University of Bonn*, Germany.
Major: computer science, minor: physics. December 2002 received **Diplom**. Thesis: Autonome Exploration und Modellierung von 3D-Umgebungen (Autonomous Exploration and Modeling of 3D Environments). September 2006 received **Doktor rer. nat.** Thesis: Semantische dreidimensionale Karten für autonome mobile Roboter (Semantic 3D Maps for autonomous mobile robots).
- 1998 – 1999 **Exchange student**, *Washington State University*, Pullman, U.S.A.
Scholarship as an exchange student.
- 1996 – 1998 **Undergrad. studies of computer science**, *University of Bonn*, Germany.
August 1998 received Vordiplom.

- 1992 – 1995 **School, Bertha-von-Suttner-Gymnasium**, Andernach, Germany.
1995 Abitur (German school-leaving exam and university entrance qualification). Main subjects: mathematics, physics, history.
- 1990 – 1992 **School specialized in math and science, Georg-Cantor-Gymnasium**, Halle, Germany.
- 1982 – 1990 **Polytechnic school**, Halle, Germany.

Languages

German	Native
English	Very good
Russian	Elementary

Computer skills

OS	Linux, Windows, OS/2	typography	L ^A T _E X, MS Office
web design	HTML, CSS, CGI	visualization	OpenGL, Java3D, VRML
programming	C/C++, Java, Prolog, Perl, Pascal, Basic	scripting	Shell, REXX

Research Community Services

- Co-Organizer SLAM to the rescue: A hands-on tutorial on using state of-the-art SLAM algorithms in harsh environments at the KI 2011, 34th Annual German Conference on Artificial Intelligence (KI '11), October 4, 2011, Berlin, Germany.
- Co-Organizer of the IEEE ICRA 2011 Workshop Semantic Perception, Mapping and Exploration (SPME), Shanghai, China, May 9, 2011.
- Program chair of the IEEE International Workshop on Safety, Security, and Rescue Robotics (SSRR 2010), Bremen Germany, July 26–30, 2010.
- Co-Organizer of the IEEE ICRA 2010 Workshop on Best Practice in 3D Perception and Modeling for Mobile Manipulation, Anchorage, Alaska, USA, May 3, 2010.
- Artificial Intelligence and Robotics tutorial at Interdisciplinary College IK2008 in Günne at Lake Möhne, Germany.
- Organizer SLAM tutorial at the 3rd European Conference on Mobile Robots (ECMR '07), September 18–21, 2007, Freiburg, Germany.
- Member of the IEEE Technical Committee on Safety Security and Rescue Robotics.
- Poster-Chair at the 30th Annual German Conference on Artificial Intelligence, September 10–13, 2007, Osnabrück, Germany.
- Organization of the workshop “Robotic 3D Environment Cognition” as part of the Spatial Cognition Conference, Bremen, Germany, 2006.
- Tutorial Rescue Robotics at the second Rescue Robotics Camp, Rome, Italy, 2004.
- Cooperation in the RoboCup community, e.g., Rule discussion, local organization, 2004 – 2006.
- Reviewing work for several journals, conferences, workshops and research proposals.
- Member of various program committees

Academic Self-Administration

- Coordinator of the Computer Science – Smart Systems graduate program at Jacobs University Bremen, 2011, ongoing.

- Personal tutor (Vertrauensdozent) of the Gesellschaft für Informatik e.V. (GI) at Jacobs University Bremen, 2009, ongoing.
- Member of the board of management (Institute of Computer Science), University of Osnabrück, Germany, 2006 – 2009.
- Member of the examination board Master of Science in Computer Science, University of Osnabrück, Germany, 2006 – 2007.
- Member of the appointment commission for Software Engineering, University of Osnabrück, Germany, 2006.

