

IEEE Embedded Systems Letters

Special Issue on: "Time-Centric Reactive Software (TCRS)"

1 paragraph outlining the call (will be used for advertisement)

This special issue is for the Time-Centric Reactive Software (TCRS) workshop at ESWEEK 2024 (Sep. 29 - Oct. 4, 2024, in Raleigh, NC, USA), and the authors of accepted papers are expected to present their papers in person at the workshop. This special issue addresses the critical role of timing in concurrent, distributed, and cyber-physical systems, a factor often emergent in software semantics but pivotal for the embedded systems community. It aims to highlight and discuss innovative work that prioritizes timing in programming paradigms, languages, and hardware-software interfaces, showcasing advancements in programming languages and models for timed systems. The objective is to foster an exchange of insights and strategies, scrutinize diverse methodologies, and pinpoint both promising avenues and significant challenges. Key topics include various models of time, temporal constructs in programming languages, timing in distributed systems, temporal verification, computer architectures for time–predictability, clock synchronization, and time-centric scheduling and applications. The broader ambition is to cultivate a community committed to integrating time abstractions throughout computing infrastructure, from programming languages to network and microprocessor design. The special issue invites contributions from those keen on advancing time-centric models, languages, tools, and methodologies intersecting with multiple domains.

Topics of interest

- Automotive systems
- Compiler construction
- Computer architecture
- Cyber-physical systems
- Digital twins
- Dataflow models
- Discrete-event systems
- Distributed systems
- Design automation
- Embedded systems
- Formal verification
- Industrial automation
- Programming languages
- Model-based Design
- Modeling languages
- Middlewares
- Networking
- Operating systems
- Real-time systems
- Simulation
- System-level design

**Guest Editors and their affiliations, bios, and links to their Google scholar page
(select one as main)**

- **Jeronimo Castrillon**
 - **Affiliation:** TU Dresden, Germany, jeronimo.castrillon@tu-dresden.de
 - **Bio:** Jeronimo Castrillon is a professor in the Department of Computer Science at TU Dresden. He is the head of the Chair for Compiler Construction, with a research focus on methodologies, languages, tools, and algorithms for programming complex computing systems. He received his Ph.D. degree (Dr.-Ing.) with honors from the RWTH Aachen University in Germany in 2013. In 2014, Prof. Castrillon co-founded Silexica, a company that provides programming tools for embedded heterogeneous architectures, now with Xilinx/AMD.
 - **Google Scholar Page:** <https://scholar.google.com/citations?user=Vez2G1kAAAAJ>

- **Patricia Derler**
 - **Affiliation:** Zoox, USA, patricia.derler@gmail.com
 - **Bio:** Patricia Derler is a computer scientist, researcher, and software engineer with an extensive background in modeling, design, simulation, verification, and testing of complex, distributed, heterogeneous systems. She received a Ph.D. in Computer Science from the University of Salzburg, Austria, and her undergraduate degree in Software Engineering from the University of Applied Sciences, Hagenberg. She has held positions in industry and academia, including UC Berkeley, NI (formerly National Instruments), Kontrol, PARC, and Zoox.
 - **Google Scholar Page:** <https://scholar.google.com/citations?user=Tnv14MAAAAAJ>

- **Hokeun Kim**
 - **Affiliation:** Arizona State University, USA, hokeun@asu.edu
 - **Bio:** Hokeun Kim is an assistant professor in the School of Computing and Augmented Intelligence at Arizona State University. He received his Ph.D. degree in EECS from UC Berkeley in 2017 with a focus on IoT security. His research interests include computer security, the IoT, real-time systems, cyber-physical systems, and computer architecture. He received the ACM/IEEE Best Paper Award and IEEE Micro Top Picks Honorable Mention for his research contributions to IoT and computer architecture research.
 - **Google Scholar Page:** <https://scholar.google.com/citations?user=isH8pZoAAAAJ>

Important Dates

- Paper Submission Deadline: July 8, 2024
- Notification of Acceptance: August 12, 2024
- Workshop: TBD (one day during the week of September 29 - October 4, 2024) in Raleigh, NC, USA

Submission Information

- This special issue is tied to the Time-Centric Reactive Software (TCRS, <https://www.tcrs.io/>) workshop at ESWEEK 2024 to be held in Raleigh, NC, USA, during the week of September 29 - October 4, 2024. At least one author of each paper must fully register through ESWEEK and present the paper in person at the workshop.
- The authors must disclose their conflict of interest (COI) with the program committee to be listed at <https://www.tcrs.io/org/> in their cover letters of submission, even if they do not have any COI, for example, a cover letter indicating that there is no COI with the program committee.
- We will use two-tier acceptance.
 - *Journal-and-Workshop Tier Acceptance*: The accepted paper will be presented at the workshop and then published in the IEEE ESL special issue.
 - *Workshop-Only Tier Acceptance*: The accepted paper will be presented at the workshop without a journal publication. The authors will be free to submit their papers elsewhere.
- For paper formatting, we follow the 4-page format of IEEE ESL.