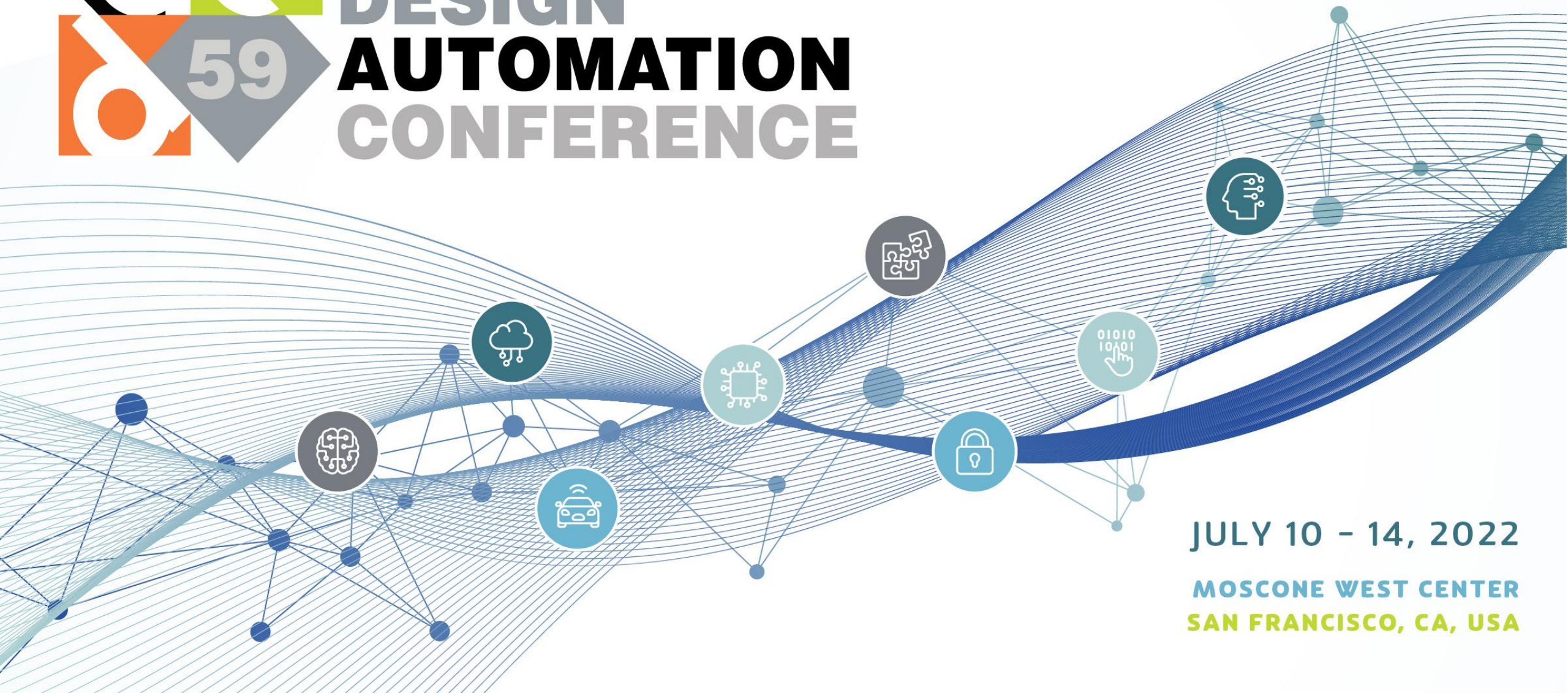




DESIGN **AUTOMATION** CONFERENCE



JULY 10 - 14, 2022

MOSCONE WEST CENTER
SAN FRANCISCO, CA, USA



RAGE 2022

Real-Time and Intelligent Edge Computing Workshop

First Edition – Opening Remarks

A couple of words about the workshop's organization...

ORGANIZERS

CHAIR



Daniel Casini

Scuola Superiore Sant'Anna, Italy
Technical Program Committee Co-Chair



Dakshina Dasari

Robert Bosch GmbH, Germany
Technical Program Committee Co-Chair



Matthias Becker

KTH Royal Institute of Technology, Sweden
Technical Program Committee Co-Chair

A couple of words about the workshop's organization...

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Gabriele Serra
Scuola Superiore Sant'Anna, Pisa, Italy

PUBLICITY CHAIR



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UC San Diego, CA, USA

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University of California at Riverside, USA

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UC San Diego, CA, USA

Juan M. Rivas

Universidad de Cantabria, Spain

Claudio Scordino

Evidence Srl, Italy

Biruk B. Seyoum

Columbia University, USA

Agenda

Invited Talks: Slot of 30 minutes, 20-25 for the talk, 5-10 for questions and overheads for the next presentation

Papers presentations: Slot of 15 minutes, 10 for the talk, 5 for questions and overheads for the next presentation

Unfortunately, due to last-minute personal issues and problems with flights Girish Shirasat (ARM) and Giorgiomaria Cicero (Accelerat) will not present today in person

Giorgiomaria Cicero provided us a presentation video that will be played in his slot, and Gabriele Serra (Accelerat) will be available to answer questions in person