Extra Curricular Activities and Awards

- NSFC (National Natural Science Foundation of China) fellowship, 2011.
- Participation at SICK robot day 2010, Waldkirch, Germany.
- Intevation prize for free software by University of Osnabrück, 2010.
- Finalist for the Georges Giralt PhD Award (EURON – European Robotics Research Network), 2008.
- Participation at SICK robot day 2007, Waldkirch, Germany, 2nd place in “robot slalom” indoor competition.
- Participation at RoboCup 2006, Bremen, Germany, “Real Rescue Robots” league.
- Best Paper Award at the International Workshop on Safety, Security and Rescue Robotics (SSRR '05), Kobe, Japan.
- Participation at RoboCup 2005, Osaka, Japan, “Real Rescue Robots” league.
- Participation at RoboCup German Open 2005, Paderborn, “Real Rescue Robots” league, Best Autonomy Award and Best Mobility Award.
- Participation at RoboCup 2004, Lisbon, Portugal, 2nd place in “Real Rescue Robots” league.
- Participation in the Interdisciplinary College IK 2004, Günne, Möhnesee, Germany.
- Participation in the Interdisciplinary College IK 2003, Günne, Möhnesee, Germany.
- Best Paper Award at the 4. Fachwissenschaftlicher Informatikkongress - Informatik-tage 2002, Bad Schussenried, Germany, 2002.
- Online scholar from e-fellows.net, 2001 – 2007.
- Participation in the Study Buddy Program at the University of Bonn, 2000.
- Volunteer national competition CS (Bundeswettbewerb Informatik), 1999 – 2005.
- Outstanding Student Employee Award at Washington State University, Pullman, U.S.A., 1999.
- Participation in Jugend-forscht competitions in special field physics (1994 1. place regional level and special prize state level, 1995: 1. place regional level and 2. place state level).
- 1993 – 2002 member of the sailing club DHH Andernach, 1995 steering committee member.
- Participation in Olympics in Math and Chemistry (state level).

Teaching

Fall Semester 2011 Jacobs University Bremen, Germany.
Lecture and Lab Advanced Automation and Control
Lecture Fundamental Computer Science – Algorithms and Data Structures

- Spring Semester 2011 Jacobs University Bremen, Germany.
Lecture Robotics
Seminar and Project Topics in Machine Vision (Mobile Mapping)
- Fall Semester 2010 Jacobs University Bremen, Germany.
Lecture and Lab Machine Vision
Lecture Fundamental Computer Science – Algorithms and Data Structures
Lecture Artificial Intelligence
Independent Study Course Autonomous Mobile Manipulation
- Spring Semester 2010 Jacobs University Bremen, Germany.
Lecture Robotics
Seminar and Project Topics in Automation
Independent Study Course Autonomous Mobile Manipulation
Independent Study Course Object Recognition in 3D Data
- Fall Semester 2009 Jacobs University Bremen, Germany.
Lecture Computer Science Algorithms and Data Structures
Lecture Artificial Intelligence
- Spring Semester 2009 Jacobs University Bremen, Germany.
Lecture Robotics
- Winter Semester 2008/09 University of Osnabrück, Germany.
Lecture Einführung in die Programmiersprache C++
Practical course Robotikpraktikum
- Fall Semester 2008 Jacobs University Bremen, Germany.
Lecture Fundamental Computer Science – Algorithms and Data Structures
Lecture Artificial Intelligence
- Summer Semester 2008 University of Osnabrück, Germany.
Lecture and Exercises 3D-Bildverarbeitung
Exercises for Lecture Einführung in die Künstliche Intelligenz
- Spring 2008 Interdisciplinary College IK2008 in Günne at Lake Möhne, Germany.
Course Robotics and AI (with Prof. Dr. Andreas Birk)
- Spring Semester 2008 Jacobs University Bremen, Germany.
Lecture Robotics
- Winter Semester 2007/08 The University of Koblenz-Landau, Germany.
Lecture Autonome Mobile Systeme
- Winter Semester 2007/08 University of Osnabrück, Germany.
Lecture and Tutorials Einführung in die Programmiersprache C++
Practical course RoboCup Rescue
Colloquium Graduiertenseminar Wissensbasierte Systeme
- Summer Semester 2007 University of Osnabrück, Germany.
Lecture and Exercises 3D-Bildverarbeitung für mobile Roboter
Practical course Rasende Roboter
Reading group Wissensbasierte Systeme
Colloquium Graduiertenseminar Wissensbasierte Systeme
- Spring Semester 2007 Jacobs University Bremen, Germany.
Lecture Robotics
- Winter Semester 2006/07 University of Osnabrück, Germany.
Lecture and Tutorials Einführung in die Programmiersprache C++
Exercises for Lecture Wissensbasierte Robotik
Project Kurt's Grand Challenge – Autonomous Driving in the Botanical Garden (Part 2)
Reading group Wissensbasierte Systeme
Colloquium Graduiertenseminar Wissensbasierte Systeme

