Workshop on Next Generation Real-Time Embedded Systems

NG-RES 2020, January 21, 2020, Bologna, Italy

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Preface

This volume collects the papers presented at the first edition of the Workshop on Next Generation Real-Time Embedded Systems (NG-RES 2020). The workshop is co-located with the 2020 edition of the HiPEAC conference and was held at Bologna, Italy on January 21th, 2020.

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.

The scope of the NG-RES workshop include the following topics:

- Programming models, paradigms and frameworks for real-time computation on parallel and heterogeneous architectures
- 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
- Application of formal methods to distributed and/or parallel real-time systems
- Compiler-assisted solutions for distributed and/or parallel real-time systems
- Middlewares for distributed and/or parallel real-time systems

In this first edition of the workshop four regular papers were accepted, each of which receiving between two and three peer reviews. In addition, we are glad to have an invited talk by Luis Almeida titled “SDN for dynamic reservations on real-time networks”. We would like to thank the authors of the NG-RES 2020 papers, the members of our program committee, our invited speaker, our publisher Schloss Dagstuhl as well as the HiPEAC organizers for contributing to the success of this workshop.

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