CALL FOR PAPERS

16th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS 2010)

Stockholm, Sweden, April 12-15, 2010
Submission Deadline: Monday, October 5, 2009
Web site: http://www.rtas.org

RTAS 2010 will be co-located in Stockholm, Sweden, with the International Conference on Information Processing in Sensor Networks (IPSN'10), the International Conference on Hybrid Systems (HSCC'10), the Cyber Physical Systems Conference (CPSC), and the Conference on Languages, Compilers, and Tools for Embedded Systems (LCTES) as part of the **Cyber-Physical Systems Week (CPSWEEK)** April 12-16, 2010.

RTAS 2010 seeks papers describing significant contributions both to the state of the art and the state of the practice in the broad field of embedded and open real-time systems and computing. The scope of RTAS 2010 consists of the traditional core area of real-time and embedded systems infrastructure and theory, as well as two additional areas of special emphasis (specialized tracks): **Hardware/Software Integration and Co-design, Wireless Sensor Networks**:

Core Area. Real-time and Embedded Systems:

This has a focus on embedded and real-time systems. Papers should describe significant contributions to infrastructure, system support, or theoretic foundations for real-time or embedded computing. Topics include all of those associated with real-time or embedded computing platforms and techniques, such as networks of embedded computers; real-time resource management and scheduling; real-time communications; embedded system security; programming languages and software engineering for real-time or embedded systems; distributed real-time information/databases; operating systems and middleware for real-time or embedded systems; support for QoS; novel kernel-level mechanisms; energy-aware real-time systems; real-time system modeling and analysis; formal methods; control theoretic models and performance feedback control; wcet analysis.

Emphasis will also be given to innovative scientific foundations and technology needed to design next generation Cyber-Physical Systems (CPS). CPS refers to the tight integration of physical systems with networked sensing, computation, and actuation to realize systems that exhibit new capabilities with unprecedented dependability, safety, security, and efficiency. Applications of cyber-physical systems range from key industry sectors including transportation (automobiles, smart highways, mass transportation and infrastructure, avionics, aviation, airspace management), large-scale critical infrastructures (structures such as buildings and bridges, human environments, the power grid), defense systems, health care (medical devices and health management networks), tele-physical operations (e.g., tele-medicine), and consumer electronics (video games, audio/video processing, and mobile communication devices). We invite papers on industrial and other CPS applications, including contributions associated with systems that are actually deployed in commercial industry, military, or other production environments, like automotive, avionics, telecommunications, industrial control, aerospace, consumer electronics, and sensors.

Area A. Hardware/Software Integration and Co-design:

This track focuses on design methodologies and tools for hardware/software integration and co-design of modern embedded systems for real-time applications. Such systems are increasingly complex and heterogeneous, both in terms of architectures and applications they need to support, so new approaches aimed at their efficient design and optimization are in great demand. General topics relevant to this track include various architecture- and software-related issues of embedded systems design which include, but are not limited to, architecture description languages and tools, WCET analysis, software architectures, design space exploration, synthesis and optimization. Of special interest are SoC design for real-time applications, special-purpose functional units, specialized memory structures, multi-core chips and communication aspects, FPGA simulation and prototyping, software simulation and compilation for novel architectures and applications, as well as power, timing and predictability analyses.

Area B. Wireless Sensor Networks:

Wireless Sensor Network (WSN) has emerged as a new information paradigm for distributed real-time and embedded systems. Example applications include environment monitoring, emergency response, critical infrastructure protection, medical care, intelligent transportation, and smart manufacturing. The WSN track aims at fostering interaction and collaboration of researchers and exchanging new ideas in various aspects of sensor network research. The WSN track of RTAS is open to submissions addressing any major aspect of sensor networks. Submissions concerning real-time and embedded issues are encouraged, but not required. Authors are invited to submit original works that demonstrate current research on various aspects of wireless sensor network systems.

Topics of interest include (but are not limited to) the following:

- Sensor network applications and deployment experiences
- Sensor network architectures and protocols
- Programming abstractions
- Operating systems and middleware for sensor networks
- Real-time issues in sensor networks
- Distributed networked sensing, actuation and control
- Power and energy management
- Wide-area sensing services
- Detection, classification, and estimation
- Localization and time synchronization
- Security and privacy

Conference Committee:

General Chair:	Neil Audsley, *University of York, UK*
Program Chair:	Marco Caccamo, *University of Illinois at Urbana-Champaign*
Track Chairs:	Radu Marculescu, CMU (Hardware/Software Integration and Co-design) Xue Liu, McGill University (Wireless Sensor Networks)
Work in Progress Chair:	Samarjit Chakraborty, *Institute for Real-Time Computer Systems, TU Munich*
Ex-Officio:	Raj Rajkumar (IEEE TC-RTS Chair), *Carnegie Mellon University*

Important dates:

Submission Deadline: Monday, October 5, 2009
Acceptance Decisions: Friday, December 18, 2009
Final Manuscript: Friday, January 22, 2010

Submission guidelines:

All papers must be submitted electronically, in Portable Document Format (PDF). Instructions for submission will be available at the RTAS'10 website: http://www.rtas.org Submissions must meet the following criteria:

- A paper must be original material that has neither been previously published nor is currently under review by another conference or journal, and
- Submitted papers should be no longer than 10 pages in IEEE 10-point, two-column conference format.

The program committee of each track is independently responsible for reviewing its papers, and all accepted papers will appear in the proceedings.

For more information, including submission details, conference events, accommodations, area attractions, etc., visit later the RTAS web site: http://www.rtas.org