- Summer Semester 2006 University of Osnabrück, Germany.
Seminar Knowledge-Based Robotics
Exercises for Lecture Wissensbasierte Systeme
Project Kurt's Grand Challenge – Autonomous Driving in the Botanical Garden (Part 1)
Reading group Wissensbasierte Systeme
Colloquium Graduiertenseminar Wissensbasierte Systeme
- Winter Semester 2005/06 University of Osnabrück, Germany.
Seminar Knowledge-Based Robotics
Exercises for Lecture Einführung in die Künstliche Intelligenz
Practical course RoboCup Rescue
Reading group Wissensbasierte Systeme
Colloquium Graduiertenseminar Wissensbasierte Systeme
- Summer Semester 2005 University of Osnabrück, Germany.
Exercises for Lecture Wissensbasierte Robotik
Practical course RoboCup Rescue
Reading group Wissensbasierte Systeme
Colloquium Graduiertenseminar Wissensbasierte Systeme
- Winter Semester 2004/05 University of Osnabrück, Germany.
Exercises for Lecture Einführung in die Künstliche Intelligenz
Practical course Mobile Robotik
- Rescue Robotics Camp 2004 Istituto Superiore Antincendi, Rome, Italy.
Lectures and Exercises on Rescue Robotics
- Winter Semester 2004/05 Fachhochschule Bonn-Rhein-Sieg, Germany.
Lecture and Exercises for Regelungstechnik
- Summer Semester 2000 University of Bonn, Germany.
Tutor for Lecture Informatik IV
- Winter Semester 1999/2000 University of Bonn, Germany.
Tutor for Lecture Informatik III
- Spring 1999 Washington State University, Pullman, U.S.A.
Teaching Assistant for Lecture Data Structures in C++

Supervised Theses

- Jacobs University Bremen Hassan Afzal, *Coloring 3D scans with thermal information*, M.Sc. in Computer Science, August 2011.
- HamidReza Houshair, *Panoramic Image Projection for SIFT based 3D scan Registration*, M.Sc. in Computer Science, August 2011.
- Flavia Grosan and Alexandrau Tandrau, *Object Identification using 3D Models in Environment Scans*, Guided Research for B.Sc. in Computer Science, May 2011.
- Eshaan Qadir, *Non-disclosed*, Guided Research for B.Sc. in Electrical Engineering, May 2011.
- Prashant K.C., *3D mapping of the Jacobs University Bremen*, Guided Research for B.Sc. in Computer Science, May 2011.
- Diana Babiac, *Accuracy of "Building Bremen in a Day"*, Guided Research for B.Sc. in Computer Science, May 2011.
- Makhmudov Ulugbek, *Nearest Neighbor Search for ICP and SLAM*, Guided Research for B.Sc. in Computer Science, May 2011.
- Billy Okal and Oliver Dunkley, *A Cheap Chess Roboti : Perception and Planning*, Guided Research for B.Sc. in Computer Science, May 2011.
- Seyedshams Feyzabadi, *GPU-accelerated SLAM6D*, M.Sc. in Computer Science, September 2010 .

