Stefano Carpin, PhD

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Research Interests

Autonomous robotics, robot algorithms, cooperative robotics, robot simulation, humanoid robotics.

Education

University of Padova, Italy

PhD in Industrial Electrical Engineering and Computer Science	Jan 2000 – Feb 2003
BSc/MSc in Electrical Engineering and Computer Science	Oct 1994 – Nov 1999

Professional Experience

University of California, Merced, USA

Associate Professor of Engineering	Jul 2010 – present
Assistant Professor of Engineering	Jan 2007 – Jun 2010

Jacobs University Bremen, Germany

Assistant Professor of Computer Science	Jan 2005 – Dec 2006
Research Instructor for Electrical Engineering and Computer Science	Jan 2003 – Dec 2004

Honors and Awards

Robocup 2009: 1nd place in the Virtual Robots Competition (team leader, UC Merced)
Robocup 2008: 2nd place in the Virtual Robots Competition (team leader, UC Merced)
Robocup 2006: 2nd place in the Virtual Robots Competition (team leader, Jacobs University Bremen)
School of Engineering and Science Teaching Award, Jacobs University Bremen, 2005

University Service at UC Merced

UC Regents Scholarship committee: 2007, 2008
School of Engineering Resources Committee: 2007-2008
School of Engineering Academic Personnel Committee: 2011-2012
EECS graduate program chair: 2008-present
UC Merced Undergraduate Council (UGC): 2010-2011
UC Merced Graduate Research Council (GRC): 2011-2012
Member of ten search committees in the School of Engineering (three chaired)

Teaching

Undergraduate Teaching at UC Merced

CSE100 Algorithm design and analysis: Spring 2007, Spring 2008, Fall 2008
CSE180 Introduction to Robotics: Spring 2007, Fall 2009, Spring 2011

Graduate Teaching at UC Merced

EECS270 Robot Algorithms: Fall 2007, Fall 2011
EECS271 Theory of Computation: Fall 2010
EECS265 Computational Geometry: Fall 2012
EECS281 Advanced Topics in Robotics: Fall 2008

Undergraduate Teaching at Jacobs University Bremen

320112 Natural Science Laboratory – Computer Science 2: Spring 2003, 2004
320111 Natural Science Laboratory – Computer Science / Mathematics: Fall 2003
320201 Data structures and Algorithms: Fall 2004, 2005, 2006
320221 Advanced Computer Science Laboratory 1: Fall 2004
320311 Robotics: Spring 2005, 2006

Graduate Teaching at Jacobs University Bremen

320421 Advanced Robotics: Fall 2004 (half course)

320472 Intelligent Autonomous Systems: Spring 2005

320461 Advanced Algorithms: Fall 2005

320472 Topics in algorithms: Spring 2006

320561 Motion planning: Fall 2006

MENTORING AND
SUPERVISION

Postdoctoral fellows

Dr. Nicola Basilico, June 2011–November 2012.

Current PhD Students

Gorkem Erinc. August 2007-present.

Shuo Liu. August 2012-present.

Seyedshams Feyzabadi. January 2013-present.

Past PhD Students

Andreas Kolling. *"Multi-robot pursuit-evasion"*. Graduated on December 8, 2009 (first student to graduate with a PhD degree in EECS from UC Merced).

Benjamin Balaguer. *"Robots Learning to Manipulate: Real-Time Application-Oriented Algorithms Using Feature-Based and Machine Learning Techniques"*. Graduated in August 2012.

Past MSc Students

Hamed Bastani. *"Absolute 3D indoor radio positioning using dynamic roles assignment"*. September 2006, Jacobs University Bremen.

Gorkem Erinc. *"Nonholonomic motion planning using genetic algorithms for car-like robots"*. September 2006, Jacobs University Bremen.

Andreas Kolling. *"Mutirobot cooperation for surveillance of multiple moving targets - An improved behavioral approach and its formalization"*. September 2006, Jacobs University Bremen.

Derek Burch. *"Hierarchical Search with Probabilistic Quadtrees Applied to Single and Multi-Agent Systems"*. December 2012, UC Merced.

