2nd ICRA Workshop on

Semantic Perception, Mapping and Exploration (SPME 2012)

St. Paul, Minnesota, USA, May 14, 2011

http://spme.ws

Call for Papers

Important Dates

Submissions Due:	01 April 2012
Notification of Acceptance:	16 April 2012
Final Papers Due:	01 May 2012
Workshop at ICRA:	14 May 2012

Motivation and Objectives

As robots and autonomous systems move away from laboratory setups towards complex real-world scenarios, both the perception capabilities of these systems and their abilities to acquire and model semantic information must become more powerful. The autonomous acquisition of information, the extraction of semantic models, and exploration strategies for deciding where and how to acquire the most relevant information pertinent to a specific semantic model are the research foci of an annual series of workshops at ICRA, called Semantic Perception, Mapping and Exploration (SPME).

Semantic perception for intelligent systems such as robots has seen a lot of progress recently, with many new and interesting techniques being developed in parallel by different research groups. Moreover, with the advent of inexpensive and accurate 3D imaging sensors, there has been an explosion of interest in 3D point clouds across a broad range of people. Not neglecting this trend, this edition of the workshop series puts a special focus on (3D) Semantic Perception.

While there is a lot of work on 3D perception that is freely available, and initiatives as PCL and 3DTK are enabling the community to build on previous results in order to push the frontiers for researchers further, there are some open questions left to be answered. There is no consensus yet emerging on the standard solutions, features and algorithms needed for semantic perception, mapping and exploration, and if the current approaches are viable on the long run. This workshop provides the venue for discussing the definition and uses of semantic information for and by perception, and to identify the most important directions of future research and development of new tools that would aid it.

Submissions

We solicit paper submissions, optionally accompanied by a video, both of which will be reviewed (not double-blind) by the program committee. The review criteria will be: technical quality, significance of

system demonstration, and topicality. We aim to accept 9 to 12 papers for oral presentation at the meeting. Papers should be up to 6 pages in length, and formatted according to the IEEE ICRA style. Videos will be shown during an afternoon session open to the public.

Accepted papers and videos will be assembled into proceedings that are going to be published online, and distributed in CD format at the workshop.

In addition, we will pursue publication of a special journal issue to include the best papers.

This edition of the annual workshop series focuses on (3D) semantic perception. Topics of interest include, but are not necessarily limited to:

- Extracting semantic information from visual sensors, 3D sensors, or different sensor modalities
- Semantic scene interpretation (and decomposition into parts of interest)
- Semantic object perception (incl. localization, identification, anchoring)
- Categorization or classification of objects, rooms, and environments
- Modeling (of objects and environments), registration using semantic information etc.
- Specifying and exploiting background knowledge for semantic perception and mapping

All papers must be submitted electronically as PDF files through the easychair submission system using: https://www.easychair.org/conferences/?conf=spme2012.

In case of problems or larger video attachments, contact the organizers: mailto:spme@spme.ws.

Program Committee

- Francesco Amigoni, Politecnico di Milano, Italy
- Michael Beetz, Technische Universität München, Germany
- Sven Behnke, University of Bonn, Germany
- Wolfram Burgard, University of Freiburg, Germany
- Henrik Christensen, Georgia Institute of Technology, USA
- Tom Duckett, University of Lincoln, UK
- Joachim Hertzberg, University of Osnabrück, Germany
- Patric Jensfelt, KTH Royal Institute of Technology, Sweden
- Kurt Konolige, Willow Garage, USA
- Jim Little, University of British Columbia, Canada
- Bhaskara Marthi, Willow Garage, USA
- Alessandro Saffiotti, Örebro University, Sweden
- Markus Vincze, TU Vienna, Austria

Invited Talks

The workshop will feature several invited talks from key researchers in the field:

- Gary Bradski, Willow Garage, Inc / Stanford University, USA
- Wolfram Burgard, University of Freiburg, Germany
- Trevor Darrell, UC Berkeley, USA
- Dieter Fox, University of Washington, USA
- Patric Jensfelt, KTH Royal Institute of Technology, Sweden
- Jim Little, University of British Columbia, Canada

Organizers

- Dirk Holz, University of Bonn, Germany
- Zoltan-Csaba Marton, Technische Universität München, Germany

- Andreas Nüchter, Jacobs University Bremen gGmbH Germany
- Andrzej Pronobis, KTH Royal Institute of Technology, Sweden
- Radu Bogdan Rusu, Willow Garage Inc., Stanford University, USA

Partner workshop at ICRA

This is the first of two workshops at ICRA dealing with semantic perception, and we would also like to draw your attention to the other workshop on Friday. It is a hands-on workshop focusing, amongst other topics, on narrowing down the definition of semantics, life-long learning in the context of semantic mapping, knowledge representations and higher-level perception. Accepted are posters and demos. For more information see: http://ias.cs.tum.edu/events/spmk-icra2012.