- Jacobs University
Bremen Elena Digor, *Autonomous exploration of an unknown environment with a continuously rotating scanner*, M.Sc. in Computer Science, August 2010.
- Darko Makreshanski, *Automatic marker-free registration of terrestrial laser scans based on SIFT features from reflectance images*, Guided Research for B.Sc. in Computer Science, May 2010.
- Stanislav Gutev, *Merging 3D laser scans on the basis of skyline curvature extractions*, Guided Research for B.Sc. in Computer Science, May 2010.
- Shaan Shuddh Rauniyar, *Life-long 3D Mapping*, Guided Research for B.Sc. in Computer Science, May 2010.
- Hozefa Indorewala, *Volume Calculation for 3D Mine Mapping*, Guided Research for B.Sc. in Computer Science, May 2010.
- Stefan Lucian Rosu, *OpenMP in slam6D*, Guided Research for B.Sc. in Computer Science, May 2010.
- University of
Osnabrück Sven Albrecht, *An Analysis of Visual Mono-SLAM*, M.Sc. Computer Science, October 2009.
- Dorit Borrmann and Jan Elseberg, *Deforming Scans for Improving the Map Quality using Plane Extraction and Thin Plate Splines**, M.Sc. Computer Science, September 2009.
- Jacobs University
Bremen Vlad Ion Iancu, *Environment for Laser Scanner Simulation*, Guided Research for B.Sc. in Computer Science, May 2009.
- University of
Koblenz-Landau Peter Schneider, *3D-Scan-Registrierung auf Basis der Helixtranslation*, Dipl-Inform. (Computervisualistik), September 2008.
- University of
Osnabrück Thomas Wiemann, *Automatische Rekonstruktion planarer 3D-Umgebungen**, M.Sc. Physics / Computer Science, August 2007.
- Nils Rosemann, *Die Leistungsfähigkeit von Formvergleich als Trackingverfahren**, M.Sc. Physics / Computer Science, December 2006.
- David Engelhardt, *Ein Webinterface zur Steuerung des Rettungsroboters Kurt3D**, B.Sc. Physics / Computer Science, October 2006.
- Lars Kunze, *Visual Features to Help Close the Loop in 6D-SLAM**, B.Sc. Cognitive Science, October 2006.
- Dorit Borrmann and Jan Elseberg, *Global konsistente 3D Kartierung am Beispiel des Botanischen Gartens in Osnabrück**, B.Sc. Mathematics / Computer Science, October 2006
- Nadja Müller, *HRI für Rettungsroboter: Empirische Evaluation, Re-Design und Spezifikation der Operatorschnittstelle eines Robocup Rescue Roboters**, M.Sc. Cognitive Science, May 2006.
- Johannes M. Steger, *Fusion of 3D Laser Scans and Stereo Images for Disparity Maps of Natural Scenes**, B.Sc. Cognitive Science, March 2006.
- Robert Märtin, *Towards Ground Truth Disparity Maps of Natural Scenes: Combining Laser Range Scans and Stereo Images**, B.Sc. Cognitive Science, March 2006.
- Stefan Stiene, *Konturbasierte Objekterkennung aus Tiefenbildern eines 3D-Laserscanner**, M.Sc. Physics / Computer Science, October 2006.
- Fachhochschule
Bonn-Rhein-Sieg Kai Pervözl, *Object Classification and Object Identification as a Combined Approach*, M.Sc. in Autonomous Systems, October 2005.
- University of
Bonn Kai Lingemann, *Schnelles Pose-Tracking auf Laserscan-Daten für autonome mobile Roboter**, Dipl-Inform., January 2004.
- Fachhochschule
Aachen Kai Pervözl, *Ein Kamerasystem zur Fusion von 3D-Abstandsinformationen mit digitalen Farbbildern**, Dipl-Ing. (FH), September 2003.

Theses marked with * have been supervised technically, i.e., reviewing and grading of the thesis was done by someone else.

Publications

Dr. Nüchter has 114 scientific publications, including one patent, 2 monographs, 20 peer-reviewed journals, and 23 full IEEE conference papers.

