

Publications of Roland Siegwart for the period 2004-2009

Peer-reviewed journal articles

1. D. Schafroth, C. Bermes, S. Bouabdallah, R. Siegwart, " Modeling and System Identification of the muFly Micro Helicopter Modeling and System Identification of the muFly Micro Helicopter ", Journal of Intelligent and Robotic Systems, 2009.
2. D. Scaramuzza, A. Martinelli, R. Siegwart, "A Robust Descriptor for Tracking Vertical Lines in Omnidirectional Images and its Use in Mobile Robotics", International Journal of Robotics Research, 2009.
3. F. Tache, W. Fischer, G. Caprari, R. Moser, F. Mondada, R. Siegwart, "Magnebike: A Magnetic Wheeled Robot with High Mobility for Inspecting Complex Shaped Structures", Journal of Field Robotics, Vol. 26, May 2009, 453-476.
4. S. Vasudevan, R. Siegwart, "Bayesian Space Conceptualization and Place Classification for Semantic Maps in Mobile Robotics", Robotics and Autonomous Systems, 2008.
5. D. Scaramuzza, R. Siegwart, "Appearance-Guided Monocular Omnidirectional Visual Odometry for Outdoor Ground Vehicles", IEEE Transactions on Robotics, October 2008.
6. D. Schafroth, S. Bouabdallah, C. Bermes, R. Siegwart, "From the Test Benches to the First Prototype of the muFly Micro Helicopter", Journal of Intelligent and Robotic Systems, 2008.
7. S. Vasudevan, S. Gachter, V. Nguyen, R. Siegwart, "Cognitive Maps For Mobile Robots - An Object Based Approach", Robotics and Autonomous Systems, Vol. 55, No. 5, May 2007, 359-371.
8. V. Nguyen, S. Gachter, A. Martinelli, N. Tomatis, R. Siegwart, "A Comparison of Line Extraction Algorithms Using 2D Range Data for Indoor Mobile Robotics", Autonomous Robots, Vol. 23, No. 2, 2007.
9. T. Thueer, A. Krebs, P. Lamon, R. Siegwart, "Performance Comparison of Rough-Terrain Robots - Simulation and Hardware", Journal of Field Robotics, 2007.
10. J. Halloy, G. Sempo, G. Caprari, C. Rivault, M. Asadpour, F. Tache, I. Said, V. Durier, S. Canonge, J. Ame, C. Detrain, N. Correll, A. Martinoli, F. Mondada, R. Siegwart, J. Deneubourg, "Social Integration of Robots into Groups of Cockroaches to Control Self-Organized Choices", Science, Vol. 318, November 2007, 1155-1158.
11. S. Bouabdallah, M. Becker, R. Siegwart, "Autonomous Miniature Flying Robots: Coming Soon!", IEEE Robotics and Automation Magazine, Vol. 13, No. 3, September 2007.
12. K. Macek, J. Matusko, A. Martinelli, R. Siegwart, J. Guerrero, R. Lozano, "Discussion on Adaptive and Predictive Path Tracking Control for Off-Road Mobile Robots", European Journal of Control, Vol. 13, No. 4, 2007, 440-446.
13. A. Martinelli, V. Nguyen, N. Tomatis, R. Siegwart, "A Relative Map approach to SLAM Based on Shift and Rotation Invariants", Robotics and Autonomous Systems, 2006.
14. A. Noth, W. Engel, R. Siegwart, "Flying Solo and Solar to Mars - Global Design of a Solar Autonomous Airplane for Sustainable Flight", IEEE Robotics and Automation Magazine, Vol. 13, No. 3, September 2006.
15. A. Milella, G. Reina, R. Siegwart, "Computer Vision Methods for Improved Mobile Robot State Estimation in Challenging Terrains", Journal of Multimedia, Vol. 1, No. 7, Nov./Dec. 2006.
16. A. Martinelli, N. Tomatis, R. Siegwart, "Simultaneous Localization and Odometry Self Calibration for Mobile Robot", Autonomous Robots, 2006.
17. R. Katsuki, R. Siegwart, J. Ota, T. Arai, "Reasoning of Abstract Motion of a Target Object through Task Order with Natural Language — Pre-Knowledge of Object-Handling-Task Programming for a Service Robot", Advanced Robotics, Vol. 20, No. 4, 2006, 391-412.
18. M. Asadpour, F. Tache, G. Caprari, W. Karlen, R. Siegwart, "Robot-Animal Interaction: Perception and Behaviour of InsBot", International Journal of Advanced Robotic Systems, Vol. 3, No. 2, November 2006, 93-98.
19. B. Jensen, N. Tomatis, L. Mayor, A. Drygajlo, R. Siegwart, "Robots Meet Humans – Interaction in Public Spaces", IEEE Transactions on Industrial Electronics, Vol. 52, No. 6, December 2005.
20. S. Bouabdallah, P. Murrieri, R. Siegwart, "Towards Autonomous Indoor Micro VTOL", Autonomous Robots, Vol. 18, No. 2, March 2005.
21. G. Caprari, A. Colot, R. Siegwart, J. Halloy, J. Deneubourg, "Animal and Robot Mixed Societies - Building Cooperation Between Microrobots and Cockroaches", IEEE Robotics and Automation Magazine, Vol. 12, No. 2, June 2005, 58-65.
22. M. Asadpour, R. Siegwart, "Compact Q-Learning Optimized for Micro-robots with Processing and Memory Constraints", Robotics and Autonomous Systems, 2004.