EDITORIAL
ACTIVITIES AND
SCIENTIFIC
EVENTS
ORGANIZATION

Editorial Boards

IEEE Transactions on Robotics: Associate Editor (May 2010 – present)

Program Committees

IEEE International Conference on Robotics and Automation (ICRA): Associate Editor (2008, 2009, 2010, 2011, 2012, 2013)

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS): Associate Editor (2008, 2009, 2010, 2011, 2012, 2013)

Robotics Science and Systems Conference (RSS): Program Committee Member (2012, 2013)

Distributed Autonomous Robotic Systems (DARS): Program Committee Member (2008)

International Conference on Simulation, Modeling and Programming for Autonomous Robots (SIM-PAR): Program Co-chair (2008)

PerMIS: Program Committee Member (2006, 2007, 2009)

IEEE International Conference on Information Reuse and Integration (IRI): Program Committee Member (2006,2007)

RoboCup Symposium: Program Committee Member (2006, 2007, 2008, 2009, 2010, 2011, 2012)

International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS): Program Committee Member (2006, 2007, 2008, 2011, 2012, 2013)

IEEE Workshop on Robot Motion and Control (RoMoCo): Program Committee Member (2005, 2007,

2009, 2011, 2013)

Intelligent autonomous systems conference (IAS): Program Committee Member (2006)

Reviews for International Journals

IEEE Transactions on Robotics and Automation; IEEE Transactions on Robotics; IEEE Robotics and Automation Magazine; IEEE Transactions on Mechatronics; IEEE Journal on Selected Areas of Communications; IEEE Transactions on Parallel and Distributed Systems; IEEE Transactions on Systems, Man, and Cybernetics–Part A: Systems and Humans; ACM Transactions on Multimedia Computing, Communications and Applications; ACM Transactions on Sensor Networks; Autonomous Robots; Robotica; Robotics and Autonomous Systems; International Journal of Robotics and Automation; Journal of Computing and Information Technology; Journal of Information Science and Engineering; Journal of Intelligent and Robotic Systems.

Reviews for International Conferences

Workshop on Algorithmic Foundations of Robotics (WAFR); IEEE International Conference on Robotics and Automation (ICRA); IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS); IEEE Conference on Decision and Control (CDC); IEEE International Conference on Robotics and Biomimetics (ROBIO); IEEE International Conference on Automation Science and Automation (CASE); IEEE International Symposium on Assembly and Task Planning (ISATP); IEEE Workshop on Robot Motion and Control (RoMoCo); American Association for Artificial Intelligence Conference (AAAI); European Conference on Artificial Intelligence (ECAI); European workshop on advanced mobile robots; IASTED International Conference on Artificial Intelligence and Applications; Intelligent Autonomous Systems Conference (IAS); Performance Metrics for Intelligent Systems workshop (PERMIS); IFAC Workshop on Multivehicle Systems.

Organization of Workshops, Tutorials, & Competitions

Co-organizer of the workshop *"Robots, Games, and Research: Success stories in USARSim"* at IROS 2009 (St. Louis, MO)

Co-organizer of the tutorial *"USARSim/MOAST: highly realistic simulation and control for multi robot systems"* at ICRA 2006 (Orlando, FL)

Co-organizer of the tutorial *"USARSim/MOAST"* at AAAI 2006 (Boston, MA)

Co-organizer of the workshop *"Rescue Robotics: from robocup to real world applications"* at IROS 2004 (Sendai, Japan)

RoboCup Federation: Robocup Rescue Simulation Executive Committee Member for 2007-2009

RoboCup Rescue Simulation League: technical committee member (2006)

INVITED TALKS   May 6, 2003. *Algorithmic Motion Planning: from robotics to proteins*, Zentrum für Interdiziplinary Forshung. Bielefeld University, Germany.

July 28, 2003. *Multi-robot motion planning*, ECAI summer school "Advanced course on Artificial Intelligence". International University of Bremen, Germany.

December 22, 2003. *Urban Search and Rescue: the IUB Perspective*, Department of Information Engineering. The University of Padova, Italy.

November 1, 2005. *USARSim*. 2nd International Rescue Robotics Camp, Rome, Italy.

November 2, 2006. *USARSim: open issues and future development.* 3rd International Rescue Robotics Camp, Rome, Italy.