In Press

- [1] D. Borrmann, J. Elseberg, P. N. K.C., and A. Nüchter. Ein Punkt pro Kubikmeter – präzise Registrierung von terrestrischen Laserscans mit Scanmatching. In *Photogrammetrie Laserscanning Optische 3D-Messtechnik, Beiträge der Oldenburger 3D-Tage 2012, Jade Hochschule*, February 2012 (accepted).
- [2] A. Nüchter, H. Houshair, D. Borrmann, and J. Elseberg. Projektionen für die Scanregistrierung mit Hilfe von Bildmerkmalen. In *Photogrammetrie Laserscanning Optische 3D-Messtechnik, Beiträge der Oldenburger 3D-Tage 2012, Jade Hochschule*, February 2012 (accepted).
- [3] J. Elseberg, D. Borrmann, and A. Nüchter. Eine Milliarde 3D-Punkte mit Standardhardware verarbeiten – Processing One Billion 3D Points on a Standard Computer. *Allgemeine Vermessungs-Nachrichten (AVN)*, 2011 (accepted).
- [4] J. Sprickerhof, A. Nüchter, K. Lingemann, and J. Hertzberg. A Heuristic Loop Closing Technique for Large-Scale 6D SLAM. *AUTOMATIKA – Journal for Control, Measurement, Electronics, Computing and Communications, Special Issue with selected papers from the 4th European Conference on Mobile Robots*, 2011 (accepted).
- [5] J. Hertzberg, K. Lingemann, and A. Nüchter. *Mobile Roboter: Eine Einführung aus Sicht der Informatik*. Springer, Heidelberg, 2012 (in press).

Books

- [6] A. Nüchter. *3D Robotic Mapping: The Simultaneous Localization and Mapping Problem with Six Degrees of Freedom*. Number 52 in Springer Tracts in Advanced Robotics. Springer, February 2009.
- [7] A. Nüchter. *Semantische dreidimensionale Karten für autonome mobile Roboter*. Number 303 in DISKI, Dissertationen zur künstlichen Intelligenz. Infix / Aka Verlag, Berlin, Germany, November 2006.

Edited Proceedings

- [8] A. Nüchter, K. Lingemann, and O. Wulf, editors. *Robotic 3D Environment Cognition, Workshop at the International Conference Spatial Cognition*, Bremen, Germany, September 2006. (Online Proceedings).

Book Chapter

- [9] J. Hertzberg, K. Lingemann, C. Lörken, A. Nüchter, and S. Stiene. Does it help a robot navigate to call navigability an affordance? In *Towards Affordance-Based Robot Control. Proceedings of Dagstuhl Seminar 06231, Dagstuhl Castle*, pages 16–26. Springer LNAI, 2008.

Patents

- [10] K. Lingemann, H. Surmann, A. Nüchter, and J. Hertzberg. Verfahren zur Ermittlung der Position und Orientierung eines navigierenden Systems. *Patentblatt*, 125(42), Offenlegungsschrift DE 10 2004 015 111 A1 2005.10.20, October 2005.

Peer-Reviewed Journals

- [11] A. Nüchter, S. Gutev, D. Borrmann, and J. Elseberg. Skyline-Based Registration of 3D Laser Scans. *Journal Geo-spatial Information Science (GISIS), Special Issue with selected papers from the 3D City Modeling and Applications Workshop*, 14(2):85–90, May 2011.
- [12] D. Borrmann, J. Elseberg, A. Nüchter, and K. Lingemann. The 3D Hough Transform for Plane Detection in Point Clouds – A Review and A new Accumulator Design. *Journal of 3D Research*, 2(2):1–13, March 2011.
- [13] J. Hertzberg, K. Lingemann, C. Lörken, A. Nüchter, S. Stiene, and T. Wiemann. 3D-Roboterkartenbau in Osnabrück. *KI – Künstliche Intelligenz: Themenschwerpunkt Simultaneous Localization and Mapping (SLAM)*, 24(3):245–248, September 2010.
- [14] A. Nüchter, J. Elseberg, P. Schneider, and D. Paulus. Study of Parameterizations for the Rigid Body Transformations of The Scan Registration Problem. *Journal Computer Vision and Image Understanding (CVIU)*, 114(8):963–980, August 2010.

