



## 6th International Workshop on Multi-Paradigm Modeling MPM'12

# Welcome

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### **Schedule (morning)**

09:00-10:30	Welcome by the organizing team         Keynote speech by E. Jones: Model Based Software Development needs MPM but         MPM needs Industry Acceptance         Presentation of the posters
10:30-11:00	Coffee break with poster session
11:00-12:30	<ul> <li>Track "Industry experiences and MPM applications" (E. Jones):</li> <li>H. Burden, R. Heldal and M. Lundqvist: Industrial Experiences from Multi- Paradigmatic Modelling of Signal Processing</li> <li>S. Mustafiz, J. Denil, L. Lucio and H. Vangheluwe: <u>The FTG+PM Framework for</u> Multi-Paradigm Modelling: An Automotive Case Study</li> <li>R. Deshayes, C. Jacquet, C. Hardebolle, F. Boulanger and T. Mens: <u>Heterogeneous</u> Modeling of Gesture-Based 3D Applications</li> <li>Track "MPM approaches and techniques" (E. Syriani):</li> <li>S. Whitsitt, J. Sprinkle and R. Lysecky: <u>An Overseer Control Methodology for Data Adaptable Embedded Systems</u></li> </ul>





### Schedule (afternoon)

I 4:00- I 5:30	<ul> <li>Track "MPM approaches and techniques" (cont'd):</li> <li>B. Meyers, A. Cicchetti, E. Guerra and J. De Lara: <u>Composing Textual Modelling Languages in Practice</u></li> <li>D. Blouin, E. Senn, K. Roussel and O. Zendra: <u>A Multi-Paradigm DSML for Quantitative Analysis of Embedded System Architecture Models</u></li> <li>Brainstorming on the topics for the discussion session and choice of groups</li> <li>Start of the discussion session in groups</li> </ul>
15:30-16:00	Coffee break with poster session
16:00-17:30	Discussion session in groups (cont'd) Discussion wrap-up Conclusion





### **Selection process**

20 submissions, each paper reviewed by 3 PC members

- 6 papers were accepted as full papers (30% acceptance)
- 6 papers were accepted as posters

Two tracks:

- Industry experiences and MPM applications Chair: Edward Jones
- MPM approaches and techniques Chair: Eugene Syriani





### **Publication**

- All accepted papers will be published in the ACM Digital Library (no LNCS post-proceedings as before)
- Accepted papers are available on the MPM'12 web site <u>http://avalon.aut.bme.hu/mpm12</u>
- The final versions will be available from the ACM DL only





### The MPM "vision"

#### Context = engineering of complex systems

(cyber-physical systems, embedded systems, software intensive systems...)

#### Heterogeneity in:

- Systems: nature of the components
- Modeling approaches: level of abstraction, domain, view (concern), purpose

#### Multi-Paradigm Modeling = tackling this complexity by

- Modeling "everything" explicitly, with the most appropriate formalism<u>S</u>
- Composing models and modeling languages
- Transforming models, transforming model transformations

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### **Special guest: Edward Jones**

- Senior member of engineering staff at Lockheed Martin Advanced Technology Labs (ATL)
- Workshop proposal "Multi-Modeling for Software Systems" (E. Jones and J. H. Hill) @ MODELS 2012
  - Interactions with industry
  - Special interest in separation of concerns + consistency management
  - Considering many different kinds of models
- Keynote talk: Model Based Software Development needs MPM but MPM needs Industry Acceptance





### Posters

- Axel Reichwein, Christiaan J.J. Paredis, Arquimedes Canedo, Petra Witschel, Philipp Emanuel Stelzig, Anjelika Votintseva and Rainer Wasgint. <u>Maintaining</u> <u>Consistency between System Architecture and Dynamic System Models with</u> <u>SysML4Modelica</u>
- David Broman, Edward Lee, Stavros Tripakis and Martin Törngren. <u>Viewpoints</u>, <u>Formalisms, Languages, and Tools for Cyber-Physical Systems</u>
- Ramon Schiffelers, Wilbert Alberts and Jeroen Voeten. <u>Model based design</u>, <u>analysis and synthesis of servo controllers for lithoscanners</u>
- Vadim Zaytsev. <u>Renarrating Linguistic Architecture: A Case Study</u>
- Henrik Steudel, Regina Hebig and Holger Giese. <u>A Build Server for</u> <u>Collaborative Model-Driven Engineering</u>
- Zsolt Lattmann, Adam Nagel, Tihamer Levendovszky, Sandeep Neema, Ted Bapty and Gabor Karsai. <u>Component-based Modeling of Dynamic Systems using</u> <u>Heterogeneous Composition</u>





### **Discussion topics proposals**

- How to describe the adaptation between heterogeneous models?
  - Modeling of "connectors"
  - Language generated using the source languages (like transformation)
- Semantics of languages and models
  - Customizable by the end-user (language engineer + modeler?)
  - Modular (reusable parts)
  - Composable
  - Verifiable?





### **Discussion topics**

- I. How to describe the adaptation between heterogeneous models?
  - Modeling of "connectors"
  - Language generated using the source languages (like transformation)
- 2. Semantics of languages and models
  - Customizable by the end-user (language engineer / modeler)
  - Modular (reusable parts) + Composable
  - Verifiable
- 3. Tools to build (a) language(s) and tools for the language user
- 4. Usability / pragmatics of languages and composition of languages
  - Challenge = definition of a metric for usability
- 5. Process for language engineering which allows integration of the stakeholders
  - Collaboration with non-DLS engineers





### **Discussion groups**

- Group I: combining different languages
- Group 2: semantics of languages
  - Modular
  - Composable
- Group 3: tool/language integration