February 4, 2008, *Urban search and rescue: from robotics to computer games*, University of California, Santa Cruz.

March 20, 2008, *A robot in every home: when?*, University of Padova, Workshop for the 20 years of the Department of Information Engineering.

May 16, 2008, *Microsurgical: challenges and opportunities for robotics*, CITRIS SCHEME II Meeting, University of California at Davis Medical Center, Sacramento.

June 15, 2009, *Cooperative Intruder Detection by Multiple Robots with Limited Range*, University of California, Santa Barbara.

May 3, 2010, *Solving Pursuit-evasion Problems with Graph-Clear: an Overview*, IEEE International Conference on Robotics and Automation, Workshop on *Search and Pursuit/Evasion in the Physical World: Efficiency, Scalability, and Guarantees*, Anchorage, AK.

September 8, 2010, *Robotics for emergency response*, CITRIS SCHEME III Meeting, University of California at Davis Medical Center, Sacramento.

July 28, 2011, *Bayesian Search with Probabilistic Quadtrees*, Naval Postgraduate School, Monterey.

RESEARCH
FUNDING AT
UC MERCED

G1 Microsoft Research, *Integrating Urban Search and Rescue into Microsoft Robotics Studio Simulator*, $39,455, July 2007–June 2008, PI

G2 CITRIS & Dean of Engineering CITRIS Funds, *Robotic and Virtual Assistive Agents for Establishing the Center on Autonomous and Interactive Systems at UC Merced*, $150,000, July 2007–June 2008, Co-PI (50% effort, PI: Marcelo Kallmann)

G3 General Motors Research, *Stochastic analysis of distributed architectures*, $23,000, September 2007-December 2007, PI

G4 CITRIS, *Mobile Sensor Networks for Independent Living and Safety at Home*, $75,000, , April 2008–March 2009, Co-PI (50% effort, PI: Songhwai Oh))

G5 NSF, *MRI: Acquisition of robotic hardware for humanoid research in cognitive science and engineering*, $476,500, , September 2008–August 2011, PI (Co-PIs: Kallmann, Matlock, Newsam, Noelle)

G6 NSF, *REU Supplement*, $16,000, PI, Summer 2009

G7 CITRIS, *Virtual reality technologies for robotic aided first response*, $45,000, PI, April 2010-December 2011

G8 DARPA, *Synapse Phase 2*, $299,000, March 2011-November 2012, PI (Co-PI: Chris Kello)

G9 ONR (Naval Postgraduate School of Monterey), *Hierarchical Search with Heterogeneous UAVs*, $54,000, PI, May 2011-December 2011

G10 NIST (National Institute of Standards and Technology, Department of Commerce), *Grasping and Simulation for Next-Generation Manufacturing Robots*, $199,000, PI, August 2012-August 2013 (one year grant with option for two additional years at same funding level.)

G11 CITRIS, *Towards Semantic Spatial Awareness: Robust Text Spotting for Assistive Technology Applications*, $50,000, Co-PI (PI: Roberto Manduchi, UC Santa Cruz), August 2012-August 2013

PUBLICATIONS

Books

B1 S. Carpin, I. Noda, E. Pagello, M. Reggiani, O. Von Stryk. *"Proceedings of SIMPAR 2008"*, Springer, Lecture Notes in Artificial Intelligence (LNAI), vol 5325, 2008.

International Journals

J1 S. Carpin, C. Ferrari, E. Pagello. *"Map focus: A way to reconcile Reactivity and Deliberation in Multirobot Systems"*. Robotics and Autonomous Systems 41(4):245-255, 2002.

J2 S. Carpin, G. Pillonetto. *"Motion planning using adaptive random walks"*. IEEE Transactions on Robotics. 21(1):129-136, 2005.

J3 S. Carpin, A. Birk, V. Jucikas. *"On map merging"*. Robotics and Autonomous Systems, 53(1):1-14, 2005.

J4 A. Birk, S. Carpin. *"Rescue robotics: a crucial milestone on the road to autonomous systems"*. Advanced Robotics, 20(5):595-605, 2006.

