4th International Workshop on Domain-Specific Languages and models for ROBotic systems (DSLRob-13)

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DSLRob-13, Tokyo, Japan

Domain-Specific Languages (DSLs) and Model-driven Software Development (MDSD) are emerging areas of interest in the robotics research community. Both have been instrumental for resolving complex issues in a wide range of domains, including e.g. distributed and modular robotics, control, and vision.

The goal of this workshop is to bring together robotics researchers working with DSLs and models in different aspects of robotics.

The main objective of this workshop is a cross-pollination of ideas between robotics researchers in DSLs and models from different domains. DSLs and models are key elements in many robotic systems presented at leading conferences such as IROS and ICRA, but the domain-centric structure of the typical robotics conference does not offer a natural venue for exchange of ideas regarding DSLs and models.

The intended audience is those robotics researchers throughout the entire robotics community who use DSLs and models as a key component of their robotics software infrastructure. In addition, robotics researchers with an interest in modern approaches to solving complex software-related issues will find the workshop inspirational.

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1st DSLRob 2010 at IROS 2010 (Taipei)
4 papers
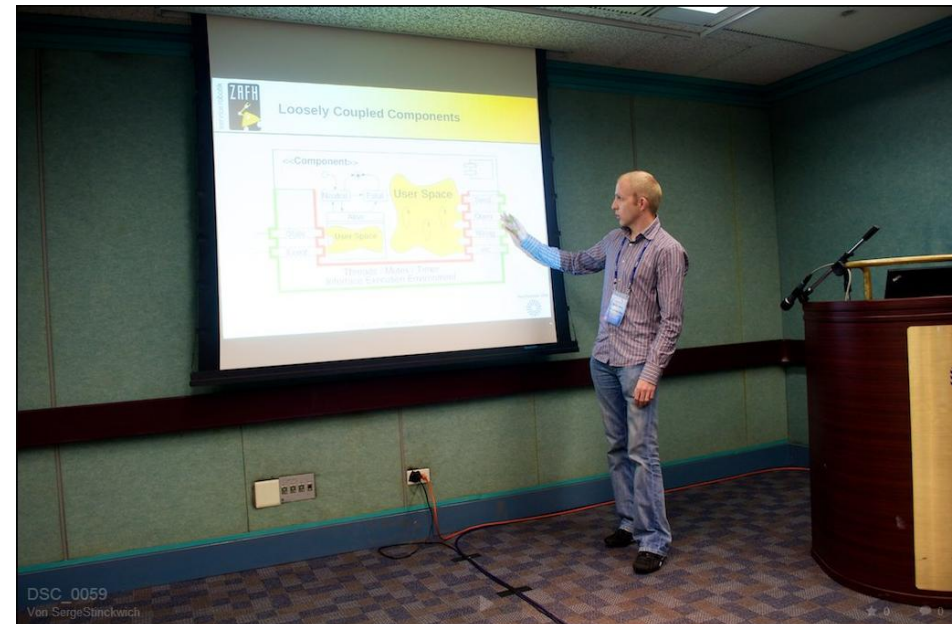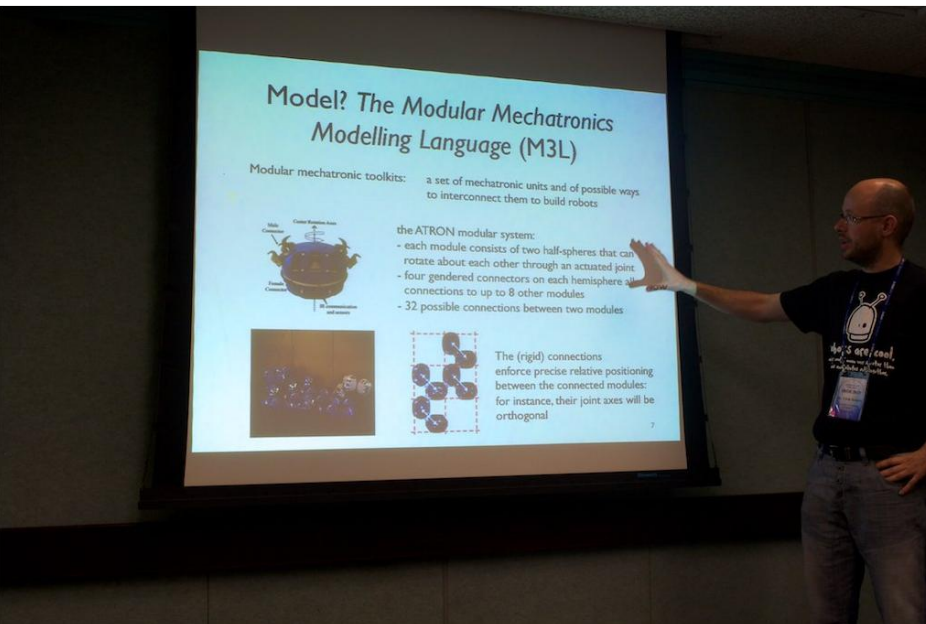
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**2nd DSLRob 2011 co-located at IROS 2011 (San Francisco)
4 papers**

