

EnvMod: Automated environment modeling List of Publications

- [J1] Zoltan-Csaba Marton, Florian Seidel, Ferenc Balint-Benczedi and Michael Beetz,
Ensembles of Strong Learners for Multi-cue Classification,
Pattern Recognition Letters (PRL), Special Issue on Scene Understandings and Behaviours Analysis, 2012.
- [C1] Karol Hausman, Christian Bersch, Dejan Pangercic, Sarah Osentoski, Zoltan-Csaba Marton and Michael Beetz,
Segmentation of Cluttered Scenes through Interactive Perception,
ICRA 2012 Workshop on Semantic Perception and Mapping for Knowledge-enabled Service Robotics, St. Paul, MN, USA, May 14–18 2012.
- [C2] Ross Kidson, Darko Stanimirovic, Dejan Pangercic and Michael Beetz,
Elaborative Evaluation of RGB-D based Point Cloud Registration for Personal Robots,
ICRA 2012 Workshop on Semantic Perception and Mapping for Knowledge-enabled Service Robotics, St. Paul, MN, USA, May 14–18 2012.
- [C3] Thomas Rühr, Jürgen Sturm, Dejan Pangercic, Michael Beetz and Daniel Cremers,
A Generalized Framework for Opening Doors and Drawers in Kitchen Environments,
IEEE International Conference on Robotics and Automation (ICRA), St. Paul, MN, USA, May 14–18 2012.
- [C4] Michael Beetz, Moritz Tenorth, Dejan Pangercic and Benjamin Pitzer,
Semantic Object Maps for Household Tasks,
5th International Conference on Cognitive Systems (CogSys 2012), 2012.
- [C5] Ferenc Balint-Benczedi, Zoltan-Csaba Marton and Michael Beetz,
Efficient Part-Graph Hashes for Object Categorization,
5th International Conference on Cognitive Systems (CogSys), 2012.
- [C6] Zoltan-Csaba Marton, Ferenc Balint-Benczedi, Florian Seidel, Lucian Cosmin Goron and Michael Beetz,
Object Categorization in Clutter using Additive Features and Hashing of Part-graph Descriptors,
Proceedings of Spatial Cognition (SC), Abbey Kloster Seon, Germany, 2012.
- [C7] Christian Bersch, Dejan Pangercic, Sarah Osentoski, Karol Hausman, Zoltan-Csaba Marton, Ryohei Ueda, Kei Okada and Michael Beetz,
Segmentation of Textured and Textureless Objects through Interactive Perception,
RSS Workshop on Robots in Clutter: Manipulation, Perception and Navigation in Human Environments, Sydney, Australia, July 9–13 2012.
- [C8] Dejan Pangercic, Moritz Tenorth, Benjamin Pitzer and Michael Beetz,
Semantic Object Maps for Robotic Housework - Representation, Acquisition and Use,
2012 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Vilamoura, Portugal, October, 7–12 2012.

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- [C9] Lucian Cosmin Goron, Zoltan Csaba Marton, Gheorghe Lazea and Michael Beetz, **Segmenting Cylindrical and Box-like Objects in Cluttered 3D Scenes**, *7th German Conference on Robotics (ROBOTIK)*, Munich, Germany, May 2012.
- [C10] Zoltan-Csaba Marton, Florian Seidel and Michael Beetz, **Towards Modular Spatio-temporal Perception for Task-adapting Robots**, *Postgraduate Conference on Robotics and Development of Cognition (RobotDoC-PhD), a satellite event of the 22nd International Conference on Artificial Neural Networks (ICANN)*, Lausanne, Switzerland, 2012.
- [C11] L. Marconi, C. Melchiorri, M. Beetz, D. Pangercic†, R. Siegwart, S. Leutenegger, R. Carloni, S. Stramigioli, H. Bruyninckx, P. Doherty, A. Kleiner, V. Lippiello, A. Finzi, B. Siciliano, A. Sala and N. Tomatis, **The SHERPA project: smart collaboration between humans and ground-aerial robots for improving rescuing activities in alpine environments**, *IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR)*, College Station, Texas, USA, Nov. 5-8 2012.