J5 A. Birk, S. Carpin. *"Merging occupancy grids from multiple robots"*, Proceedings of the IEEE, 94(7):1384-1397, 2006.

J6 S. Carpin. *"Randomized motion planning – a tutorial"*. International Journal on Robotics and Automation, 21(3):184-196, 2006.

J7 C. Mirolo, S. Carpin, E. Pagello. *"Incremental convex minimization to detect collisions of convex polyhedra"*. IEEE Transactions on Robotics, 23(3):403-415, 2007.

J8 A. Kolling, S. Carpin. *"Cooperative observation of multiple moving targets"*. International Journal of Robotics Research, 26(9):935-953, 2007.

J9 S. Balakirsky, S. Carpin, A. Kleiner, M. Lewis, A. Visser, J. Wang, V.A. Ziparo. *"Towards heterogeneous robot teams for disaster mitigation: Results and Performance Metrics from RoboCup Rescue"*. Journal of Field Robotics, 24(11-12):943-967, 2007.

J10 S. Carpin. *"Fast and accurate map merging for multiple robots"*. Autonomous Robots, 25(3):305-316, 2008.

J11 S. Carpin, M. Kallman, E. Pagello. *"The challenge of motion planning for humanoid robots playing soccer"*. International Journal of Humanoid Robotics 5(3):481-499, 2008

J12 S. Carpin, E. Pagello. *"An experimental study of distributed robot coordination"*. Robotics and Autonomous Systems 57(2):129-133, 2009.

J13 B. Balaguer, S. Balakirsky, S. Carpin, A. Visser. *"Evaluating Maps Produced by Urban Search and Rescue Robots: Lessons Learned from RoboCup"*. Autonomous Robots 27(4):449-464, 2009

J14 A. Kolling, S. Carpin. *"Pursuit-Evasion on Trees by Robot Teams"*. IEEE Transactions on Robotics, 26(1):32-47, 2010.

J15 B. Balaguer, S. Carpin. *"A learning method to determine hot to approach and unknown object to be grasped"*. International Journal of Humanoid Robotics, 8(3):579-606, 2011.

J16 G. Pillonetto, G. Erinc, S. Carpin. *"Online estimation of covariance parameters using extended Kalman filtering and application to robot localization"*. Advanced Robotics, 26(18):2169-2188, 2012.

Peer reviewed international conferences

C1 E. Pagello, C. Ferrari, S. Carpin, P. Patuelli, R. Polesel, R. Rosati, A. Speranzon. *"Planning Multi-robot Systems Actions for Robotics Entartainment"*, Intelligent Autonomous Systems (IAS6), Enrico Pagello et al. eds.,IOS Press, 2000, 139-147

C2 S. Carpin, C. Ferrari, F. Montesello, E. Pagello, P. Patuelli. *"Scalable Deliberative Procedures for Efficient Multi-robot Coordination"*, ECAI 2000 notes of the workshop "Balancing Reactivity and Social Deliberation in Multi-Agent Systems", 66-76, Berlin, August 2000

C3 S. Carpin, C. Ferrari, E. Pagello. *"A framework for distributed simulation of multirobot systems: the VLAB experience"*, Distributed Autonomous Robotic Systems 4, L.E. Parker, G. Bekey, J. Barhen (Eds), Springer-Verlag, 2000, 45-54

C4 S. Carpin, E. Pagello.*"A Distributed Algorithm for Multi-robot Motion Planning"*, Proceedings of the Fourth European Workshop on Advanced Mobile Robots (EUROBOT01), 207-214, Lund (Sweden), September 2001

C5 S. Carpin, E. Pagello. *"Exploiting Multi-robot Geometry for Efficient Randomized Motion Planning"*, Intelligent Autonomous Systems 7 (IAS7), Maria Gini et al. (eds), IOS Press, 2002, 54-62

C6 S. Carpin, L.E. Parker. *"Cooperative Leader Following in a Distributed Multi-robot System"*. Proceedings of the 2002 IEEE International Conference on Robotics and Automation, Washington D.C., May 2002, 2994-3001

C7 S. Carpin, L.E. Parker. *"Cooperative Motion Coordination Adminst Dynamic Obstacles"*, in "Distributed Autonomous Robotic Systems 5", H. Asama, T. Arai, T. Fukuda and T. Hasegava (Eds.), Springer 2002, 145-154