- [15] M. Magnusson, H. Andreasson, A. Nüchter, and A. J. Lilienthal. Automatic Appearance-Based Loop Detection from 3D Laser Data Using the Normal Distributions Transform. *Journal of Field Robotics (JFR), Special Issue on Three-Dimensional Mapping*, 26(11/12):934–965, 2009.
- [16] S. May, D. Dröschel, D. Holz, S. Fuchs, E. Malis, A. Nüchter, and J. Hertzberg. 3D Mapping with Time-of-Flight Cameras. *Journal of Field Robotics (JFR), Special Issue on Three-Dimensional Mapping*, 26(11/12):892–914, 2009.
- [17] A. Nüchter. Parallel and Cached Scan Matching for Robotic 3D Mapping. *Journal of Computing and Information Technology (eCIT)*, 17(1):51–65, March 2009.
- [18] S. Frintrop, A. Nüchter, K. Pervözl, H. Surmann, S. Mitri, and J. Hertzberg. Attentive classification. *International Journal of Applied Artificial Intelligence in Engineering Systems*, 1(1), 2009.
- [19] A. Nüchter and J. Hertzberg. Towards Semantic 3D Maps. *Journal Robotics and Autonomous Systems (JRAS), Special Issue on Semantic Knowledge in Robotics*, 56(11):915–926, November 2008.
- [20] O. Wulf, A. Nüchter, J. Hertzberg, and B. Wagner. Benchmarking Urban 6D SLAM. *Journal of Field Robotics (JFR)*, 25(3):148–163, March 2008.
- [21] D. Borrmann, J. Elseberg, K. Lingemann, A. Nüchter, and J. Hertzberg. Globally consistent 3D mapping with scan matching. *Journal Robotics and Autonomous Systems (JRAS)*, 56(2):130–142, February 2008.
- [22] A. Nüchter, K. Lingemann, J. Hertzberg, and H. Surmann. 6D SLAM – 3D Mapping Outdoor Environments. *Journal of Field Robotics (JFR), Special Issue on Quantitative Performance Evaluation of Robotic and Intelligent Systems*, 24(8/9):699–722, August / September 2007.
- [23] A. Nüchter, K. Lingemann, J. Hertzberg, O. Wulf, B. Wagner, K. Pervözl, H. Surmann, and T. Christaller. The RoboCup Rescue Team Deutschland1. *KI – Künstliche Intelligenz*, (2):24–29, 2006.
- [24] S. P. Fekete, R. Klein, and A. Nüchter. Online searching with an autonomous robot. *Computational Geometry: Theory and Applications (CGTA)*, 34(2):102–115, May 2006.
- [25] S. Frintrop, E. Rome, A. Nüchter, and H. Surmann. A bimodal laser-based attention system. *Journal Computer Vision and Image Understanding (CVIU), Special Issue on Attention and Performance in Computer Vision*, 100(1-2):124–151, October / November 2005.
- [26] K. Lingemann, A. Nüchter, J. Hertzberg, and H. Surmann. High-Speed Laser Localization for Mobile Robots. *Journal Robotics and Autonomous Systems (JRAS)*, 51(4):275–296, 2005.
- [27] H. Surmann, K. Pervözl, A. Nüchter, K. Lingemann, J. Hertzberg, and M. Hennig. Simultaneous Mapping and Localization of Rescue Environments. *it – Information Technology*, 47:282–291, 2005.
- [28] H. Surmann, A. Nüchter, and J. Hertzberg. An autonomous mobile robot with a 3D laser range finder for 3D exploration and digitalization of indoor environments. *Journal Robotics and Autonomous Systems (JRAS)*, 45(3/4):181–198, December 2003.

Unreviewed Journals

- [29] A. Nüchter, K. Lingemann, and J. Hertzberg. 6D SLAM with Kurt3D. *Robotics Today, Society of Manufacturing Engineers, First Quater*, 20(1), April 2007.
- [30] H. Surmann, A. Nüchter, K. Lingemann, and J. Hertzberg. Kurt3D – An Autonomous Mobile Robot for Modeling the World in 3D. *ERCIM NEWS*, 55:24–25, October 2003.