- [C12] Vladyslav Usenko, Florian Seidel, Zoltan-Csaba Marton and Dejan Pangercic Michael Beetz, **Furniture Classification using WWW CAD Models**, *IROS'12 Workshop on Active Semantic Perception (ASP'12)*, Vilamoura, Portugal, October 7 2012.
- [J1] Oscar Martinez Mozos, Zoltan Csaba Marton and Michael Beetz, **Furniture Models Learned from the WWW – Using Web Catalogs to Locate and Categorize Unknown Furniture Pieces in 3D Laser Scans**, *Robotics & Automation Magazine*, 18(2): 22-32, June 2011.
- [J2] Zoltan Csaba Marton, Dejan Pangercic, Nico Blodow and Michael Beetz, **Combined 2D-3D Categorization and Classification for Multimodal Perception Systems**, *The International Journal of Robotics Research*, 30(11): 1378-1402, September 2011.
- [C1] Michael Beetz, Ulrich Klank, Alexis Maldonado, Dejan Pangercic and Thomas Rühr, **Robotic Roommates Making Pancakes - Look Into Perception-Manipulation Loop**, *IEEE International Conference on Robotics and Automation (ICRA), Workshop on Mobile Manipulation: Integrating Perception and Manipulation*, 529-536, May, 9–13 2011.
- [C2] Nico Blodow, Zoltan-Csaba Marton, Dejan Pangercic, Thomas Rühr, Moritz Tenorth and Michael Beetz, **Inferring Generalized Pick-and-Place Tasks from Pointing Gestures**, *IEEE International Conference on Robotics and Automation (ICRA), Workshop on Semantic Perception, Mapping and Exploration*, May, 9–13 2011.
- [C3] Nico Blodow, Lucian Cosmin Goron, Zoltan-Csaba Marton, Dejan Pangercic, Thomas Rühr, Moritz Tenorth and Michael Beetz, **Autonomous Semantic Mapping for Robots Performing Everyday Manipulation Tasks in Kitchen Environments**, *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, San Francisco, CA, USA, September, 25–30 2011.

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- [C4] Zoltan-Csaba Marton, Nico Blodow and Michael Beetz,
Advantages of Spatial-temporal Object Maps for Service Robotics,
IEEE Workshop on Advanced Robotics and its Social Impacts (ARSO), Half-Moon Bay, CA, USA, October 2-4 2011.
- [C5] Shulei Zhu, Dejan Pangercic and Michael Beetz,
Contracting Curve Density Algorithm for Applications in Personal Robotics,
11th IEEE-RAS International Conference on Humanoid Robots, Bled, Slovenia, October, 26–28 2011.
- [C6] Michael Beetz, Ulrich Klank, Ingo Kresse, Alexis Maldonado, Lorenz Mösenlechner, Dejan Pangercic, Thomas Rühr and Moritz Tenorth,
Robotic Roommates Making Pancakes,
11th IEEE-RAS International Conference on Humanoid Robots, Bled, Slovenia, October, 26–28 2011.
- [C7] Manabu Saito, Haseru Chen, Kei Okada, Masayuki Inaba, Lars Kunze and Michael Beetz,
Semantic Object Search in Large-scale Indoor Environments,
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Workshop on Active Semantic Perception and Object Search in the Real World, San Francisco, CA, USA, September, 25–30 2011.
- [C8] Asako Kanezaki, Zoltan-Csaba Marton, Dejan Pangercic, Tatsuya Harada, Yasuo Kuniyoshi and Michael Beetz,
Voxelized Shape and Color Histograms for RGB-D,
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Workshop on Active Semantic Perception and Object Search in the Real World, San Francisco, CA, USA, September, 25–30 2011.
- [C9] Zoltan-Csaba Marton, Dejan Pangercic and Michael Beetz,
Efficient Surface and Feature Estimation in RGBD,
RGB-D Workshop on 3D Perception in Robotics at the European Robotics (euRobotics) Forum, Västerås, Sweden, April 8 2011.