C8 S. Carpin, G. Pillonetto. *"Robot motion planning using adaptive random walks"*. Proceedings of the 2003 IEEE Conference on Robotics and Automation, Taipei (Taiwan), September 2003, pp. 3809-3814

C9 H. Kenn, S. Carpin, M. Pfingsthorn, B. Liebald, I. Hepes, C. Ciocov, A. Birk. *"FAST-Robotics: a rapid-prototyping framework for intelligent mobile robotics"*. Proceedings of the 2003 International Conference on Artificial Intelligence and Applications, 76-81

C10 S. Carpin, G. Pillonetto. *"Learning sampling distributions for randomized motion planning: role of history size"*. Proceedings of the 2003 IASTED International Conference on Artificial Intelligence and Applications, 58-63

C11 S. Carpin, G. Pillonetto. *"Centralized multi-robot motion planning: a random walks based approach"*. Intelligent Autonomous Systems 8 (IAS8), Frans Groen et al (eds.). IOS Press. 2004, 610-617

C12 S. Carpin, V. Jucikas, A. Birk. *"Multi-robot mapping for rescue robotics"*. IEEE International Workshop on Safety, Security and Rescue Robotics. Bonn, Germany, 2004

C13 S. Carpin, A. Birk. Stochastic map merging in rescue environments. In "Robocup 2004: Robot Soccer World Cup XVIII". LNAI Vol. 3276, Springer, 2005, 483-490

C14 S. Carpin. *"Correlated samples for fast exploration of configuration spaces"*. Proceedings of the 2005 International Conference on Artificial Intelligence and Applications, 202-206

C15 S. Carpin, G. Pillonetto. *"Merging the adaptive random walks planner with the randomized potential field planner"*. Proceedings of the 2005 IEEE International workshop on Robot Motion and Control, 151-156

C16 J. Wang, M. Lewis, M. Koes, S. Carpin. *"Validating USARsim for use in HRI Research"*. Proceedings of the 49th meeting of the Human Factors and Ergonomics Society, 457-461, 2005

C17 S. Carpin, E. Pagello. *"An experimental study of distributed robot coordination"*. Intelligent Autonomous Systems 9. Tamio Arai, Rolf Pfeifer, Tucker Balch, and Horoshi Yokoi Eds. , IOS Press, 2006, 199-206

C18 S. Carpin, J. Wang, M. Lewis, A. Birk, A. Jacoff. *"High fidelity tools for rescue robotics: results and perspectives"*. In "Robocup 2005: Robot Soccer World Cup IX", LNAI Vol. 4020, Springer, 2006, 301-311

C19 A. Birk, S. Carpin, W. Chonnaparamutt, V. Jucikas, H. Bastani, I. Delchev, I. Krivulev, S. Lee, S. Markov, A. Pfeil. *"The IUB 2005 Rescue Robot Team"*. In "Robocup 2005: Robot Soccer World Cup IX", Springer, LNAI, 2006

C20 A. Kolling, S. Carpin. *"Multirobot Cooperation for Surveillance of Multiple Moving Targets – A new behavioral approach"*. IEEE 2006 International Conference on Robotics and Automation, 1311-1316

C21 S. Carpin, C. Mirolo, E. Pagello. *"A performance comparison of three algorithms for proximity queries relative to convex polyhedra"*. IEEE 2006 International Conference on Robotics and Automation, 3023-3028

C22 S. Carpin, T. Stoyanov, Y. Nevatia, M. Lewis, J. Wang. *"Quantitative Assessments of USARSim Accuracy"*. Proceedings of PerMIS 2006.

C23 S. Balakirsky, C. Scrapper, S. Carpin, M. Lewis. *"USARSim: providing a framework for multi-robot performance evaluation"*. Proceedings of PerMIS 2006.

C24 S. Carpin, M. Lewis, J. Wang, S. Balakirsky, C. Scrapper. *"Bridging the gap between simulation and reality in urban search and rescue"*. In "Robocup 2006: Robot Soccer World Cup X", LNAI Vol. 4434, Springer, 2007, 1-12

C25 S. Balakirsky, C. Scrapper, S. Carpin, M.Lewis. *"USARSim: A Robocup Virtual Urban Search and Rescue Competition"*. SPIE Unmanned Systems Technology IX, Defense and Security Symposium, vol. 6551, 2007.

