

International Workshop on Modeling Language Engineering and Execution (MLE)

The joint Fifth International Workshop on Executable Modeling (EXE) and Seventh
International Workshop on the Globalization of Modeling Languages (GEMOC)

September 17, Munich, Germany, co-located with MODELS 2019

[Erwan Bousse](#)

University of Nantes, France

Julien Deantoni

University of Nice, France

Romina Eramo

University of L'Aquila, Italy

Jeff Gray

University of Alabama, USA

Ed Seidewitz

Model Driven Solutions, USA

Why MLE?

- In the past years the following two workshops were present at MODELS:
 - **EXE** (Workshop on Executable Modeling),
 - **GEMOC** (Workshop on the Globalization of Modeling Languages).
- *Significant overlap* between both workshops: language engineering, execution semantics, dynamic analysis of models, etc.

Early 2019: merger

- In 2019, each workshop submitted a proposal to MODELS'19 and was accepted.
- Shortly after, organizers from both sides **decided to merge into a single workshop**, which the MODELS organizers accepted.

Birth of the Workshop on **Modeling Language Engineering and Execution (MLE)** 🎉

Context: the engineering of modeling languages

- Increasing complexity of modern software-intensive systems.
- Need for *enhanced software engineering methods* that rely on separation of concerns coming from the diverse stakeholders.
- Need specialized modeling languages and technologies associated with these concerns, ie. need for proper **modeling language engineering** methods.
- Core challenges:
 - **engineering each separate modeling language** and associated technologies,
 - **integrating the different languages** from different concern spaces.

Aim of the Workshop

Highlight opportunities and challenges of modeling language engineering:

- Assess and advance the state-of-the-art,
- Exchange recent results, ideas, opinions, and experiences,
- Coordinate research efforts,
- **Bring together** researchers and practitioners working in this area!

Side note

The "MLE" acronym is a fortuitous reference to "SLE" (Software Language Engineering) since MLE aims to be **a meeting opportunity for SLE enthusiasts within the modeling community** 😊

Topics (taken from the CFP)

- Tools and **methods for engineering** modeling languages (eg. DSLs)
- Defining, composing, verifying and tooling **execution semantics**
- Composability and interoperability of heterogeneous modeling languages
- **Heterogeneous modeling** and simulation
- Tools and methods for the **dynamic validation, verification** of systems
- Tools and methods to ensure **consistency and coherence** between different models
- Execution and composition of **partial and underspecified models**
- **Language interface**, viewpoint
- Multi-language or **multi-disciplinary environment**
- Model execution and composition in the presence of **non-determinism and concurrency**
- Tools and methods for **socio-technical coordination** in the context of heterogeneous modeling
- **Language integration** challenges
- Surveys and benchmarks

Program

9:00 – 10:30: Session 1 – Keynote

« Modelling Syntax, Semantics and Pragmatics in Practice » by Vadim Zaytsev.

11:00 – 12:30: Session 2 – Short Papers

Lunch break

14:00 – 15:30: Session 3 – Research Papers (academic)

16:00 – 17:00: Session 4 – Research Papers (industry)

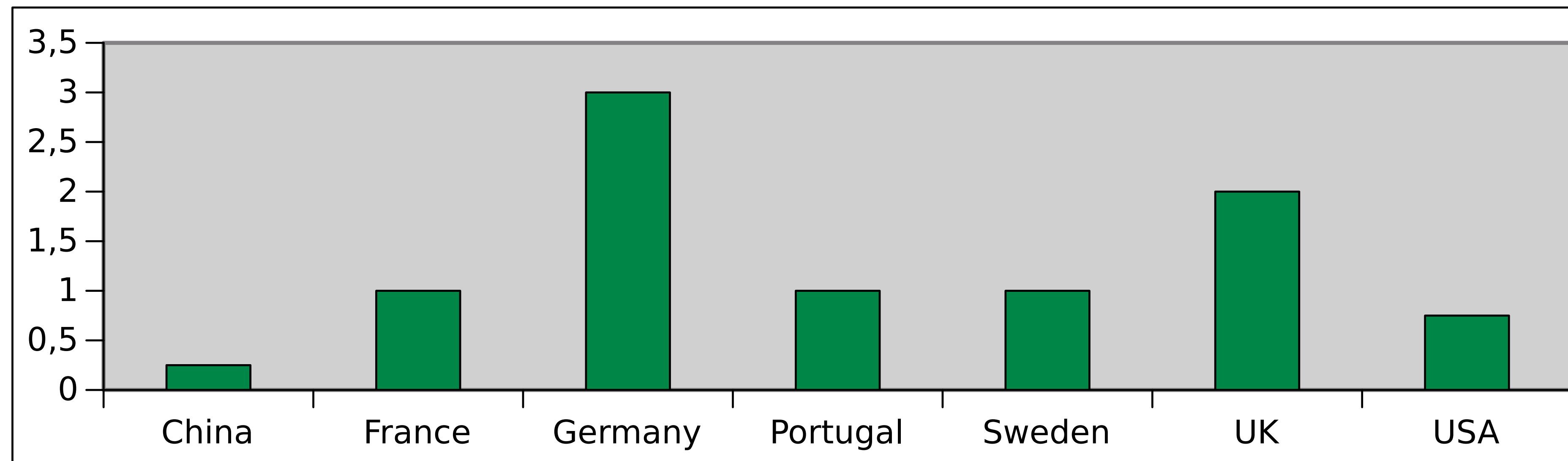
17:00 – 17:30: Discussion and wrap-up

Statistics about Submissions

Acceptance rate

- Number of submitted papers: **15** (5 short papers, 10 long papers)
- Number of accepted papers: **9** (4 short papers, 5 long papers)
- **Acceptance rate: 60%**

By country



Huge Thanks to our Program Committee!

