Fourth Workshop on Next Generation Real-Time Embedded Systems

NG-RES 2023, January 18, 2023, Toulouse, France

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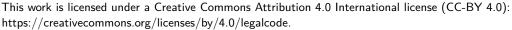
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Preface

This volume collects the papers presented at the fourth edition of the Workshop on Next Generation Real-Time Embedded Systems (NG-RES 2023). The workshop is co-located with the 2023 edition of the HiPEAC conference and was held on January 18, 2023 in Toulouse, France.

The traditional concept of embedded systems is constantly evolving to address the requirements of the modern world. Cyber-physical systems, networked control systems and Industry 4.0 are introducing an increasing need for interconnectivity. A steadily increasing algorithmic complexity of embedded software is fueling the adoption of multicore and heterogeneous architectures. As a consequence, meeting real-time requirements is now more challenging than ever.

The NG-RES workshop focuses on real-time embedded systems, with particular emphasis on the distributed and parallel aspects. The workshop is a venue for both the networking and multicore real-time communities aiming at cross-fertilization and multi-disciplinary approaches to the design of embedded systems.

Topics of interest include but are not limited to:

- Application of formal methods to distributed and/or parallel real-time systems
- Programming models, paradigms and frameworks for real-time computation on parallel and heterogeneous architectures
- Applications of approximate computing in real-time systems
- Compiler-assisted solutions for distributed and/or parallel real-time systems
- Middlewares for distributed and/or parallel real-time systems
- Networking protocols and services (e.g., clock synchronization) for distributed real-time embedded systems
- Scheduling and schedulability analysis for distributed and/or parallel real-time systems
- System-level software and technologies (e.g. RTOSs, hypervisors, separation kernels, virtualization) for parallel and heterogenous architectures

In this fourth edition of the workshop six regular papers were accepted, each of which receiving two peer reviews. In addition, we are glad to have an invited talk by Martina Maggio titled "Control Systems in the presence of Computational Problems". We would like to thank the authors of the NG-RES 2023 papers, the members of our program committee, our publisher Schloss Dagstuhl as well as the HiPEAC organizers for contributing to the success of this workshop.

Federico Terraneo and Daniele Cattaneo

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