C26 G. Erinc, S. Carpin. *"A genetic algorithm for nonholonomic motion planning"*. IEEE 2007 International Conference on Robotics and Automation, 1843-1849

C27 C. Mirolo, S. Carpin, E. Pagello. *"Exploiting different coherence dimensions to answer proximity queries for convex polyhedra.* IEEE 2007 International Conference on Robotics and Automation, 2594-2599

C28 S. Carpin, M. Lewis, J. Wang, S. Balarkirsky, C. Scrapper *"USARSim: a robot simulator for research and education"*. IEEE 2007 International Conference on Robotics and Automation, 1400-1405

C29 A. Kolling, S. Carpin. *"Detecting intruders in complex environments with limited range mobile sensors"*. Robot Motion and Control 2007. K. Kowzlowski (Ed.), Lecture Notes in Control and Information Sciences (LNCIS) 360, Springer, 2007, pp. 417-426

C30 J. Wright, S. Carpin, A. Cerpa, G. Gavilan, M. Kallmann, C. Laird, K. Laird, S. Newsam, and D. Noelle. *"Collaboratory: an open source teaching and learning facility for computer science and engineering education"*. Proceedings of the 2007 International Conference on Frontiers in Education: Computer Science and Computer Engineering.

C31 G. Pillonetto, S. Carpin. *"Multirobot localization with unknown variance parameters using iterated Kalman filtering"*. Proceedings of the 2007 IEEE/RSJ International Conference on Intelligent Robots and Systems, 1709-1714

C32 S. Markov, S. Carpin. *"A Cooperative Distributed Approach to Target Motion Control in Multi-robot Observation of Multiple Targets"*. Proceedings of the 2007 IEEE/RSJ International Conference on Intelligent Robots and Systems, 931-936

C33 A. Kolling, S. Carpin. *"The GRAPH-CLEAR problem: definition, theoretical properties and its connections to multirobot aided surveillance"*. Proceedings of the 2007 IEEE/RSJ International Conference on Intelligent Robots and Systems, 1003-1008

C34 S. Balakirsky, C. Scrapper, S. Carpin. *"The Evolution of Performance Metrics in the RoboCup Rescue Virtual Robot Competition"*. Proceedings of PerMIS 2007, 91-96

C35 A. Kolling, S. Carpin. *"Multi-robot surveillance: an improved algorithm for the GRAPH-CLEAR problem"*. Proceedings of the 2008 IEEE International Conference on Robotics and Automation, 2360-2365

C36 S. Carpin. *"Merging maps via Hough transform"*. Proceedings of the 2008 IEEE/RSJ International Conference on Intelligent Robots and Systems, 1878-1883

C37 G. Erinc, G. Pillonetto, S. Carpin. *"Online estimation of variance parameters: experimental results with application to localization"*. Proceedings of the 2008 IEEE/RSJ International Conference on Intelligent Robots and Systems, 1890-1895

C38 A. Kolling, S. Carpin. *"Extracting surveillance graphs from robot maps"*. Proceedings of the 2008 IEEE/RSJ International Conference on Intelligent Robots and Systems, 2323-2328

C39 B. Balaguer, S. Carpin. *"Where Am I? A Simulated GPS Sensor for Outdoor Robotic Applications"*. in "Proceedings of the First International Conference on Simulation, Modeling and Programming for Autonomous Robots", S. Carpin et al. (Eds.), Springer 2008, 222-233

C40 A. Censi, S. Carpin. *"HSM3D: feature-less global 6DOF scan-matching in the Hough/Radon domain"*. Proceedings of the 2009 IEEE International Conference on Robotics and Automation, 3899-3906

C41 A. Kolling, S. Carpin. *"Probabilistic Graph Clear"*. Proceedings of the 2009 IEEE International Conference on Robotics and Automation, 3508-3514

