Program | RTAS 2026

Conference Program

This page covers the program for *RTAS-specific* sessions. Please see the the CPS-IoT Week Program for details on registration, opening, keynote, coffee, lunch, reception, debate, gala, and closing sessions.

Outstanding papers are marked with a ☆ below.
Best papers are marked with a ★ below.

Session 1: Time-Sensitive Networking

11:00-12:30, Tuesday, May 12th
Chair: Marc Boyer (*ONERA*)

Weakly-Hard Real-Time Flow Scheduling in Time-Sensitive Networks Tamim Ahmed (*Washington State University*), Zain A. H. Hammadeh (*DLR*) Daniel Lüdtke (*DLR*), Monowar Hasan (*Washington State University*).

COS Scheduler: Conflict-Oriented Search Principle for Fast Slot-Free Time-Triggered Scheduling Zixiao Wang, Zonghui Li, Cheng Long (all: *Beijing Jiaotong University*).

Efficient AVB-aware Scheduling for Critical Traffic in Time-sensitive Networks Daniel Bujosa (*Mälardalen University*), Silviu Craciunas (*NXP Semiconductors*), Saad Mubeen (*Mälardalen University*).

Session 2: Scheduling

14:00-16:00, Tuesday, May 12th
Chair: Eduardo Tovar (*CISTER*)

☆ **A Controller Synthesis Framework for Weakly-Hard Control Systems** Marc Seidel (*University of Stuttgart*), Martina Maggio (*Saarland University*), Frank Allgöwer (*University of Stuttgart*).

Releaser Design and Schedulability Analysis for Care-Taking Tasks in Real-Time Systems Nils Hölscher (*TU Dortmund*), Kay Heider (*TU Dortmund*), Mario Guenzel (*TU Dortmund*), Georg von der Brüggen (*TU Dortmund*), Kuan-Hsun Chen (*University of Twente*), Jian-Jia Chen (*TU Dortmund*).

Framework-Agnostic Model Inference for Intra-Thread Real-Time Tasks Bite Ye (*MPI-SWS*), Filip Markovic (*University of Southampton*), Björn Brandenburg (*MPI-SWS*).

Shape-Aware Analysis of End-to-End Latency Under LET Mario Guenzel (*TU Dortmund*), Matthias Becker (*KTH Royal Institute of Technology Stockholm, Sweden*), Daniel Casini (*Scuola Superiore Sant'Anna*).

Optimal Resource Allocation and Periodic Scheduling Roel van Os (*Eindhoven*

University of Technology), Marc Geilen (*Eindhoven University of Technology*), Martijn Hendriks (*Eindhoven University of Technology*), Twan Basten (*Eindhoven University of Technology*).

Session 3: Brief Presentations

16:30-18:00, Tuesday, May 12th
Chair: Anna Friebe (Mälardalen University)

Journal-First: Koopman-driven Grip Force Prediction Through EMG Sensing Tomislav Bazina (*University of Rijeka*), Ervin Kamenar (*University of Rijeka*), Maria Fonoberova (*AIMdyn*), Igor Mezić (*University of California, Santa Barbara*).

Journal-First: Configuration of Guard Band and Offsets in Cyclic Queuing and Forwarding Damien Guidolin-Pina (*ECE*), Marc Boyer (*ONERA*), Jean-Yves Le Boudec (*EPFL*).

Work-in-Progress: Configuration of Cycle Duration in Cyclic Queuing and Forwarding Damien Guidolin-Pina (*Ecole Centrale d'Electronique*), Marc Boyer (*ONERA*), Jean-Yves Le Boudec (*EPFL*).

Work-in-Progress: Queue Assignment and Parameter Selection in TSN Credit-Based Shapers Tamim Ahmed, Monowar Hasan (all: *Washington State University*).

Work-in-Progress: Exploring Timing Anomalies in Multi-Core Systems with Time Petri Nets Maha Essabyr, Florian Brandner (*Telecom Paris; Institut Polytechnique de Paris*), Mihail Asavoae (*CEA-List*), Sébastien Faucou (*Nantes Université*), Jean-Luc Béchennec (*École Centrale Nantes; CNRS*).

Work-in-Progress: Efficient Readers-Writer Locks for the RTIC Framework Valhe Kouneli (*Tampere University*), Henri Lunnikivi (*Tampere University*), Per Lindgren (*Luleå University of Technology*).

Work-in-Progress: Efficient EDF scheduling using COTS hardware acceleration Justin Beaurivage (*Université du Québec à Trois-Rivières*), Pawel Dzialo (*Luleå University of Technology*), Per Lindgren (*Luleå University of Technology*).