Authored Books

23. R. Siegwart, I. Nourbakhsh, Introduction to Autonomous Mobile Robots, Bradford Book, MIT Press, 2004. (around 4000 copies sold)
24. R. Siegwart, I. Nourbakhsh, Introduction to Autonomous Mobile Robots, Chinese Translation, 2007.

Edited Books

25. P. Bessiere, C. Laugier, R. Siegwart, Probabilistic Reasoning and Decision Making in Sensory-Motor Systems, Springer Tracts in Advanced Robotics, Vol. 46, Springer Press, 2008.
26. C. Laugier, R. Siegwart, Field and Service Robotics - Results of the 6th International Conference, Springer Tracts in Advanced Robotics, Vol. 42, Springer Press, 2008.
27. R. Siegwart and B. Nelson. (2007) Proceedings of the 2007 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM2007). IEEE Xpore, 2007

Book chapters

28. D. Scaramuzza, R. Siegwart, "Monocular Omnidirectional Visual Odometry for Outdoor Ground Vehicles", Computer Vision Systems, Lecture Notes in Computer Science, Springer Press, May 2008.
29. A. Ramisa, S. Vasudevan, D. Scaramuzza, R. Mantaras, R. Siegwart, "A Tale of Two Object Recognition Methods for Mobile Robots", Computer Vision Systems, Lecture Notes in Computer Science, Springer Press, May 2008.
30. D. Scaramuzza, N. Criblez, A. Martinelli, R. Siegwart, "Robust Feature Extraction and Matching for Omnidirectional Images", Field and Service Robotics, Springer Tracts in Advanced Robotics, Springer Press, March 2008.
31. S. Vasudevan, S. Gachter, A. Harati, R. Siegwart, "A Hierarchical Concept-oriented Representation for Spatial Cognition in Mobile Robots", 50 Years of Artificial Intelligence, Vol. 4850, Springer Press, August 2007, 244-257.
32. D. Scaramuzza, R. Siegwart, "A Practical Toolbox for Calibrating Omnidirectional Cameras", Vision Systems Book, 2007.
33. A. Noth, R. Siegwart, W. Engel, "Autonomous Solar UAV for Sustainable Flight", Advances in Unmanned Aerial Vehicles, State of the Art and the Road to Autonomy, Springer Press, 2007, 377-405.
34. S. Bouabdallah, R. Siegwart, "Design and Control of a Miniature Quadrotor", Advances in Unmanned Aerial Vehicles, Springer Press, 2007, 171-210.
35. R. Philippsen, B. Jensen, R. Siegwart, "Towards Real-Time Sensor-Based Path Planning in Highly Dynamic Environments", Autonomous Navigation in Dynamic Environments, Springer Press, 2006.
36. A. Noth, W. Engel, R. Siegwart, "Design of an Ultra-Lightweight Autonomous Solar Airplane for Continuous Flight", Field and Service Robotics: Results of the 5th International Conference, Vol. 25, Springer Press, 2006, 441-452.

Peer-reviewed Conference Papers

37. D. Schafroth, C. Bermes, S. Bouabdallah, R. Siegwart, "Propulsion System Optimization for the muFly Micro Helicopter", 35th European Rotorcraft Forum, 2009. [bibtex] [xml] [csv]
38. L. Giger, S. Wismer, S. Boehl, G. Buesser, H. Erckens, J. Weber, P. Moser, P. Schwizer, C. Pradalier, R. Siegwart, "Design and Construction of the Autonomous Sailing Vessel AVALON", Proc. of The World Robotic Sailing Championship and International Robotic Sailing Conference, 2009.
39. X. Perrin, F. Colas, C. Pradalier, R. Siegwart, "Learning to identify users and predict their destination in a robotic guidance application", Field and Service Robotics (FSR), 2009.
40. L. Spinello, A. Macho, R. Triebel, R. Siegwart, "Detecting Pedestrians at Very Small Scales", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), October 2009.
41. M. Rufli, D. Ferguson, R. Siegwart, "Smooth Path Planning in Constrained Environments", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), 2009.
42. D. Scaramuzza, F. Fraundorfer, M. Pollefeys, R. Siegwart, "Absolute Scale in Structure from Motion from a Single Vehicle Mounted Camera by Exploiting Nonholonomic Constraints", Proc. of The IEEE International Conference on Computer Vision (ICCV), October 2009.
43. M. Rufli, R. Siegwart, "On the Application of the D* Search Algorithm to Time-Based Planning on Lattice Graphs", Proc. of The 4th European Conference on Mobile Robotics (ECMR), 2009.

