

Third Workshop on Next Generation Real-Time Embedded Systems

NG-RES 2022, June 22, 2022, Budapest, Hungary

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■ Preface

This volume collects the papers presented at the third edition of the Workshop on Next Generation Real-Time Embedded Systems (NG-RES 2022). The workshop is co-located with the 2022 edition of the HiPEAC conference and was held on June 22, 2022 in Budapest, Hungary.

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 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
- System-level software and technologies (e.g. RTOSs, hypervisors, separation kernels, virtualization) for parallel and heterogenous architectures
- 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 third edition of the workshop three regular papers were accepted, each of which receiving between two and three peer reviews. In addition, we are glad to have an invited paper by Giorgio Buttazzo titled “Can We Trust AI-Powered Real-Time Embedded Systems?”. We would like to thank the authors of the NG-RES 2022 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.

Marko Bertogna, Federico Terraneo, and Federico Reghenzani



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