- [C1] Nico Blodow, Zoltan-Csaba Marton, Dejan Pangercic and Michael Beetz,
Making Sense of 3D Data,
Robotics: Science and Systems Conference (RSS), Workshop on Strategies and Evaluation for Mobile Manipulation in Household Environments, 2010.
- [C2] Zoltan-Csaba Marton, Dejan Pangercic, Nico Blodow, Jonathan Kleinhellefort and Michael Beetz,
General 3D Modelling of Novel Objects from a Single View,
Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Taipei, Taiwan, October 18-22 2010.
- [C3] Zoltan-Csaba Marton, Dejan Pangercic, Radu Bogdan Rusu, Andreas Holzbach and Michael Beetz,
Hierarchical Object Geometric Categorization and Appearance Classification for Mobile Manipulation,
Proceedings of the IEEE-RAS International Conference on Humanoid Robots, Nashville, TN, USA, December 6-8 2010.

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- [C4] Nico Blodow, Dominik Jain, Zoltan-Csaba Marton and Michael Beetz,
Perception and Probabilistic Anchoring for Dynamic World State Logging,
10th IEEE-RAS International Conference on Humanoid Robots, Nashville, TN, USA, 160-166, December 6-8 2010.
- [C5] Moritz Tenorth, Lars Kunze, Dominik Jain and Michael Beetz,
KNOWROB-MAP – Knowledge-Linked Semantic Object Maps,
10th IEEE-RAS International Conference on Humanoid Robots, Nashville, TN, USA, 430-435, December 6-8 2010.
- [C6] Lucian Cosmin Goron, Zoltan Csaba Marton, Gheorghe Lazea and Michael Beetz,
Automatic Layered 3D Reconstruction of Simplified Object Models for Grasping,
Joint 41st International Symposium on Robotics (ISR) and 6th German Conference on Robotics (ROBOTIK), Munich, Germany, 2010.
- [J1] Radu Bogdan Rusu, Aravind Sundaresan, Benoit Morisset, Kris Hauser, Motilal Agrawal, Jean-Claude Latombe and Michael Beetz,
Leaving Flatland: Efficient Real-Time 3D Navigation,
Journal of Field Robotics (JFR), 2009.
- [J2] Radu Bogdan Rusu, Jan Bandouch, Franziska Meier, Irfan Essa and Michael Beetz,
Human Action Recognition using Global Point Feature Histograms and Action Shapes,
Advanced Robotics journal, Robotics Society of Japan (RSJ), 2009.
- [C1] Ulrich Klank, Dejan Pangercic, Radu Bogdan Rusu and Michael Beetz,
Real-time CAD Model Matching for Mobile Manipulation and Grasping,
9th IEEE-RAS International Conference on Humanoid Robots, Paris, France, 290-296, December 7-10 2009.
- [C2] Zoltan Csaba Marton, Radu Bogdan Rusu, Dominik Jain, Ulrich Klank and Michael Beetz,
Probabilistic Categorization of Kitchen Objects in Table Settings with a Composite Sensor,
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), St. Louis, MO, USA, 4777-4784, October 11-15 2009.
- [C3] Radu Bogdan Rusu, Ioan Alexandru Sucas, Brian Gerkey, Sachin Chitta, Michael Beetz and Lydia E. Kavraki,
Real-time Perception-Guided Motion Planning for a Personal Robot,
Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), St. Louis, MO, USA, 4245-4252, October 11-15 2009.
- [C4] Radu Bogdan Rusu, Zoltan Csaba Marton, Nico Blodow, Andreas Holzbach and Michael Beetz,
Model-based and Learned Semantic Object Labeling in 3D Point Cloud Maps of Kitchen Environments,
Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), St. Louis, MO, USA, October 11-15 2009.

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- [C5] Radu Bogdan Rusu, Nico Blodow, Zoltan Csaba Marton and Michael Beetz,
Close-range Scene Segmentation and Reconstruction of 3D Point Cloud Maps for Mobile Manipulation in Human Environments,
Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), St. Louis, MO, USA, October 11-15 2009.