44. M. Rufli, D. Ferguson, R. Siegwart, "Smooth Path Planning in Constrained Environments", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), 2009.
45. L. Kneip, F. Tache, G. Caprari, R. Siegwart, "Characterization of the Compact Hokuyo URG-04LX 2D Laser Range Scanner", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), 2009.
46. D. Schafroth, C. Bermes, S. Bouabdallah, R. Siegwart, "Modeling and System Identification of the muFly Micro Helicopter", 2nd INTERNATIONAL SYMPOSIUM ON UNMANNED AERIAL VEHICLES, 2009.
47. D. Scaramuzza, F. Fraundorfer, R. Siegwart, "Real-Time Monocular Visual Odometry for On-Road Vehicles with 1-Point RANSAC", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), May 2009.
48. M. Liu, D. Scaramuzza, C. Pradalier, R. Siegwart, Q. Chen, "Scene Recognition with Omnidirectional Vision for Topological Map using Lightweight Adaptive Descriptors", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), October 2009.
49. W. Fischer, G. Caprari, R. Siegwart, R. Moser, "Robotic Crawler for Inspecting Generators with Very Narrow Air Gaps", Proc. of The 5th IEEE International Conference on Mechatronics (ICM), 2009.
50. D. Engel, L. Spinello, R. Triebel, C. Curio, R. Siegwart, H. Bueltoff, "Medial Features for Superpixel Segmentation", Proc. of the IAPR Conference on Machine Vision Applications (MVA), May 2009.
51. W. Fischer, G. Caprari, R. Siegwart, R. Moser, "Foldable Magnetic Wheeled Climbing Robot for the Inspection of Gas Turbines", Proc. of The 12th International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines (CLAWAR), 2009.
52. M. Buehringer, J. Berchtold, M. Buechel, C. Dold, M. Buetikofer, M. Feuerstein, W. Fischer, C. Bermes, R. Siegwart, "CableCrawler - Robot for Power Line Inspection", Proc. of The 12th International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines (CLAWAR), 2009.
53. L. Spinello, R. Triebel, R. Siegwart, "Multiclass Multimodal Detection and Tracking in Urban Environments", Proc. of The 7th International Conference on Field and Service Robotics (FSR), July 2009.
54. A. Ramisa, S. Vasudevan, R. Mantaras, R. Siegwart, "A Tale of Two Object Recognition Methods for Mobile Robots", Proc. of The International Conference on Computer Vision Systems (ICVS), 2008.
55. D. Scaramuzza, R. Siegwart, "Correcting Vehicle Heading in Visual Odometry by Using Image Appearance", Proc. of The First International Workshop on Omnidirectional Robot Vision, November 2008.
56. V. Nguyen, R. Siegwart, "Information Relative Map: Going toward Constant Time SLAM", Proc. of The European Robotics Symposium (EUROS), 2008.
57. X. Perrin, R. Chavarriaga, C. Ray, R. Siegwart, J. Millan, "A comparative psychophysical and EEG study of different feedback modalities for HRI", Proceedings of The ACM/IEEE International Conference on Human-Robot Interaction, 2008.
58. A. Krebs, T. Thueer, E. Carrasco, R. Siegwart, "Towards torque control of the CRAB rover", Proc. of The 9th International Symposium on Artificial Intelligence, Robotics and Automation in Space (iSAIRAS), February 2008.
59. T. Thueer, P. Backes, R. Siegwart, "Planetary Vehicle Suspension Options", Proc. of The IEEE Aerospace Conference (AIAA), 2008.
60. L. Spinello, R. Siegwart, "Region of Interest Generation in Dynamic Environments Using Local Entropy Fields", Proc. of The International Conference of Computer Vision and Systems (ICVS), 2008.
61. L. Spinello, R. Siegwart, "Human Detection using Multimodal and Multidimensional Features", Proc. of The International Conference in Robotics and Automation (ICRA), 2008.
62. S. Gachter, A. Harati, R. Siegwart, "Incremental Object Part Detection toward Object Classification in a Sequence of Noisy Range Images", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), February 2008.
63. L. Spinello, R. Triebel, R. Siegwart, "Multimodal People Detection and Tracking in Crowded Scenes", Proc. of The AAAI Conference on Artificial Intelligence (Physically Grounded AI Track), July 2008.
64. S. Gachter, A. Harati, R. Siegwart, "Structure Verification toward Object Classification using a Range Camera", Proc. of the 10th International Conference on Intelligent Autonomous Systems (IAS), 2008.