Program – Morning Session – Part 1

Chaired by Matthias Becker

Sunday, 10th July 2022 - Morning session	
08:00-08:10	Welcome message from the chairs
08:10-08:40	Invited Talk: Lightweight virtualization for giving the cloud an edge Prof. Anthony Rowe, Carnegie Mellon University, USA
08:40-09:25	Session 1: Tools, architectures, and resource allocation for the edge.
08:40-08:55	MARk8s - A Management Toolchain Approach for Automotive Real-Time Kubernetes Containers in the Mobile Edge Cloud [📄] <i>Bernhard Blieninger, Aaron Dietz and Uwe Baumgarten</i>
08:55-09:10	Towards a Predictable and Cognitive Edge-Cloud Architecture for Industrial Systems [📄] <i>Mohammad Ashjaei, Saad Mubeen, Masoud Daneshtaalb, Victor Casamayor and Geoffrey Nelissen</i>
09:10-09:25	RT-SCALER: Adaptive Resource Allocation Framework for Real-Time Containers [📄] <i>Vaclav Struhar, Silviu S. Craciunas, Mohammad Ashjaei, Moris Behnam and Alessandro Papadopoulos</i>
09:25-09:40	Short Break

Program – Morning Session – Part 2

Chaired by Daniel Casini

09:40-10:10	Invited Talk: Industrial use-cases for real-time edge-computing Dr. Arne Hamann , Bosch Corporate Research, Germany
10:10-10:40	Session 2: Invited speakers with papers.
10:10-10:25	High-performance real-time systems design from cloud to embedded edge. [📄] <i>Matteo Andreozzi and Girish Shirasat, ARM.</i> PRESENTED BY Dr. Girish Shirasat , ARM, UK
10:25-10:40	Priority-Driven Real-Time Scheduling in ROS2: Potential and Challenges [📄] <i>Hyunjong Choi, Daniel Enright, Hooria Sobhani, Yecheng Xiang and Hyoseung Kim.</i> PRESENTED BY Dr. Hyunjong Choi , University of California at Riverside, USA

Program – Morning Session – Part 3

Chaired by Dakshina Dasari

10:55-11:25	Invited Talk: Giving the Software Defined Vehicle an Edge Joerg Seitter , ETAS, Germany
11:25-11:55	Invited Talk: The role of virtualization at the edge for mixed-criticality applications Giorgiomaria Cicero , Accelerat S.R.L., Italy
11:55-12:55	Lunch

Program – Afternoon Session – Part 1

Chaired by Daniel Casini

Sunday, 10th July 2022 - Afternoon session	
12:55-13:25	Invited Talk: zenoh: A Next-Generation Protocol for IoT and Edge Computing Dr. Frédéric Desbiens , Eclipse Foundation, Canada
13:25-14:10	Session 3: Real-time networks, safety, and queueing delays.
13:25-13:40	Minimal-Overlap Centrality-Driven Gateway Designation for Real-Time TSCH Networks [📄] <i>Miguel Gutiérrez Gaitán, Pedro d'Orey, Pedro Santos and Luís Almeida</i>
13:40-13:55	No-more-unbounded-blocking queues: bounding transmission latencies in real-time edge computing [📄] <i>Gabriele Serra and Pietro Fara</i>
13:55-14:10	Safety Verification of Third-Party Hardware Modules via Information Flow Tracking [📄] <i>Andres Meza, Francesco Restuccia, Ryan Kastner and Jason Oberg</i>
14:10-14:25	Short Break

Program – Afternoon Session – Part 2

Chaired by Matthias Becker

14:25-14:55	Invited Talk: Deadline-Aware Task Offloading for Vehicular Edge Computing Networks Dr. Pratham Oza, Nuro Inc., USA
14:55-15:25	Invited Talk: Serving DNNs like Clockwork: Performance Predictability from the Bottom Up Dr. Arpan Gujarati, University of British Columbia, Canada
15:25-15:40	Short Break

Program – Afternoon Session – Part 2

Chaired by Dakshina Dasari

15:40-16:10	Invited Talk: QoS-aware resource management for Edge-AI Prof. Hana Khamfroush, University of Kentucky, USA
16:10-16:40	Invited Talk: Low power Machine Learning Techniques for Edge-AI Prof. Mohammad Al Faruque, University of California at Irvine (UCI), USA
16:40-17:10	Panel Discussion
17:10-17:30	Closing Remarks

Special Issue on Real-Time Computing in the IoT-to-Edge-to-Cloud Continuum

ACM Transactions on Embedded Computing Systems

Guest Editors:

- Daniel Casini, Scuola Superiore Sant'Anna, Italy
- Dakshina Dasari, Robert Bosch GmbH, Germany
- Matthias Becker, KTH Royal Institute of Technology, Sweden
- Giorgio Buttazzo, Scuola Superiore Sant'Anna, Italy

Important Dates

- Submissions deadline: **October 10, 2022.**
- First-round review decisions: December 10, 2022.
- Deadline for revision submissions: February 4, 2023.
- Notification of final decisions: April 4, 2023.
- Tentative publication: Spring/Summer, 2023.

More details at https://dl.acm.org/pb-assets/static_journal_pages/tecs/pdf/TECS-SI-Real-Time-Computing-1652724584890.pdf