- [C6] Radu Bogdan Rusu, Andreas Holzbach, Nico Blodow and Michael Beetz,
Fast Geometric Point Labeling using Conditional Random Fields,
Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), St. Louis, MO, USA, October 11-15 2009.
- [C7] Radu Bogdan Rusu, Wim Meeussen, Sachin Chitta and Michael Beetz,
Laser-based Perception for Door and Handle Identification,
Proceedings of the International Conference on Advanced Robotics (ICAR), Munich, June 22-26 2009.
- [C8] Benoit Morisset, Radu Bogdan Rusu, Aravind Sundaresan, Kris Hauser, Motilal Agrawal, Jean-Claude Latombe and Michael Beetz,
Leaving Flatland: Toward Real-Time 3D Navigation,
Proceedings of the IEEE International Conference on Robotics and Automation (ICRA), Kobe, Japan, May 12-17, 2009.
- [C9] Radu Bogdan Rusu, Nico Blodow and Michael Beetz,
Fast Point Feature Histograms (FPFH) for 3D Registration,
Proceedings of the IEEE International Conference on Robotics and Automation (ICRA), Kobe, Japan, May 12-17, 2009.
- [C10] Zoltan Csaba Marton, Radu Bogdan Rusu and Michael Beetz,
On Fast Surface Reconstruction Methods for Large and Noisy Point Clouds,
Proceedings of the IEEE International Conference on Robotics and Automation (ICRA), Kobe, Japan, May 12-17 2009.
- [C11] Morten Rufus Blas, Radu Bogdan Rusu, Mogens Blanke and Michael Beetz,
Fault-tolerant 3D Mapping with Application to an Orchard Robot,
Proceedings of the 7th IFAC International Symposium on Fault Detection, Supervision and Safety of Technical Processes (SAFEPROCESS'09), Barcelona, Spain, June 30 - July 3, 2009.
- [C12] Zoltan Csaba Marton, Lucian Cosmin Goron, Radu Bogdan Rusu and Michael Beetz,
Reconstruction and Verification of 3D Object Models for Grasping,
Proceedings of the 14th International Symposium on Robotics Research (ISRR09), Lucerne, Switzerland, August 31 – September 3 2009.
- [C13] Radu Bogdan Rusu, Andreas Holzbach, Gary Bradski and Michael Beetz,
Detecting and Segmenting Objects for Mobile Manipulation,
Proceedings of IEEE Workshop on Search in 3D and Video (S3DV), held in conjunction with the 12th IEEE International Conference on Computer Vision (ICCV), Kyoto, Japan, September 27 2009.
- [C14] Nico Blodow, Radu Bogdan Rusu, Zoltan Csaba Marton and Michael Beetz,
Partial View Modeling and Validation in 3D Laser Scans for Grasping,
9th IEEE-RAS International Conference on Humanoid Robots (Humanoids), Paris, France, December 7-10 2009.

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- [C15] Radu Bogdan Rusu, Andreas Holzbach, Rosen Diankov, Gary Bradski and Michael Beetz, **Perception for Mobile Manipulation and Grasping using Active Stereo**, *9th IEEE-RAS International Conference on Humanoid Robots (Humanoids)*, Paris, France, December 7-10 2009.
- [C16] Michael Beetz, Nico Blodow, Ulrich Klank, Zoltan Csaba Marton, Dejan Pangercic and Radu Bogdan Rusu, **CoP-Man – Perception for Mobile Pick-and-Place in Human Living Environments**, *Proceedings of the 22nd IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) Workshop on Semantic Perception for Mobile Manipulation*, St. Louis, MO, USA, October 11-15 2009.
- [J1] Radu Bogdan Rusu, Zoltan Csaba Marton, Nico Blodow, Mihai Dolha and Michael Beetz, **Towards 3D Point Cloud Based Object Maps for Household Environments**, *Robotics and Autonomous Systems Journal (Special Issue on Semantic Knowledge in Robotics)*, 56(11): 927-941, 30 November 2008.