65. A. Krebs, C. Pradalier, R. Siegwart, "Comparison of Boosting based Terrain Classification using Proprioceptive and Exteroceptive Data", Proc. of The 11th International Symposium on Experimental Robotics (ISER), July 2008.
66. M. Rufli, D. Scaramuzza, R. Siegwart, "Automatic Detection of Checkerboards on Blurred and Distorted Images", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2008.
67. D. Scaramuzza, R. Siegwart, "Performance Evaluation of a Vertical Line Descriptor for Omnidirectional Images", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2008.
68. L. Spinello, R. Triebel, R. Siegwart, "Multimodal Detection and Tracking of Pedestrians in Urban Environments with Explicit Ground Plane Extraction", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2008.
69. W. Fischer, F. Tache, G. Caprari, R. Siegwart, "Magnetic Wheeled Robot with High Mobility but only 2 DOF to Control", Proc. of The 11th International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines (CLAWAR), September 2008.
70. M. Hoepflinger, A. Krebs, C. Pradalier, C. Lee, R. Obstei, R. Siegwart, "Description of the Locomotion Control Architecture on the ExoMars Rover Breadboard", Proc. of The 10th ESA Workshop on Advanced Space Technologies for Robotics and Automation (ASTRA), 2008.
71. D. Schafroth, C. Bermes, S. Bouabdallah, R. Siegwart, "Micro Helicopter Steering: Review and Design for the muFly Project", Proc. of The IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications (MESA), 2008.
72. C. Bermes, S. Leutenegger, S. Bouabdallah, D. Schafroth, R. Siegwart, "New Design of the Steering Mechanism for a Mini Coaxial Helicopter", Proc. of The IEEE International Conference on Intelligent Robots and Systems (IROS), 2008.
73. C. Bermes, S. Leutenegger, S. Bouabdallah, R. Siegwart, "Design and Comparison of a Steering Mechanism for an Autonomous Coaxial Indoor Helicopter", Proc. of The ASME International Symposium on Flexible Automation (ISFA), 2008.
74. T. Thuerer, R. Siegwart, "Kinematic Analysis and Comparison of Wheeled Locomotion Performance", Proc. of The 10th ESA Workshop on Advanced Space Technologies for Robotics and Automation (ASTRA), November 2008.
75. A. Krebs, C. Pradalier, R. Siegwart, "Strategy for adaptive rove behavior based on experiment", Proc. of the 10th ESA Workshop on Advanced Space Technologies for Robotics and Automation, 2008.
76. L. Spinello, R. Siegwart, "Unsupervised Detection of Artificial Objects in Outdoor Environment", Proc. of The 6th International Conference on Field and Service Robotics (FSR), July 2007.
77. A. Harati, S. Gachter, R. Siegwart, "Fast Range Image Segmentation for Indoor 3D-SLAM", Proc. of The 6th IFAC Symposium on Intelligent Autonomous Vehicles (IAV), 2007.
78. A. Harati, R. Siegwart, "A New Approach to Segmentation of 2D Range Scans into Linear Regions", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2007.
79. A. Harati, R. Siegwart, "Orthogonal 3D-SLAM for Indoor Environments Using Right Angle Corners", Proc. of The 3rd European Conference on Mobile Robotics (ECMR), 2007.
80. X. Perrin, R. Chavarriaga, R. Siegwart, J. Millan, "Bayesian Controller for a Novel Semi-Autonomous Navigation Concept", Proc. of The 3rd European Conference on Mobile Robots (ECMR), 2007.
81. W. Fischer, F. Tache, R. Siegwart, "Inspection System for Very Thin and Fragile Surfaces, Based on a Pair of Wall Climbing Robots with Magnetic Wheels", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2007.
82. W. Fischer, F. Tache, R. Siegwart, "Magnetic Wall Climbing Robot for Thin Surfaces with Specific Obstacles", Proc. of The 6th International Conference on Field and Service Robotics (FSR), 2007.
83. F. Tache, W. Fischer, R. Moser, F. Mondada, R. Siegwart, "Adapted Magnetic Wheel Unit for Compact Robots Inspecting Complex Shaped Pipe Structures", Proc. of The IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM), 2007.
84. F. Tache, W. Fischer, R. Siegwart, R. Moser, F. Mondada, " Compact Magnetic Wheeled Robot With High Mobility for Inspecting Complex Shaped Pipe Structures", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2007.
85. S. Vasudevan, R. Siegwart, "A Bayesian approach to Conceptualization and Place Classification: Incorporating Spatial Relationships (distances) to Infer Concepts", Proc. of The IEEE/RSJ

- International Conference on Intelligent Robots and Systems (IROS) Workshop "From Sensor to Human Spatial Concepts (FS2HCS)", 2007.
86. V. Nguyen, A. Harati, R. Siegwart, "A Lightweight SLAM Algorithm using Orthogonal Planes for Indoor Mobile Robotics", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2007.
 87. S. Vasudevan, R. Siegwart, "A Bayesian Conceptualization of Space for Mobile Robots", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2007.
 88. D. Scaramuzza, A. Harati, R. Siegwart, "Extrinsic Self Calibration of a Camera and a 3D Laser Range Finder from Natural Scenes", Proc. of The IEEE International Conference on Intelligent Robots and Systems (IROS), 2007.
 89. S. Vasudevan, A. Harati, R. Siegwart, "A Bayesian Approach to Conceptualization and Place Classification: Using the Number of Occurrences of Objects to Infer Concepts", Proc. of The 3rd European Conference on Mobile Robotics (ECMR), 2007.
 90. R. Philippsen, S. Kolski, K. Macek, R. Siegwart, "Path Planning, Replanning, and Execution for Autonomous Driving in Urban and Offroad Environments", Proc. of The Workshop on Planning, Perception and Navigation for Intelligent Vehicles (ICRA), 2007.
 91. D. Scaramuzza, N. Criblez, A. Martinelli, R. Siegwart, "Robust Feature Extraction and Matching for Omnidirectional Images", Proc. of The 6th International Conference on Field and Service Robotics (FSR), 2007.
 92. A. Martinelli, R. Siegwart, "Exploiting the Information at the Loop Closure in SLAM", Proc. of The International Conference on Robotics and Automation (ICRA), 2007.
 93. F. Pont, R. Siegwart, "Applying Robotic Software to Satellite Payload Controllers", Proc. of The Software Development and Integration in Robotics Workshop (SDIR, ICRA), 2007.
 94. S. Vasudevan, S. Gachter, R. Siegwart, "Cognitive Maps for Mobile Robots - Perspectives from a User Study", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), Workshop on Semantic Information in Robotics, 2007.
 95. D. Scaramuzza, R. Siegwart, "A New Method and Toolbox for Easily Calibrating Omnidirectional Cameras", Proc. of The International Conference on Computer Vision Systems (ICVS), Workshop on Camera Calibration Methods for Computer Vision Systems, 2007.
 96. S. Bouabdallah, R. Siegwart, "Full Control of a Quadrotor", Proc. of The IEEE International Conference on Intelligent Robots (IROS), 2007.
 97. K. Macek, K. Thoma, R. Glatzel, R. Siegwart, "Dynamics Modeling and Parameter Identification for Autonomous Vehicle Navigation", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Oct.-Nov. 2007.
 98. S. Amizadeh, N. Ahmadabadi, B. Araabi, R. Siegwart, "A Bayesian Approach to Conceptualization Using Reinforcement Learning", Proc. of The IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM), September 2007.
 99. R. Siegwart, "Robotic - Quo Vadis: Robotics and Mechatronics Research for New Markets", Proc. of The IEEE International Conference on Integration Technology (ICIT), March 2007.
 100. P. Pfaff, R. Triebel, C. Stachniss, P. Lamon, W. Burgard, R. Siegwart, "Towards Mapping of Cities", Proc. of The IEEE International Conference on Robotics and Automation, April 2007.
 101. T. Thueer, R. Siegwart, "Characterization and Comparison of Rover Locomotion Performance Based on Kinematic Aspects", Proc. of The 6th International Conference on Field and Service Robotics (FSR), 2007.
 102. S. Bouabdallah, C. Barmes, D. Schafroth, R. Siegwart, "muFly: Towards a Fully Autonomous Micro Coaxial Helicopter", Workshop Proc. of The IEEE International Conference on Intelligent Robots (IROS), 2007.
 103. S. Bouabdallah, C. Barmes, D. Schafroth, R. Siegwart, "muFly Project: The First Steps", Proc. of The International Symposium on Flying Insects and Robots, 2007, 13-14.
 104. S. Bouabdallah, M. Becker, V. Perrot, R. Siegwart, "Implementation of an Obstacle Avoidance Controller on the OS4 Mini-Helicopter", Proc. of The XII. Diname International Symposium on Dynamic Problems of Mechanics, 2007.
 105. S. Kolski, K. Macek, L. Spinello, R. Siegwart, "Secure Autonomous Driving in Dynamic Environments: From Object Detection to Safe Driving", Proc. of The Workshop on Safe Navigation in Open and Dynamic Environments: Applications to Autonomous Vehicles (IROS), 2007.
 106. M. Becker, R. Hall, S. Kolski, B. Jensen, K. Macek, R. Siegwart, "The Use of Obstacle Motion Tracking for Car-like Mobile Robots Collision Avoidance in Dynamic Urban Environments", Proc. of The XII. International Symposium on Dynamic Problems of Mechanics (DINAME), 2007, 1-10.

