January 27-28, 2011 at Saarland University, Saarbrücken, Germany

Introduction

The Workshop on Model Integrated Mechatronics aims to assemble experts, colleagues and PhD students in the field of modeling mechatronic systems in the Industrial automation domain to present and discuss current research activities.

Mechatronic system development is influenced from two quite independent domains. On one side, semi-formal systems modeling approaches – mainly originated from successful practices in Software Engineering – are currently expanded and adapted to address current challenges in the development of complex mechatronic systems. On the other side, formal system modeling approaches are maturing to the point where they are no longer restricted to academic examples and model analysis techniques.

Currently, none of these approaches is capable of addressing by alone the challenges in the development process of today's complex mechatronic systems. To this end, the workshop aims at bringing together prominent proponents of the two areas to foster the mutual understanding and the exchange of ideas towards the integration and synergy of methodologies, techniques and platforms used by the two worlds.

The workshop is timed to benefit from Prof. Kleanthis Thramboulidis' stay at Saarland University in the framework of the innolecture program funded by Stifterverband für die Deutsche Wissenschaft and ME Saar.

Workshop Overview

The two-day event is composed of 14 invited talks. The first day is dedicated to semi-formal approaches and influences from the Software Engineering domain, whereas, on the second day, formal modeling approaches are presented. Two talks are presenting results from current EU projects (MULTIFORM, Avilus) related to the workshop's subject.

Talks will be held throughout the two days in Building A5 1 on the Saarland University campus. Sessions are in room −1.03 (basement).

Everyone interested is invited to attend. Attendance of the workshop is free of charge. However, to facilitate the planning, please register by e-mail with

sekretariat@aut.uni-saarland.de

preferably before the holiday season.

Thursday, January 27   **1st Workshop Day (SE Approaches)**

09:00-09:10	"Welcome and Introduction to SE Approaches"
	Prof. Georg Frey, Saarland University
09:10-09:50	"Model Integrated Mechatronics: The 3+1 SysML-view Model"
	Prof. Kleanthis Thramboulidis, Univ. of Patras
09:50-10:30	"Current Trends in Embedded Software Engineering"
	Prof. Peter Liggesmeyer, Fraunhofer IESE Kaiserslautern
10:30-11:00	*Coffee/Discussion*
11:00-11:40	"SysML and UML for Systems and Software Design in Automation"
	Prof. Birgit Vogel-Heuser, TU München
11:40-12:20	„Model-based design of advanced user interfaces"
	Prof. Detlef Zühlke, DFKI Kaiserslautern
12:20-14:00	*Lunch*
14:00-14:40	"Service Oriented Model Interfaces"
	Prof. Ulrich Epple, RWTH Aachen
14:40-15:20	"Automation-oriented mechatronic plant models (Avilus project)"
	Prof. Christian Diedrich, OvG University Magdeburg
15:20-15:50	*Coffee/Discussion*
15:50-16:30	"Integrated Engineering of Mechatronic Systems"
	Prof. Holger Voos, University Luxembourg
16:30-17:10	"The role of models in the engineering of automation systems"
	Prof. Alexander Fay, HSU Hamburg
17:10-17:20	*Closing Discussion*

Friday, January 28   **2nd Workshop Day (Formal Modeling Approaches)**

09:00-09:10	"Welcome and Introduction to Formal Modeling Approaches"
	Prof. Georg Frey, Saarland University
09:10-09:50	"Hybrid Systems Modeling in Mechatronic and Safety Engineering"
	Dr. Felix Felgner, Saarland University
09:50-10:30	"Conformance test of logic controllers"
	Prof. Jean-Marc Faure, ENS Cachan
10:30-11:00	*Coffee/Discussion*
11:00-11:40	"Towards Integrated Multi-Formalism Tool Support for the Design of
	Embedded Control Systems"
	Prof. Sebastian Engell, Universität Dortmund
11:40-12:20	"The Compositional Interchange Format for model transformation"
	Dr. Bert van Beek, Eindhoven University
12:20-14:00	*Lunch*
14:00-14:40	"Distributed abstraction-based state estimation for hybrid systems"
	Prof. Jörg Raisch, TU Berlin
14:40-15:20	"Quantitative Model Checking"
	Prof. Holger Hermanns, Saarland University
15:20-15:30	Concluding Remarks and Farewell
	Prof. Georg Frey, Saarland University
15:30	*Coffee/Closing Discussion*