- [J2] Radu Bogdan Rusu, Brian Gerkey and Michael Beetz, **Robots in the kitchen: Exploiting ubiquitous sensing and actuation**, *Robotics and Autonomous Systems Journal (Special Issue on Network Robot Systems)*, 2008.
- [C1] Zoltan Csaba Marton, Nico Blodow, Mihai Dolha, Moritz Tenorth, Radu Bogdan Rusu and Michael Beetz, **Autonomous Mapping of Kitchen Environments and Applications**, *Proceedings of the 1st International Workshop on Cognition for Technical Systems, Munich, Germany, 6-8 October, 2008*.
- [C2] Radu Bogdan Rusu, Aravind Sundaresan, Benoit Morisset, Motilal Agrawal, Michael Beetz and Kurt Konolige, **Realtime Extended 3D Reconstruction from Stereo for Navigation**, *Proceedings of the 21st IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) Workshop on 3D Mapping, Nice, France, September 26, 2008*.
- [C3] Radu Bogdan Rusu, Zoltan Csaba Marton, Nico Blodow and Michael Beetz, **Interpretation of Urban Scenes based on Geometric Features**, *Proceedings of the 21st IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) Workshop on 3D Mapping, Nice, France, September 26, 2008*.
- [C4] Radu Bogdan Rusu, Aravind Sundaresan, Benoit Morisset, Motilal Agrawal and Michael Beetz, **Leaving Flatland: Realtime 3D Stereo Semantic Reconstruction**, *Proceedings of the International Conference on Intelligent Robotics and Applications (ICIRA) 2008, October 15-17, Wuhan, China, 2008*.
- [C5] Radu Bogdan Rusu, Zoltan Csaba Marton, Nico Blodow and Michael Beetz, **Learning Informative Point Classes for the Acquisition of Object Model Maps**, *Proceedings of the 10th International Conference on Control, Automation, Robotics and Vision (ICARCV), Hanoi, Vietnam, December 17-20, 2008*.

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- [C6] Michael Beetz, Freerk Stulp, Bernd Radig, Jan Bandouch, Nico Blodow, Mihai Dolha, Andreas Fedrizzi, Dominik Jain, Uli Klank, Ingo Kresse, Alexis Maldonado, Zoltan Marton, Lorenz Mösenlechner, Federico Ruiz, Radu Bogdan Rusu and Moritz Tenorth,
The Assistive Kitchen – A Demonstration Scenario for Cognitive Technical Systems,
IEEE 17th International Symposium on Robot and Human Interactive Communication (RO-MAN), Muenchen, Germany, 1-8, 2008.
- [C7] Radu Bogdan Rusu, Jan Bandouch, Zoltan Csaba Marton, Nico Blodow and Michael Beetz,
Action Recognition in Intelligent Environments using Point Cloud Features Extracted from Silhouette Sequences,
IEEE 17th International Symposium on Robot and Human Interactive Communication (RO-MAN), Muenchen, Germany, 2008.
- [C8] Radu Bogdan Rusu, Zoltan Csaba Marton, Nico Blodow and Michael Beetz,
Persistent Point Feature Histograms for 3D Point Clouds,
Proceedings of the 10th International Conference on Intelligent Autonomous Systems (IAS-10), Baden-Baden, Germany, 2008.
- [C9] Radu Bogdan Rusu, Zoltan Csaba Marton, Nico Blodow, Mihai Emanuel Dolha and Michael Beetz,
Functional Object Mapping of Kitchen Environments,
Proceedings of the 21st IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Nice, France, September 22-26, 2008.
- [C10] Radu Bogdan Rusu, Nico Blodow, Zoltan Csaba Marton and Michael Beetz,
Aligning Point Cloud Views using Persistent Feature Histograms,
Proceedings of the 21st IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Nice, France, September 22-26, 2008.
- [C1] Radu Bogdan Rusu, Nico Blodow, Zoltan-Csaba Marton, Alina Soos and Michael Beetz,
Towards 3D Object Maps for Autonomous Household Robots,
Proceedings of the 20th IEEE International Conference on Intelligent Robots and Systems (IROS), San Diego, CA, USA, 2007.