107. M. Becker, S. Kolski, B. Jensen, K. Macek, J. Weingarten, P. Lamon, R. Siegwart, "Car-like Mobile Robots: Soon or Latter a Reality on our Streets", Proc. of The 6th Brazilian Conference on Dynamics, Control, and their Applications (DINCON), 2007, 1-18.
108. C. Bermes, D. Schafroth, S. Bouabdallah, R. Siegwart, "Aerodynamic Optimization, Dynamic Modeling and Overall Prototype Design for the muFly Autonomous Micro-Helicopter", Proc. of The International Symposium on Flying Insects and Robots, August 2007, 9-10.
109. C. Lee, G. Terrien, A. Krebs, R. Siegwart, "Design and Manufacture of a Full Size Breadboard ExoMars Rover", Proc. of The 9th ESA Workshop on Advanced Space Technologies for Robotics (ASTRA), 2006.
110. T. Thueer, P. Lamon, A. Krebs, R. Siegwart, "CRAB – Exploration Rover with Advanced Obstacle Negotiation Capabilities", Proc. of The 9th ESA Workshop on Advanced Space Technologies for Robotics and Automation (ASTRA), 2006.
111. D. Lachat, A. Krebs, T. Thueer, R. Siegwart, "Antarctica Rover Design and Optimization for Limited Power Consumption", Proc. of The 4th IFAC-Symposium on Mechatronic Systems, 2006.
112. A. Krebs, T. Thueer, S. Michaud, R. Siegwart, "Performance Optimization of All-Terrain Robots: A 2D Quasi-Static Tool", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2006.
113. S. Vasudevan, S. Gachter, M. Berger, R. Siegwart, "Cognitive Maps for Mobile Robots – An Object based Approach", Proc. of The IEEE International Conference on Intelligent Robots and Systems (IROS), Workshop From Sensors to Human Spatial Concepts (FS2HSC), 2006.
114. D. Scaramuzza, A. Martinelli, R. Siegwart, "A Toolbox for Easy Calibrating Omnidirectional Cameras", Proc. of The IEEE International Conference on Intelligent Robots and Systems (IROS), 2006.
115. P. Lamon, S. Kolski, R. Siegwart, "The SmartTer - a Vehicle for Fully Autonomous Navigation and Mapping in Outdoor Environments", Proc. of The CLAWAR, 2006.
116. R. Philippsen, B. Jensen, R. Siegwart, "Toward Online Probabilistic Path Replanning in Dynamic Environments", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2006.
117. A. Martinelli, R. Siegwart, "Observability Properties and Optimal Trajectories for On-line Odometry Self-Calibration", Proc. of The IEEE International Conference on Decision and Control (CDC), 2006.
118. S. Vasudevan, V. Nguyen, R. Siegwart, "Towards a Cognitive Probabilistic Representation of Space for Mobile Robots", Proc. of The IEEE International Conference on Information Acquisition (ICIA), 2006.
119. K. Macek, M. Becker, R. Siegwart, "Motion Planning for Car-Like Vehicles in Dynamic Urban Scenarios", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2006.
120. K. Macek, R. Siegwart, "Motion Planning in the Presence of Moving Obstacles using RRT Search and B-splines", Proc. of The 8th International IFAC Symposium on Robot Control (SYROCO), 2006.
121. J. Weingarten, R. Siegwart, "3D SLAM using Planar Segments", Proc. of The International Conference on Intelligent Robots and Systems (IROS), October 2006.
122. A. Martinelli, J. Weingarten, R. Siegwart, "Theoretical Results on On-line Sensor Self-Calibration", Proc. of The IEEE International Conference on Intelligent Robots and Systems (IROS), 2006.
123. V. Nguyen, A. Martinelli, R. Siegwart, "Improving the Consistency of Relative Map", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2006.
124. V. Nguyen, A. Harati, N. Tomatis, A. Martinelli, R. Siegwart, "Orthogonal SLAM: a Step toward Lightweight Indoor Autonomous Navigation", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2006.
125. T. Thueer, A. Krebs, R. Siegwart, "Comprehensive Locomotion Performance Evaluation of All-Terrain Robots", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2006.
126. F. Pont, R. Siegwart, D. Akuatse, O. Moulin, R. Vitulli, "PISA: PI Software Architecture for Integrated Satellite Payload Controllers", Proc. of The Data Systems in Aerospace (DASIA), 2006.
127. A. Martinelli, D. Scaramuzza, R. Siegwart, "Automatic Self-Calibration of a Vision System during Robot Motion", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), 2006.

