
**30th IEEE Real-Time and Embedded Technology and Applications Symposium
(RTAS 2024)**

Hong Kong, May 13-16, 2024

CALL FOR PAPERS

RTAS is a top-tier conference with a focus on **time-sensitive systems**. RTAS'24 invites papers describing case studies, applications, methodologies, and algorithms that contribute to the state of practice in design, implementation, verification, validation, and evolution of time-sensitive systems. RTAS'24 consists of two tracks:

- **Track 1. Systems and Applications;**
- **Track 2. Applied Methodologies and Foundations.**

In both tracks, papers must consider some kind of timing requirements. The timing requirements of interest are broadly defined and include not only classical hard real-time constraints, but also soft real-time, probabilistic, quality-of-service (QoS), throughput or latency requirements. The application area can be any type of time-sensitive systems, ranging from resource-constrained embedded systems to cyber-physical systems (CPS), cloud/edge/fog computing systems, cloud data centers, Internet of Things (IoT), mobile computing, robotics, smart grid, and smart cities, as well as middleware and frameworks, machine learning in or for time-sensitive systems and signal processing algorithms that execute in real time. RTAS welcomes both papers backed by formal proofs, as well as papers that focus exclusively on empirical validation of timing requirements, e.g., using traces or performance models inferred from operational data. Research results from fundamental research, (case-driven) applied research, and (pragmatic) industry practice are all in scope.

RTAS'24 follows a double-anonymous peer reviewing process: author identities and affiliations will not be revealed to reviewers. Authors will have the opportunity to provide a response to reviews before acceptance decisions are made, solely to provide clarifications and correct misconceptions. The response will not allow authors to introduce new material beyond the original submission, or promise such material for

the camera-ready version. There will be an optional evaluation process for accepted papers that assesses the reproducibility of the work.

Track 1: Systems and Applications

This track focuses on research of an empirical nature pertaining to (system- or component-) level analysis, optimization, and verification, as well as applications, runtime software, and hardware architectures for time-sensitive systems.

Topics relevant to this track include, but are not limited to:

- time-sensitive applications
- real-time and embedded operating systems,
- hypervisors and runtime frameworks,
- hardware architectures, memory hierarchies, FPGAs, GPUs and accelerators,
- time-sensitive networks, CPS/IoT infrastructure,
- microservice technologies, cloud and edge computing, real-time artificial intelligence and machine learning,
- application profiling, WCET analysis, compilers, tools, benchmarks and case studies.

Papers discussing design and implementation experiences on real industrial systems are especially encouraged. Papers submitted to this track should focus on specific systems and implementations. Authors must include a section with experimental results performed on a real implementation, or demonstrate applicability to an industrial case study or working system. The experiment or case study discussions must highlight the key lessons learned. Simulation-based results are acceptable for architectural simulation, or other cases where authors clearly motivate why it is not feasible to develop and evaluate a real system.

Empirical survey-based research focused on the real-time systems field is also welcome in this track. This type of research uses surveys, questionnaires, interviews, use cases or other empirical techniques to obtain information about the past / current / future state of play in the research, design, development, verification, validation, and deployment of time-sensitive systems.

Track 2: Applied Methodologies and Foundations

This track focuses on fundamental models, and analysis techniques/methods that are applicable to time-sensitive systems to solve specific problems. The track welcomes knowledge-based models, models built from operational data, as well as a combination, and different types of analysis methods, including analytical, statistical, or probabilistic methods. Topics relevant to this track include, but are not limited to:

- modelling languages, modelling methods, model learning, model validation and calibration,
- scheduling and resource allocation,
- system-level optimization and co-design techniques,
- design space exploration,
- verification and validation methodologies.

Papers must describe the main context or use case for the proposed methods giving clear motivating examples based on real systems. The system models and any assumptions used in the derivation of the methods must be applicable to real systems, and reflect actual needs. Papers must include a section on experimental results, preferably including a case study based on information from a real system. The use of synthetic workloads and models is acceptable if appropriately motivated and used to provide a systematic evaluation.

Important Dates

Submission Deadline (firm):	October 31, 2023
Author Response Period:	January 8-12, 2024
Author Notification:	January 20, 2024
Conference Date:	May 13-16, 2024