CAIRES 2016 — First Workshop on Collaboration of Academia and Industry for Real World Embedded Systems

About

The organizers cordially invite researchers as well as practitioners in the area of embedded systems to join us at the first workshop on "Collaboration of Academia and Industry for Real World Embedded Systems" (CAIRES) at Embedded Systems Week (ESWeek) this year.

The objective of the workshop is to bring together researchers and engineers in order to find ways to solve some of the most pressing, and yet underestimated problems in the design of complex embedded systems:
(a). How to transfer appropriately abstracted, yet-not-trivialized problem statements from industry to research;
(b). How to effectively transfer methods and tools developed during research back into the industry; and the related problem of objectively measuring the quality of methods and tools developed (e.g., recommended benchmarks)

Problems with Current Approaches for Transferring Industrial Problems to Research

It has been seen from recent scientific publications in the area of embedded systems that research statements are often over-simplified versions of the actual industrial problem. In some cases, such an over-simplification is necessary in order to focus on a particular aspect of the problem being investigated. However, quite often, such an over-simplification leads to solutions which cannot be applied, as critical practical constraints have been overlooked.

Often, the primary reason for such an over-simplification is the lack of proper (i.e., precise) communication from the industry about its own problems to the research community. In other words, an industrial partner does not have enough time (or expertise, or resources) to come up with an appropriate abstraction of the industrial problem.

Problems with Current Transfer of Methods and Tools Back Into Industry

Often, the methods and tools developed by the research community cannot be applied without significant reimplementation effort thereby significantly decreasing the probability that such state-of-the-art methods and tools are rapidly introduced into the industry.

A major reason for such a re-implementation effort is the mismatch between performance expected out of such methods and tools by the industry, and the actual performance delivered.

What Is In It For You: The Participant?

If you are a researcher and you have felt that the methods, algorithms, or tools developed by you (or your group) have not made the impact in the industry which these deserve, and you would like to work towards a more effective transfer of technology to the industry, then this workshop is for you. On the other hand, if you are from the industry and feel that your group is facing significant challenges in leveraging the innovation happening at the universities, then make sure you attend this workshop.

The workshop will feature talks by carefully selected speakers who have significant first-hand experience working in industry-academia collaboration for solving complex industrial problems in the field of embedded systems. Using concrete examples, the speakers will specifically focus on the twin challenges that form the theme of the workshop. There will also be an interactive "hands-on" session wherein all participants (speakers as well as visitors) will have a chance to form a group in order to either collaboratively define research statements, or formalize expectation on methods and tools.

Organizing Committee

- Rolf Ernst (TU Braunschweig) ● Marco Di Natale (Scuola Superiore Sant'Anna of Pisa, Italy)
- Sascha Uhrig (Airbus Research) ● Sophie Quinton (Inria Grenoble – Rhône-Alpes)
- Devendra Rai (Bosch Corporate Research)

Location and Timing of the Workshop

Date	October 6, 2016.
Room	Marquis B.

Brief Workshop Program

The workshop will have two parts: talks by speakers, and an interactive session. Each speaker will deliver a 25 minute talk detailing one or more specific aspects of twin challenges that form the theme of the workshop. Each talk will be followed by a 5-minute Q/A session.

Visit the workshop website: caires2016.inria.fr for latest updates on the workshop.

Talks *Order of talks subject to revision if such a revision improves the overall experience of the workshop.*

1. 09:05-09:35   Dirk Ziegenbein (Bosch, Germany)
   Topic: *Overcoming Technology Transfer Obstacles: An Experience Report*

2. 09:35-10:05   Rainer Leupers (RWTH Aachen, Germany)
   Topic: *Academia-Industry Technology Transfer in the Software and EDA Tools Domain*

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   10:05-10:30   Refreshment Break
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3. 10:30-11:00   Jim Kapinski (Toyota Motors, USA)
   Topic: *Designing Successful Industry-Academia Research Projects*

4. 11:00-11:30   Alexandre Esper (Critical Software, Portugal)
   Topic: *An Industrial View on the Academic Approach to Mixed Criticality Systems: Does It Really Fit Industrial Needs?*

5. 11:30-12:00   Björn Brandenburg (Max Planck Institute for Software Systems, Germany)
   Topic: *Real Time Scheduling On Multiprocessors: Theory versus Practice*

6. 12:00-12:30   Arvind Easwaran (Nanyang Technological University, Singapore)
   Topic: *Mixed Criticality Scheduling Research in Automotive: Making Research More Practical*

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   12:30-14:00   Lunch Break
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7. 14:00-14:30   Michael Deubzer (Timing-Architects, Germany)
   Topic: *Report on Industrialization of Real Time System Design Concepts*

8. 14:30-15:00   Pavel Zaykov (Honeywell International, Czech Republic)
   Topic: *Defining and Integrating Academic Research: An Experience Report from the Aerospace Domain*

9. 15:00-15:30   Reserved

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   15:30-16:00   Refreshment Break
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Interactive Session

-17:00   A 60 to 90 minute session has been reserved for interaction. For this activity, one of more groups consisting of participants and speakers from industry as well as traditional research organizations will be formed. Each group will be encouraged to look at one (or more) open industrial embedded system design problem, and work together in order to derive a research statement which is precise and non-trivialized. Furthermore, each group will also work to formalize expectations on the methods and tools that will be acceptable to one or more industrial partners. It is expected that the industrial partners will pilot the methods and tools in their respective organizations and provide quality feedback to the research partners.

Closing

17:00-17:30   Wrap-up: Summary of: discussions, best practices, action items (if identified)

Other Useful Information

ESWeek 2016	www.esweek.org
CAIRES	caires2016.inria.fr
Registration	Open now at www.esweek.org. Registration for the Thursday workshop(s) mandatory for participating in the CAIRES workshop.