128. S. Kolski, D. Ferguson, M. Bellino, R. Siegwart, "Autonomous Driving in Structured and Unstructured Environments", Proc. of The IEEE Intelligent Vehicles Symposium, 2006.
129. A. Tapus, R. Siegwart, "A Cognitive Modeling of Space using Fingerprints of Places for Mobile Robot Navigation", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), 2006.
130. A. Tapus, R. Siegwart, "Fingerprints of Places: A Model of Hippocampal Place Cells", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), 2006.
131. A. Tapus, F. Battaglia, R. Siegwart, "The Hippocampal Place Cells and Fingerprints of Places: Spatial Representation Animals, Animats and Robots", Proc. of The 9th Intelligent Autonomous Systems Conference (IAS-9), 2006.
132. G. Ramel, A. Tapus, F. Aspert, R. Siegwart, "Simple Form Recognition Using Bayesian Programming", Proc. of The 9th Intelligent Autonomous Systems Conference (IAS-9), 2006.
133. S. Gachter, V. Nguyen, R. Siegwart, "Results on Range Image Segmentation for Service Robots", Proc. of The Fourth IEEE International Conference on Computer Vision Systems (ICVS), 2006.
134. A. Milella, R. Siegwart, "Stereo-Based Ego-Motion Estimation Using Pixel Tracking and Iterative Closest Point", Proc. of The IEEE International Conference on Computer Vision Systems (ICVS), 2006.
135. D. Scaramuzza, A. Martinelli, R. Siegwart, "A Flexible Technique for Accurate Omnidirectional Camera Calibration and Structure from Motion", Proc. of The IEEE International Conference on Computer Vision Systems (ICVS), 2006.
136. R. Philippsen, B. Jensen, R. Siegwart, "Toward Online Probabilistic Path Replanning", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), Workshop on Autonomous Sensor-Based Motion for Complex Robots in Complex Environments, 2006.
137. A. Noth, W. Engel, R. Siegwart, "Recent Progresses on the Martian Solar Airplane Project Sky-Sailor", Proc. of The 9th ESA Workshop on Advanced Space Technologies for Robotics (ASTRA), November 2006.
138. S. Bouabdallah, R. Siegwart, G. Caprari, "Design and Control of an Indoor Coaxial Helicopter", Proc. of The IEEE International Conference on Intelligent Robots (IROS), 2006.
139. N. Scheidegger, F. Mondada, M. Bonani, R. Siegwart, "Bi-pedal Robot for Rescue Operations", Proc. of The 9th International Conference on Climbing and Walking Robots (CLAWAR), 2006, 425-430.
140. A. Bur, A. Tapus, N. Ouerhani, R. Siegwart, H. Huegli, "Robot Navigation by Panoramic Vision and Attention Guided Fetaures", Proc of The International Conference on Pattern Recognition (ICPR), 2006, 695-698.
141. C. Kobe, I. Goller, C. Ray, R. Siegwart, "Assessment of Individual Creativity in Engineering", Proc. of The 7th International CINet Conference, 2006.
142. M. Asadpour, N. Ahmadabadi, R. Siegwart, "Heterogeneous and Hierarchical Cooperative Learning via Combining Decision Trees", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems, October 2006.
143. N. Ahmadabadi, A. Imanipour, B. Araabi, M. Asadpour, R. Siegwart, "Knowledge-based Extraction of Area of Expertise for Cooperation in Learning", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems, October 2006.
144. F. Holzmann, M. Bellino, R. Siegwart, H. Bubb, "Predictive Estimation of the Road-tire Friction Coefficient", Proc. of The IEEE International Conference on Control Applications, October 2006.
145. F. Holzmann, M. Bellino, R. Siegwart, H. Bubb, "Integration of Driver Assistant Systems as a Virtual Driver", Proc. of The IEEE Intelligent Vehicles Symposium, June 2006.
146. F. Holzmann, M. Bellino, R. Siegwart, H. Bubb, "Introduction of a Full Redundant Architecture into a Vehicle by Integration of a Virtual Driver", Proc. of The IEEE Intelligent Vehicles Symposium, June 2006.
147. P. Lamon, C. Stachniss, R. Triebel, P. Pfaff, C. Plagemann, G. Grisetti, S. Kolski, W. Burgard, R. Siegwart, "Mapping with an Autonomous Car", Proc. of The Workshop on Safe Navigation in Open and Dynamic Environments (IROS), 2006.
148. S. Kolski, D. Ferguson, C. Stachniss, R. Siegwart, "Autonomous Driving in Dynamic Environments", Proc. of The Workshop on Safe Navigation in Open and Dynamic Environments (IROS), 2006.
149. K. Macek, I. Petrovic, R. Siegwart, "A Control Method for Stable and Smooth Path Following of Mobile Robots", Proc. of The 2nd European Conference on Mobile Robots (ECMR), 2005.