Peer-Reviewed Conference, Workshop and Symposium Papers

- [31] F. Grosan, A. Tandrau, , and A. Nüchter. Localizing Google SketchUp Models in Outdoor 3D Scans. In *Proceedings of the XXIII International Symposium on Information, Communication and Automation Technologies (ICAT '11)*, Sarajevo, Bosnia, October 2011. IEEE Xplore.
- [32] J. Elseberg, D. Borrmann, and A. Nüchter. Full Wave Analysis in 3D Laser Scans for Vegetation Detection in Urban Environments. In *Proceedings of the XXIII International Symposium on Information, Communication and Automation Technologies (ICAT '11)*, Sarajevo, Bosnia, October 2011. IEEE Xplore.
- [33] J. Elseberg, D. Borrmann, and A. Nüchter. Efficient Processing of Large 3D Point Clouds. In *Proceedings of the XXIII International Symposium on Information, Communication and Automation Technologies (ICAT '11)*, Sarajevo, Bosnia, October 2011. IEEE Xplore.
- [34] A. Nüchter, S. Feyzabadi, D. Qiu, and S. May. SLAM à la carte - GPGPU for Globally Consistent Scan Matching. In *Proceedings of the 4th European Conference on Mobile Robots (ECMR '11)*, Örebro, Sweden, September 2011.

- [35] A. Nüchter, S. Gutev, D. Borrmann, and J. Elseberg. Skyline-Based Registration of 3D Laser Scans. In *Proceedings of the Joint ISPRS workshop on 3D city modelling & applications and the 6th 3D GeoInfo (3DCMA '11), The Chinese Academic Journal (CD ROM version) CN 11-9251/G*, Wuhan, China, June 2011.
- [36] J. Elseberg, D. Borrmann, and A. Nüchter. Eine effiziente Octree-Datenstruktur für das Verarbeiten von großen 3D-Punktwolken. In *Photogrammetrie Laserscanning Optische 3D-Messtechnik, Beiträge der Oldenburger 3D-Tage 2011, Fachhochschule Oldenburg/Ostfr./Whv.*, pages 72–79, February 2011.
- [37] E. Digor, A. Birk, and A. Nüchter. Exploration strategies for a robot with a continuously rotating 3d scanner. In *Proceedings of the Second International Conference on Simulation, Modeling and Programming for Autonomous Robots (SIMPAN '10)*, Lecture Notes in Computer Science, pages 374–386, Darmstadt, Germany, November 2010.
- [38] J. Elseberg, D. Borrmann, A. Nüchter, and K. Lingemann. Non-Rigid Registration and Rectification of 3D Laser Scans. In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS '10)*, pages 1546–1552, Taipei, Taiwan, October 2010.
- [39] K. Pathak, D. Borrmann, J. Elseberg, N. Vaskevicius, A. Birk, and A. Nüchter. Evaluation of the Robustness of Planar-Patches based 3D-Registration using Marker-based Ground-Truth in an Outdoor Urban Scenario. In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS '10)*, pages 5725–5730, Taipei, Taiwan, October 2010.
- [40] D. Borrmann, J. Elseberg, S. S. Raunyar, and A. Nüchter. Lifelong 3D mapping - Monitoring with a 3D scanner. In *Proceedings of the IROS Workshop on Robotics for Environmental Monitoring (WREM '10)*, Taipei, Taiwan, October 2010.
- [41] D. Borrmann, J. Elseberg, K. Lingemann, and A. Nüchter. A Data Structure for the 3D Hough Transform for Plane Detection. In *Proceedings of the 5th IFAC Symposium on Intelligent Autonomous Vehicles (IAV '10)*, Lecce, Italy, September 2010.
- [42] J. Wülfing, J. Hertzberg, K. Lingemann, A. Nüchter, T. Wiemann, and S. Stiene. Towards Real Time Robot 6D Localization in a Polygonal Indoor Map Based on 3D ToF Camera Data. In *Proceedings of the 5th IFAC Symposium on Intelligent Autonomous Vehicles (IAV '10)*, Lecce, Italy, September 2010.
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