ACM ToDAES special section – Call for Papers
IDEA: Integrating Dataflow, Embedded computing, and Architecture

Special Section Guest Editors:
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Important Dates:
- February 7, 2016 – Extended paper submission deadline
- March 4, 2016 – First round of reviews complete, notification of authors
- May 1, 2016 – Submission of revised versions
- June 15, 2016 – Second round of reviews complete, final acceptance notifications
- Summer/Fall 2016 – Final versions due and special section publication

Scope:
The dataflow model of computation (with SDF, CSDF, and DDF as primary representatives) offers a powerful perspective on parallel computations that may be conditioned in terms of data dependencies. It dates back to the nineteen sixties and has applications in the design of real-time stream-processing systems, especially in the area of digital signal processing. The dataflow model of computation fits the characteristics of embedded and cyber-physical systems, with a strong emphasis on both the functional and temporal aspects of data processing systems. Dataflow is gaining renewed popularity, stimulated by the trend towards multi-core and multi-processor architectures, with an influx of work ranging from using dataflow as a programming paradigm, for performance analysis, or for design optimization. Topics of interest for the special section include, but are not limited to:

- Dataflow architectures and dataflow as a programming paradigm for multi-core and multi-processor systems, for embedded systems and for cyber-physical systems.
- Tools for compilation, evaluation, optimization or synthesis of applications for heterogeneous and homogeneous multi-processor systems.
- Real-time scheduling, analysis, response time modeling, schedule synthesis. Variants of the dataflow model of computation, capturing e.g. dynamic execution behavior, stochastic dataflow.
- Dataflow theory, relations between dataflow and other models of computation, relations between dataflow variants.
- Dataflow in multi-disciplinary design, applications of dataflow in control, integrating dataflow and control theory.
- Case studies of general interest describing the application of dataflow in embedded computing and cyber-physical systems, ranging from automotive systems, and avionics, to high-tech systems, smart buildings and smart grids.

Submission Guidelines:
Submissions should follow the usual ToDAES guidelines. Submissions go through https://mc.manuscriptcentral.com/todaes. When asked “Is this manuscript a candidate for a special issue?”, mark “Yes” to ensure that the paper is allocated to the guest editors of the special section.

IDEA 2016 workshop @ CPS week:
To further stimulate discussion in the dataflow community, we are organizing a workshop at CPS week in Vienna, April 11, 2016. Authors of papers submitted to the IDEA ToDAES special section that successfully pass the first round of reviews are invited to present their work at the workshop. Participation in the workshop will increase the visibility of the presented work and increase quality through the discussion at the workshop. See http://caes.ewi.utwente.nl/idea2016 for more information about the workshop, including information on how to express interest to present the submitted work. Presentation and discussion at the workshop is optional and will not in any way influence acceptance for the special section.