150. A. Milella, F. Pont, R. Siegwart, "Model-Based Relative Localization for Cooperative Robots Using Stereo Vision", Proc. of The twelfth annual Conference on Mechatronics and Machine Vision in Practice (M2VIP), 2005.
151. F. Holzmann, S. Kolski, A. Sulzmann, G. Spiegelberg, R. Siegwart, H. Bubb, "Improvement of the Driving Safety using a Virtual Driver", Proc. of Intelligent Transport Systems Conference (ITSC), 2005.
152. A. Noth, W. Engel, R. Siegwart, "Design of an Ultra-Lightweight Autonomous Solar Airplane for Continuous Flight", Proc. of The Field and Service Robotics (FSR), 2005.
153. B. Jensen, J. Weingarten, S. Kolski, R. Siegwart, "Laser Range Imaging using Mobile Robots: From Pose Estimation to 3D-Models", Proc. of The 1st Range Imaging Research Day, 2005.
154. S. Bouabdallah, R. Siegwart, "Towards Intelligent Miniature Flying Robots", Proc. of The Field and Service Robotics (FSR), 2005.
155. P. Lamon, R. Siegwart, "3D Position Tracking in Challenging Terrain", Proc. of the Field and Service Robotics (FSR), 2005.
156. J. Weingarten, R. Siegwart, "EKF-based 3D SLAM for Structured Environment Reconstruction", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), August 2005.
157. R. Philippsen, R. Siegwart, "An Interpolated Dynamic Navigation Function", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), 2005.
158. F. Holzmann, M. Bellino, S. Kolski, G. Spiegelberg, R. Siegwart, "Robots go automotive - The SPARC approach", Proc. of The IEEE Intelligent Vehicles Symposium (IV), June 2005.
159. F. Tache, M. Asadpour, G. Caprari, W. Karlen, R. Siegwart, "Perception and Behavior of InsBot : Robot-Animal Interaction Issues", Proc. of The IEEE International Conference on Robotics and Biomimetics (ROBIO), 2005.
160. M. Greuter, G. Shah, G. Caprari, F. Tache, R. Siegwart, M. Sitti, "Toward Micro Wall-Climbing Robots Using Biomimetic Fibrillar Adhesives", Proc. of The 3rd International Symposium on Autonomous Minirobots for Research and Edutainment (AMIRE), 2005.
161. D. Scaramuzza, A. Martinelli, R. Siegwart, "Precise Bearing Angle Measurement Based on Omnidirectional Conic Sensor and Defocusing", Proc. of The European Conference on Mobile Robots (ECMR), 2005.
162. F. Pont, R. Siegwart, "A Real-Time Software Framework for Indoor Navigation", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2005.
163. A. Martinelli, R. Siegwart, "Observability Analysis for Mobile Robot Localization", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2005.
164. A. Martinelli, N. Tomatis, R. Siegwart, "Some Results on SLAM and the Closing the Loop Problem", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2005.
165. V. Nguyen, A. Martinelli, N. Tomatis, R. Siegwart, "A Comparison of Line Extraction Algorithms using 2D Laser Rangefinder for Indoor Mobile Robotics", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2005.
166. F. Holzmann, A. Sulzmann, G. Spiegelberg, R. Siegwart, "Enhancing the Safety of Vehicles by Comparing Driver's Wish to Intelligent Control", Proc. of The European Automotiv Congress (EAEC), 2005.
167. G. Caprari, R. Siegwart, "Mobile Micro-Robots Ready to Use: Alice", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2005.
168. F. Pont, S. Kolski, R. Siegwart, "Applications of a Real-Time Software Framework for Complex Mechatronic Systems", Proc. of The IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM), 2005.
169. S. Bouabdallah, R. Siegwart, "Backstepping and Sliding-mode Techniques Applied to an Indoor Micro Quadrotor", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), 2005.
170. P. Lamon, R. Siegwart, "Wheel Torque Control in Rough Terrain - Modeling and Simulation", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), 2005.
171. A. Martinelli, F. Pont, R. Siegwart, "Multi-Robot Localization Using Relative Observations", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), 2005.
172. V. Nguyen, A. Martinelli, R. Siegwart, "Handling the Inconsistency of Relative Map Filter", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), 2005.
173. A. Tapus, S. Vasudevan, R. Siegwart, "Toward a Multilevel Cognitive Probabilistic Representation of Space", Proc. of The International Conference on Human Vision and