- Bernhard Rumpe, RWTH Aachen University
- Taylor Riché, National Instruments
- Florian Noyrit, CEA LIST
- Steffen Zschaler, King's College London
- Andrei Chis, feenk gmbh
- Gunter Mussbacher, McGill University
- Jean-Michel Bruel, IRIT
- Manuel Wimmer, JKU Linz
- Thomas Degueule, CWI
- Federico Ciccozzi, Mälardalen University
- Hans Vangheluwe, University of Antwerp and McGill University
- Hugo Bruneliere, NaoMod Team (IMT Atlantique & LS2N - CNRS)
- Andreas Wortmann, RWTH Aachen University
- Mark Van Den Brand, Eindhoven University of Technology
- Jérémie Tatibouët, CEA
- Benoit Combemale, University of Toulouse & Inria
- Tony Clark, Aston University
- Safouan Taha, CentraleSupélec
- Matthias Schöttle, McGill University
- Nicolas Hili, IRT Saint Exupéry

Publication of Resources

Post-Proceedings

Will be part of the MODELS'19 Satellite Events IEEE proceedings.

Slides

- Will be available on <http://gemoc.org/events/mle2019>
- Speakers, please **send a copy of your slides** at mle2019@easychair.org

Collaborative document to use during the workshop

- We have set-up a **collaborative document** that *anyone* can edit or read during the workshop! You can put in there:
 - **Topics** you find interesting and would like to discuss with the community during the last session,
 - **Feedback** for the organizers, to improve the next editions of MLE.
- To access it:
 - Visit the workshop website: <http://gemoc.org/events/mle2019>,
 - Click on the link "Public collaborative document".

Group picture

Please **do not leave directly after the keynote**, we will do a quick **group picture!** 📷

Sessions

Session 1

9:00 – 10:30: Session 1 – Keynote

« **Modelling Syntax, Semantics and Pragmatics in Practice** »

by Vadim Zaytsev, Chief Science Officer of Raincode and Raincode Labs.



Session 2

11:00 – 12:30: Session 2 – Short Papers

20 minutes each.

« **Executable Modelling for Highly Parallel Accelerators** » by Lorenzo Addazi, Federico Ciccozzi and Björn Lisper

« **Platform specific energy estimation for executable domain-specific modeling languages** » by Thibault Bézières La Fosse, Massimo Tisi, Jean-Marie Mottu, Gerson Sunyé and Erwan Bousse

« **Engineering Hybrid Graphical-Textual Languages with Sirius and Xtext: Requirements and Challenges** » by Justin Cooper and Dimitris Kolovos

« **A Proposal of Features to Support Analysis and Debugging of Declarative Model Transformations with Graphical Syntax by Embedded Visualizations** » by Florian Ege and Matthias Tichy

Session 3

14:00 – 15:30: Session 3 – Research Papers (academic)

30 minutes each.

« **Simulation of Model Execution for Embedded Systems** » by Jörg Christian Kirchhof, Evgeny Kusmenko, Jean Meurice and Bernhard Rumpe

« **Firmware Synthesis for Ultra-Thin IoT Devices Based on Model Integration** » by Arthur Kühlwein, Anton Paule, Leon Hielscher, Wolfgang Rosenstiel and Oliver Bringmann

« **On the Challenges of Model Decorations for Capturing Complex Metadata** » by Horacio Hoyos, Athanasios Zolotas, Dimitris Kolovos and Richard Paige

Session 4

16:00 – 17:00: Session 4 – Research Papers (industry)

30 minutes each.

« **Converting Executable Floating-Point Models to Executable and Synthesizable Fixed-Point Models** » by Taylor Riché, James Nagle, Joyce Xu and Don Hubbard

« **TrueChange under the hood: how we check the consistency of large models (almost) instantly** » by Hugo Lourenço and Rui Eugénio

Workshop Closing

Discussion

Topics proposed on the collaborative workshop document:

- **Model validation:** How to better handle validation rules of languages standards (e.g., UML, PSSM, PSCS) ? These rules are quite boring to implement maybe having a model to manipulate these rules can be a good idea...
- **Event dispatching strategies:** Event dispatching is usually a major challenge when designing an event-based language. Tools usually have only one implicit event dispatching strategy but the user has its own vision about event dispatching. How this can be improved ? How such strategies can be decoupled from tools ?

Feedback?

Any feedback you would like to give us?

- about the workshop format?
- topics for next year's CFP?

Future of MLE

MLE now has a **Steering Committee!**

- Ed Seidewitz, *Model Driven Solutions*
- Jeff Gray, *University of Alabama*
- Erwan Bousse, *University of Nantes*
- Benoit Combemale, *University of Toulouse & Inria*
- Romina Eramo, *University of L'Aquila*

Main goals: sustain the workshop and renew organizers every year

MLE 2020 (if accepted) will be organized by

- Taylor Riché, *National Instruments*
- Steffen Zschaler, *King's College London*
- Andreas Wortmann, *RWTH Aachen University*

Thank you!

<http://gemoc.org/events/mle2019>

See you at MLE 2020?