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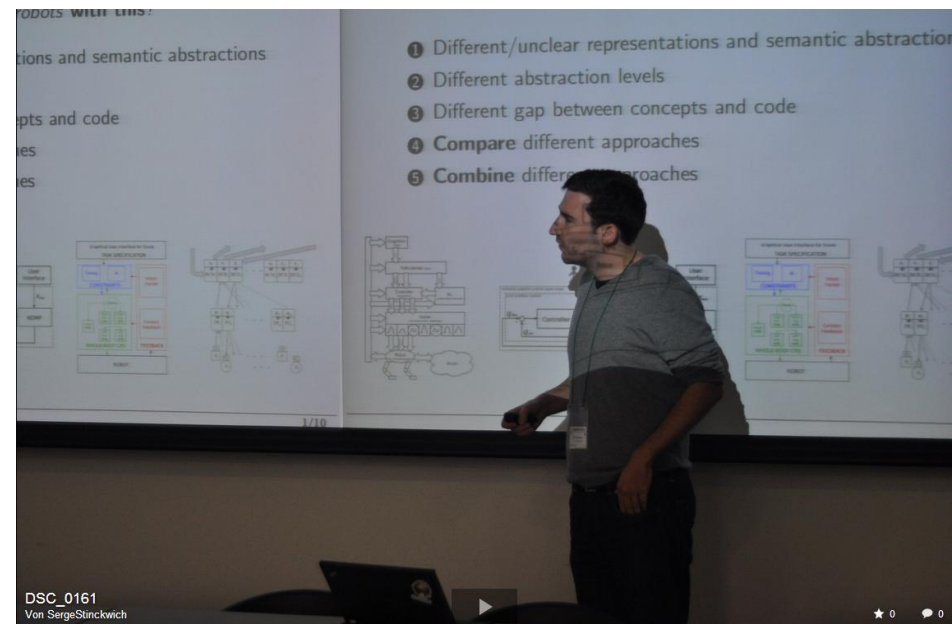
**3rd DSLRob 2012 at SIMPAR 2012 (Tsukuba)
6 papers**

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4th DSLRob 2013 co-located at IROS 2013 (Tokyo)
7 papers

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This workshop will focus on the use of Domain-Specific Languages and Models for Robotic Systems. Topics that are of special interest include:

- domain-specific languages to express reactive behaviors, composition of behaviors, motion description languages (MDL),
- domain-specific languages to express uncertainty, modelling of physical system, real-time constraints,
- domain-specific languages to describe cooperative robotics and modular robotics systems,
- tools support and frameworks for describing and manipulating DSLs, models and meta-models for robotic systems,
- code generation and code transformation for robotics systems, variability in robotic systems,
- meta-models to express robotic specific structures and best practices,
- frameworks to combine DSLs in an uniform manner,
- benchmarks to compare use of DSL vs general-purpose programming, and
- programming languages in the context of robotic systems, visual languages for robots, languages to teach robotics.

