



IEEE Real-Time and Embedded Technology and Applications Symposium

RTAS 2004 - New Expanded Focus!



Le Royal Meridien, King Edward, Toronto, Canada, May 25 - May 28, 2004

Submission Deadline: January 12th, 2004. <http://www.cs.virginia.edu/rtas04>

Sponsored by IEEE and the IEEE Computer Society

RTAS 2004 seeks papers describing significant contributions to the broad field of embedded and open real-time computing, control, and communication, that 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.

As of this year, the scope of RTAS is broadly broken into the following major thrusts:

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, model-based development, QoS-aware design, real-time system modeling and analysis, formal methods, scheduling, and performance feedback control.

Real-time control: New this year is an explicit track on the role of control in real-time computing, and the interaction between computing and control systems. Topics cover the use of real-time control methods within infrastructures as well as end-user applications, including but not limited to the interaction of feedback control and scheduling, nonlinear and uncertain real-time systems, modeling and simulation of performance control, computational models and languages for control applications, resource-constrained control or resource-aware control, temporal robustness, robotics, embedded and hybrid systems, and hybrid control.

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, telecom, 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.

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). Exact load and resource characterization is difficult to attain. Yet, some form of performance assurances are needed typically in the face of large uncertainty. 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, novel quality and performance metrics, user studies, and user-perceived QoS.

Organizing Committee:

General Chairs: Greg Bollella, *Sun Microsystems, USA*, Doug Schmidt, *Vanderbilt University*.

Program Chairs: Tarek Abdelzaher, *University of Virginia*, David Sharp, *Boeing, St. Louis*.

Finance Chair: Wei Zhao, *Texas A&M*.

Local Arrangements Chair: H.-Arno Jacobsen, *University of Toronto, Canada*.

Ex-Officio (IEEE RTS-TC Chair): Insup Lee, *University of Pennsylvania*.

Publicity Chairs: Luis Almeida, *University of Aveiro, Portugal*. Anton Cervin, *Lund, Sweden*.
Chenyang Lu, *Washington University*.

Area Chairs: Real-Time Infrastructure: Tarek Abdelzaher, *University of Virginia*. Real-Time Control: Karl-Erik Arzen, *Lund, Sweden*. Embedded Applications: David Sharp, *Boeing*. QoS in Open Systems: Yongguang Zhang, *HRL Labs*, Srikanth Krishnamurthy, *University of California, Riverside*.

Important Dates:

Submission Deadline: Mon, January 12th, 2004
Acceptance Notification: Mon, March 1st, 2004
Final Manuscript Due: Fri, March 19th, 2004

Also Features:

- Tutorials
- Work-in-Progress Session
- Best Student Paper Award
- Best of RTAS 2004 in a special issue of the *Journal of Real-time Systems*.

For submission details, conference events, accommodations, and Toronto attractions, please refer to the RTAS web site.

<http://www.cs.virginia.edu/rtas04>