IEEE COMPUTER SOCIETY

CALL FOR PAPERS

IEEE Real-Time and Embedded Technology and Applications Symposium

San Francisco, CA, March 7-10, 2005
Submission Deadline: September 27, 2004
Web site: http://www.cis.upenn.edu/rtas05/

RTAS 2005 seeks papers describing significant contributions both to state of the art and state of the practice in the broad field of embedded and open real-time computing, control, and communication. Contributions can cover timing or QoS issues in computation and networking, systems integration, scheduling, operating systems, middleware, software engineering, dependability, databases, programming languages, system development tools, performance modeling, and performance control. Special focus is on real-time and embedded applications ranging from industrial embedded applications such as aeronautics and automotive systems to open multimedia, telecommunication and mobile computing systems. Of particular interest are papers detailing experiments, implementations, and experiences in application domains that present new model problems or identify significant temporal or QoS constraints.

In order to maintain a close connection to the practice of embedded and real-time computing, RTAS 2005 is co-located with the Embedded Systems Conference, the leading conference and trade show in the embedded systems industry.

The scope of RTAS consists of the core area of real-time infrastructure and development and three additional areas broadly outlined below.

Core Area. Real-time Infrastructure and Development: This thrust continues from previous years with focus on embedded and real-time systems that exhibit significant timing constraints. Papers should describe significant contributions to the fundamental infrastructure, system support, or theoretic foundations for real-time computing. Topics include all of those associated with real-time computing platforms and development tools and techniques, such as real-time resource management, real-time operating systems, security, real-time Java, middleware, real-time CORBA, secure real-time systems, support for QoS, novel kernel-level mechanisms, power-aware real-time systems, real-time software component models, QoS-aware design, scheduling, and performance control.

Area B. Model-driven Real-time and Embedded Systems: This track solicits papers that increase our understanding of how complex large-scale real-time and embedded systems operating in heterogeneous and time-varying environments can be modeled, configured, composed, analyzed, checked, secured, certified, and controlled so that crucial system properties can be assured using techniques from Model Driven Architectures, Model Integrated Computing, Aspect-based Composition, Hybrid Control and other model-based techniques. Topics of interest for this track include, but are not limited to the following: empirical profiling and modeling of system properties; standardization efforts such as MDA and QoS-CCM; frameworks and tools for composition of multiple QoS properties; analysis, modeling and generation tools; applications of control theory to adaptive QoS management; techniques for representation and analysis of system properties; open research issues for model-driven composition of embedded systems; application scenarios and use cases for model-driven embedded systems; industry experience with modeling, analysis and control; architecture description languages and tools; model-based checking and certification of embedded systems; performance/efficiency of model-driven embedded systems; experiences implementing embedded systems with stringent QoS requirements; domain-specific requirements; integrating components, tools, and techniques from multiple sources.

Area A. Embedded Applications: We invite papers on industrial and other real-time and embedded applications. The focus of this track is on contributions associated with systems that are actually deployed in commercial industry, military, or other production environments, including automotive, avionics, telecommunications, industrial control, aerospace, consumer electronics, and sensors. Papers in this area include, but are not limited to challenges, requirements, model problems, and constraints associated with various application domains, use of real-time and embedded technologies in meeting particular system requirements, performance, scalability, reliability, security, or other assessments of real-time and embedded technologies for particular application domains, mining of architectural and design patterns from applications, and technology transition lessons learned.

Experience papers are especially encouraged within this topic, which may be less formal than traditional research papers, as well as proposals for panels which may offer a broader view of industrial activity on a particular subject.

Area C. QoS in Open Systems: The domain of real-time computing has broadened from primarily hard real-time closed embedded systems such as avionics and automotive applications to new open environments with other types of performance constraints such as the Internet and mobile computing systems. In such open environments independently developed system components and applications share common resources (often across a network) and need some form of performance assurances. Papers submitted to this track should address or extend the broad spectrum of performance assurance problems, QoS constraints, and quality metrics in open systems. Topics include but are not limited to interoperability of open QoS-aware application components, performance guarantees under uncertainty, combining/trading-off time or quality with other dimensions such as dependability, mobility, and security, QoS-aware communication, including Internet and Web-based applications, QoS in wireless and mobile computing, ad hoc networks, sensor networks, peer-to-peer computing, novel quality and performance metrics, user studies, and user-perceived QoS.

Conference Committee:

General Chairs: Tarek Abdelzaher, *University of Virginia*, Greg Bollella, *Sun Microsystems*, David Sharp, *Boeing*.
Program Chairs: Seongsoo Hong, *Seoul National University*, Oleg Sokolsky, *University of Pennsylvania*, Douglas Stuart, *Boeing*.
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Ex-Officio: Insup Lee (IEEE TC-RTS Chair), *University of Pennsylvania*.
Area Chairs: Core Area: Oleg Sokolsky, *University of Pennsylvania*. Area A: Seongsoo Hong, *Seoul National University*. Area B: Christopher Gill, *Washington University*. Area C: Douglas Stuart, *Boeing*.

Important dates:

Submission Deadline: Monday, September 27, 2004
Acceptance Decisions: Monday, November 22, 2004
Final Manuscript: Monday, December 13, 2004

For more information, including submission details, conference events, accommodations, area attractions, etc., visit the RTAS web site:
http://www.cis.upenn.edu/rtas05/