C42 S. Carpin, A. Censi. *"An experimental assessment of the HSM3D algorithm for sparse and colored data"*. Proceedings of the 2009 IEEE/RSJ International Conference on Intelligent Robots and Systems, 3595-3600

C43 G. Erinc, S. Carpin. *"Image-based mapping and navigation with heterogenous robots"*. Proceedings of the 2009 IEEE/RSJ International Conference on Intelligent Robots and Systems, 5807-5814

C44 A. Kollling, S. Carpin. *"Surveillance strategies for target detection with sweep lines"*. Proceedings of the 2009 IEEE/RSJ International Conference on Intelligent Robots and Systems, 5821-5827

C45 B. Balaguer, S. Carpin, S. Balakirsky, A. Visser. *"Evaluation of Robocup Maps"*. Proceedings of PerMIS 2009

C46 S. Balakirsky, S. Carpin, A. Visser. *"Evaluating the Robocup 2009 Virtual Robot Rescue Competition"*. Proceedings of PerMIS 2009

C47 B. Balaguer, S. Carpin. *" Efficient grasping of novel objects through dimensionality reduction"*, Proceedings of the 2010 IEEE International Conference on Robotics and Automation, 1279-1285

C48 A. Kolling, S. Carpin. *"Multi-Robot Pursuit-Evasion without Maps"*, Proceedings of the 2010 IEEE International Conference on Robotics and Automation, 3045-3051

C49 B. Balaguer, S. Carpin. *"Motion Planning for Cooperative Manipulators Folding Flexible Planar Objects"*. Proceedings of the 2010 IEEE/RSJ International Conference on Intelligent Robots and Systems, 3842-3847

C50 G. Pillonetto, A. Aravkin, S Carpin. *"The unconstrained and inequality constrained moving horizon approach to robot localization"*. Proceedings of the 2010 IEEE/RSJ International Conference on Intelligent Robots and Systems, 3830-3835

C51 G. Erinc, S. Carpin. *"Evaluation criteria for appearance-based maps"*. Proceedings of PerMIS 2010.

C52 B. Balaguer, S. Carpin. *" Learning End-Effector Orientations for Novel Object Grasping Tasks"*. Proceedings of 2010 IEEE/RAS International Conference on Humanoid Robots, 302-307

C53 T.H. Chung, S. Carpin. *"Multiscale Search using Probabilistic Quadtrees"*. Proceedings of the 2011 IEEE International Conference on Robotics and Automation, 2546-2543.

C54 S. Carpin, D. Burch, T.H. Chung *"Searching for Multiple Targets Using Probabilistic Quadtrees"*. Proceedings of the 2011 IEEE/RSJ International Conference on Intelligent Robots and Systems, 4536-4543.

C55 B. Balaguer, S. Carpin. *"Combining Imitation and Reinforcement Learning to Fold Deformable Planar Objects"*. Proceedings of the 2011 IEEE/RSJ International Conference on Intelligent Robots and Systems, 1405-1412.

C56 B. Balaguer, S. Carpin. *"Bimanual Regrasping from Unimanual Machine Learning"*. Proceedings of the 2012 IEEE International Conference on Robotics and Automation, 3264-3270.

C57 N. Basilico, S. Carpin. *"Online Patrolling Using Hierarchical Spatial Representations"*. Proceedings of the 2012 IEEE International Conference on Robotics and Automation, 2163-2169.

C58 G. Erinc, S. Carpin. *"Anytime merging of appearance based maps"*. Proceedings of the 2012 IEEE International Conference on Robotics and Automation, 1656-1662.

C59 B. Balaguer, G. Erinc, S. Carpin, *"Classification and Regression for WiFi Localization of Heterogeneous Robot Teams in Unknown Environments"*, Proceedings of the 2012 IEEE/RSJ International Conference on Intelligent Robots and Systems, 3496-3503.

C60 S. Carpin, *"Distributed coverage while not being covered"*, Proceedings of the 2012 IEEE/RSJ International Conference on Intelligent Robots and Systems, 842-848.

C61 S. Carpin, T.H. Chung, B. Sadler. *"Theoretical Foundations of High-Speed Robot Team Deployment"*. Proceedings of the 2013 IEEE International Conference on Robotics and Automation (accepted for publication).