- Electronic Imaging X (HVEI), part of the IS&T/SPIE Symposium on Electronic Imaging, January 2005.
174. M. Asadpour, F. Tache, G. Caprari, W. Karlen, R. Siegwart, "Robot-Animal Interaction: Perception and Behavior of InsBot", Proc. of The Conceptual Modeling and Simulation Conference (CMS), October 2005.
 175. A. Tapus, R. Siegwart, "Incremental Robot Mapping with Fingerprints of Places", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), August 2005.
 176. R. Katsuki, R. Siegwart, J. Ota, T. Arai, "Reasoning of Motion through Task Order for Teaching by Non-Professional User", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems, 2004.
 177. A. Noth, S. Bouabdallah, S. Michaud, R. Siegwart, W. Engel, "SKY-SAILOR Design of an autonomous solar powered martian airplane", Proc. of The 8th ESA Workshop on Advanced Space Technologies for Robotics (ASTRA), 2004.
 178. P. Lamon, T. Thueer, R. Jordi, R. Siegwart, "Modeling and optimization of wheeled rovers", Proc. of The 8th ESA Workshop on Advanced Space Technologies for Robotics and Automation (ASTRA), 2004.
 179. K. Macek, B. Williams, S. Kolski, R. Siegwart, "A Lane Detection Vision Module for Driver Assistance", Proc. of The IEEE/APS Conference on Mechatronics and Robotics (MechRob), 2004.
 180. M. Altermatt, A. Martinelli, N. Tomatis, R. Siegwart, "SLAM with Corner Features Based on a Relative Map", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2004.
 181. L. Burdet, B. Aeschlimann, R. Siegwart, "Thermal Model for a High Temperature Active Magnetic Bearing", Proc. of The Ninth International Symposium on Magnetic Bearings (ISMB9), 2004.
 182. J. Weingarten, G. Gruener, R. Siegwart, "A State-of-the-Art 3D Sensor for Robot Navigation", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2004.
 183. S. Bouabdallah, A. Noth, R. Siegwart, "PID vs LQ Control Techniques Applied to an Indoor Micro Quadrotor", Proc. of The IEEE International Conference on Intelligent Robots and Systems (IROS), 2004.
 184. S. Bouabdallah, P. Murrieri, R. Siegwart, "Design and Control of an Indoor Micro Quadrotor", Proc. of The International Conference on Robotics and Automation (ICRA), 2004.
 185. P. Lamon, R. Siegwart, "Inertial and 3D-odometry Fusion in Rough Terrain – Towards Real 3D Navigation", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2004.
 186. A. Tapus, G. Ramel, L. Dobler, R. Siegwart, "Topology Learning and Place Recognition using Bayesian Programming for Mobile Robot Navigation", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2004.
 187. F. Pont, R. Siegwart, "Towards Improving Robotic Software Reusability Without Losing Real-Time Capabilities", Proc. of The First International Conference on Informatics in Control, Automation and Robotics (ICINCO), 2004.
 188. N. Tomatis, R. Brega, G. Rivera, R. Siegwart, "'May You Have a Strong (-Typed) Foundation', Why Strong-Typed Programming Languages Do Matter", Proc. of The International Conference on Robotics and Automation (ICRA), April 2004.
 189. A. Martinelli, A. Svensson, N. Tomatis, R. Siegwart, "SLAM Based on Quantities Invariant of the Robot's Configuration", Proc. of The IFAC Symposium on Intelligent Autonomous Vehicles (IAV), 2004.
 190. A. Martinelli, N. Tomatis, R. Siegwart, "Open Challenges in SLAM: An Optimal Solution Based on Shift and Rotation Invariants", Proc. of The International Conference on Robotics and Automation (ICRA), 2004.
 191. A. Colot, G. Caprari, R. Siegwart, "InsBot: Design of an Autonomous Mini Mobile Robot Able to Interact with Cockroaches", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), 2004, 2418-2423.
 192. A. Tapus, N. Tomatis, R. Siegwart, "Topological Global Localization and Mapping with Fingerprint and Uncertainty", Proc. of The International Symposium on Experimental Robotics (ISER), June 2004.
 193. J. Weingarten, G. Gruener, R. Siegwart, "Probabilistic Plane Fitting in 3D and an Application to Robotic Mapping", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), April-May 2004.

194. A. Tapus, S. Heinzer, R. Siegwart, "Bayesian Programming for Topological Global Localization with Fingerprints", Proc. of The IEEE International Conference on Robotics and Automation (ICRA), 2004.
195. P. Lamon, A. Krebs, M. Lauria, S. Shooter, R. Siegwart, "Wheel torque Control for a rough Terrain Rover", Proc. of The International Conference on Robotics and Automation (ICRA), 2004.
196. A. Martinelli, R. Siegwart, "Improving the SLAM Convergence with a Relative Map Filter", Proc. of The IAS, 2004.
197. N. Tomatis, S. Bouabdallah, R. Piguet, G. Terrien, R. Siegwart, "Autonomous Navigation and Security: A 13'000h/3'000km Case Study", Proc. of The 35th International Symposium on Robotics (ISR), 2004.
198. B. Jensen, R. Siegwart, "Scan Alignment with Probabilistic Distance Metric", Proc. of The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Sept.-Oct. 2004.

Patents

199. R. Moser, W. Fischer, F. Tache, R. Siegwart, F. Mondada, Stabilization Mechanism for an Inspection Robot, European Patent Application Nr. 07110243.8