Program committee

Alexandre Bergel, University of Chile, Chile

Geoffrey Biggs, AIST, Japan

Mirko Bordignon, Digipack Automation, Sanovo Technology Group

Herman Bruyninckx, University of Leuven, Belgium

Saadia Dhouib, CEA List, France

Hugo A. Garcia, University of Leuven, Belgium

Issa Nesnas, JPL Robotics, USA

Cyril Novales, PRISME, France

Jeff Gray, University of Alabama, USA

Henrik Nilsson, University of Nottingham, UK

Patrick Martin, York College of Pennsylvania, USA

Walid Taha, Halmstadt University, Sweden

Christina Vicente-Chicote, University of Extremadura, Spain

Mikal Ziane, LIP6, France

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09:45 - 10:00   Welcome and Opening / Christian Schlegel, Serge Stinckwich

10:00 - 10:30   Selma Kchir, Tewfik Ziadi, Mika Ziane, Serge Stinckwich
A Top-Down Approach to Managing Variability in Robotics Algorithms

10:30 - 11:00   Md. Abdullah Al Mamun, Christian Berger, Jorgen Hansson
Engineering the Hardware/Software Interface for Robotic Platforms:
Comparison of Applied Model Checking with Prolog and Alloy

11:00- 11:30   Yingfu Zeng, Chad Rose, Paul Brauner, Walid Taha, Jawad Masood, Roland Philippsen, Marcia O'Malley, Robert Cartwright
Modeling Basic Aspects of Cyber-Physical Systems, Part II

11:30 - 13:15   LUNCH BREAK

13:15 - 13:45   Thomas Buchmann, Johannes Baumgartl, Dominik Henrich, Bernhard Westfechtel
Towards A Domain-specific Language For Pick-And-Place Applications

13:45 - 14:15   Nico Hochgeschwender, Sven Schneider, Holger Voos, Gerhard K. Kraetzschmar
Towards a Robot Perception Specification Language

14:15 – 14:45   Anders Lange, Anders Sorensen, Ulrik Schultz
Towards Automatic Migration of ROS Components from Software to Hardware

14:45 – 15:15   Sebastian Blumenthal, Herman Bruyninckx
Towards a Domain Specific Language for a Scene Graph based Robotic World Model

15:15 - 15:30   COFFEE BREAK

15:30- 17:00   DISCUSSION - roadmap (hot topics, priorities, benefits) of issues related to the WS topics

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News

- community services
    - we now have a google-group: **ras-tcsoft@googlegroups.com**

- IROS 2013
    - organized session "Software Engineering for Robotics"

- IROS 2013 Workshop Review

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Serge Stinckwich, Ulrik Pagh Schultz, Christian Schlegel
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Type of submission:    Tutorials and Workshops
Conference:            IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS 2013)
Submission number:     1889


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Comments:
This workshop focuses on domain-specification language to model and control robots. The idea is
to optimize the use of domain expert in domain-specified languages. Schedule of this workshop
should be clarified.
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Actions

- JOSER special issue covering the DSLrob workshop series
  - Idea:
    - not just extended versions of DSLrob papers but written with the insights from now
    - special issue should reflect the state-of-the-art, current variety of, use of, benefits of DSLs in robotics and current hot topics
  - Actions:
    - Prepare Proposal for a Special Issue
      - Call for Paper
      - Tentative Schedule Submission and Review Process
        - Submission Deadline: in 6 months => end of may / june 2014?
        - Authors notification: 2 months later
        - Issue Date: 2 month later
    - Prepare further hints for the reviewers?
      - what are issues to be considered in the review beyond the JOSER review policy?

Discussion

• all of a sudden, 20 PhD students ask you: what is a hot topic in that field?

• hot topics?
  • DSLs, Meta-Models, MDSD, …
• domains?
  • already covered and solved
  • long hanging fruits?
  • tried to address but not yet solved in a satisfying way
  • badly needed but not yet addressed
• research roadmap?
  • milestones, benefits, priorities?