Book Chapters

BC1 S. Carpin, C. Ferrari, E. Pagello, and P. Patuelli. *"Bridging Deliberation and Reactivity in Cooperative Multi-robot Systems Through Map Focus"*, Balancing Reactivity and Social Deliberation in Multi-Agent Systems, M. Hannebauer, J. Wendler, E. Pagello (Eds.), Lecture Notes in Artificial Intelligence (2103), Springer, 2001, pp. 35-52

BC2 S. Carpin. *"Algorithmic Motion Planning: the Randomized Approach"*. Information transfer and combinatorics. R. Ahlswede, L. Baeumer. N. Cai, H. Aydinian, V. Blinovsky, C. Deppe, H. Mashurian (Eds.), Lecture Notes in Computer Science (4123), Springer, 2006, pp. 725-753

BC3 S. Balakirsky, S. Carpin, G. Dimitoglou, and B. Balaguer. *"From Simulation to Real Robots with Predictable Results: Methods and Examples"*. Performance Evaluation and Benchmarking of Intelligent Systems, R. Madhavan, E. Tunstel, and E. Messina (Eds). Springer, 2009

International Workshops and Symposia

W1 A. Birk, H. Kenn, S. Carpin, M. Pfingsthorn. *"Toward Autonomous Rescue Robots"*. Proceedings of the "First International Workshop on Synthetic Simulation and Robotics to Mitigate Earthquake Disasters", Padova, Italy, 2003

W2 A. Birk, S. Carpin. *"Rescue Robotics at the International Uniersity of Bremen (IUB): an integrative approach"* Proceedings of the workshop Urban Search and Rescue: from Robocup to real world applications. Sendai, Japan, 2004

W3 M. Mahmudi, S. Markov, Y. Nevatia, R. Rathnam, T. Stoyanov, S. Carpin. *"VirtualIUB - development of a team of autonomous agents for the Virtual Robots Competition"*. SRMED 2006

W4 S. Balakirsky, M. Lewis, S. Carpin. *"The Virtual Robots Competition: vision and short term roadmap"*. SRMED 2006

W5 S. Carpin, E. Pagello. *"The challenge of motion planning for humanoid robots playing soccer"*. "Humanoids soccer workshop" held at IEEE Humanoid 2006

W6 S. Balakirsky, C. Scrapper, A. Farinelli, S. Carpin. *"Virtual robots: progresses and outlook"*, SRMED 2007

W7 B. Balaguer, S. Carpin, S. Balakirsky. *"Towards Quantitative Comparisons of Robot Algorithms: Experiences with SLAM in Simulation and Real World Systems"*. Workshop on "Performance Evaluation and Benchmarking for Intelligent Robots and Systems" at IEEE/RSJ IROS 2007

W8 B. Balaguer, S. Carpin. *"UC Mercenary Team Description Paper: RoboCup 2008 Virtual Robot Rescue Simulation League"*. Team Description Paper for RoboCup 2008

W9 B. Balaguer, S. Balakirsky, S. Carpin, M. Lewis, C. Scrapper. *"USARSim: a validated simulator for research in robotics and automation"*. Workshop on "Robot simulators: available software, scientific applications and future trends", at IEEE/RSJ IROS 2008.

W10 B. Balaguer, D. Burch, R. Sloan, S. Carpin. *"UC Merced Team Description Paper: Robocup 2009 Virtual Robot Rescue Simulation Competition"*. Team Description Paper for RoboCup 2009

W11 M. Lewis, S. Carpin, S. Balakirsky. *"Virtual Robots RoboCupRescue Competition: Contributions to Infrastructure and Science"*. IJCAI Workshop on Competitions in Artificial Intelligence and Robotics, IJCAI 2009

W12 A. Kolling, S. Carpin. *"Solving Pursuit-evasion Problems with Graph-Clear: an Overview"*. Workshop on "Search and Pursuit/Evasion in the Physical World". IEEE International Conference on Robotics and Automation, 2010.

W13 B. Balaguer, S. Carpin. *"Human-Inspired Grasping of Novel Objects through Imitation Learning"*, Workshop on "Autonomous Grasping". IEEE International Conference on Robotics and Automation, 2011

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