Work-in-Progress: Hardware Support for EDF Scheduling on Bare-Metal Systems Antti Nurmi (*Tampere University*), Justin Beaurivage (*Université du Québec à Trois-Rivières*), Pawel Dzialo (*Luleå University of Technology*), Per Lindgren (*Luleå University of Technology*), Timo D. Hämäläinen (*Tampere University*).

Work-in-Progress: Enabling Deterministic User-Level Interrupts in Microcontrollers via Hardware Extension Hongbin Yang (*Shandong University*), Huanle Zhang (*Shandong University*), Tuo Wu (*City University of Hong Kong*), Runyu Pan (*Shandong University*).

TCRTS Outstanding Technical Achievement and Leadership Award Lecture

10:30-11:30, Wednesday, May 13th (prefix of Session 4)
Featuring awardee Prof. Gernot Heiser (UNSW Sydney)

Award presentation by Björn Brandenbourg (MPI-SWS)

Session 4: Predictability

11:30-12:30, Wednesday, May 13th
Chair: Isabelle Puaut (*University de Rennes*)

☆ A POP⋆ is Born: Formal Predictable Out-of-Order Processor Model Lilia Rouizi (*CEA-List*), Mihail Asavoae (*CEA-List*), Benjamin Binder (*CEA-List*), Engin Ermiş (*Telecom Paris*), Lionel Rieg (*Grenoble UGA*), Florian Brandner (*Telecom Paris*).

Wasm-WCET: Worst-Case Execution-Time Analysis of WebAssembly Modules on Updatable Resource-Constrained Embedded Devices Maximilian Seidler, Martin Michelis, Peter Wägemann, Rüdiger Kapitza (all: *Friedrich-Alexander-Universität Erlangen-Nürnberg*).

Session 5: Memory Management

14:00-15:40, Wednesday, May 13th
Chair: Alessandro Biondi (*Scuola Superiore Sant'Anna*)

★ ☆ Per-Bank Memory Bandwidth Regulation for Predictable and Performant Real-Time Systems Connor Sullivan, Amin Mamandipoor, Cole Strickler, Heechul Yun (all: *University of Kansas*).

ETM2: Empowering Traditional Memory Bandwidth Regulation using ETM Alexander Zuepke, Ashutosh Pradhan, Daniele Ottaviano, Andrea Bastoni, Marco Caccamo (all: *Technical University of Munich*).

ROSBand: A Bandwidth Regulation Approach on ROS2-based Systems Jon Altonaga (*Ikerlan*), Enrico Mezzetti (*Barcelona Supercomputing Center*), Irune Agirre (*Ikerlan*), Jaume Abella (*Barcelona Supercomputing Center*), Francisco J Cazorla (*Barcelona Supercomputing Center*).

Fault-Tolerant Offloading Framework for Real-Time Applications in Mobile Edge Computing Chuanchao Gao, Yiyang Gao, Michael Yuhas, Arvind Easwaran (all: *Nanyang Technological University*).

Industrial Challenge Presentation from Bosch

15:40-16:00, Wednesday, May 13th (postfix of Session 5)
Chair: Marion Sudvarg (*Washington University in St. Louis*)

Invited paper: Physics-Driven Real-Time CPS Challenge Paolo Pazzaglia, Kevin Schmidt, Laura Beermann, Dirk Ziegenbein, Arne Hamann (all: *Bosch*).

Session 6: ML Inference and Acceleration

10:30-12:30, Thursday, May 14th
Chair: Michael Roltzsch (*Barkhausen Institut*)

★ ☆ ZeroSwap: Minimizing Swap Overhead for Real-Time Multi-DNN Inference

via SSD-based GPU Memory Extension Woosung Kang (*DGIST*), Filippo Muzzini (*University of Modena and Reggio Emilia*), Gianluca Brilli (*University of Modena and Reggio Emilia*), Jong-Chan Kim (*Kookmin University*), Jinkyu Lee (*Yonsei University*), Hoon Sung Chwa (*DGIST*).

AI Inference in the Heat: Thermal-Aware Strict Partitioning for Configurable Real-Time Gang Tasks Binqi Sun (*Technical University of Munich*), Jinyang Li (*UIUC*), Tomasz Kloda (*LAAS-CNRS*), Tarek Abdelzaher (*UIUC*), Marco Caccamo (*Technical University of Munich*).

Real-Time Language Model Jamming: A Case Study for Live Music Accompaniment Generation Bowen Zheng (*University of Wisconsin–Madison*), Andrew H. Yang (*University of California*), Jiaqi Ruan (*University of Science and Technology of China*), Jia He (*University of Science and Technology of China*), Xinyue Li (*Mohamed bin Zayed University of Artificial Intelligence*), Yuan-Hsin Chen (*Wuhan University*), Ziyu Wang (*New York University*), Xiaosong Ma (*Mohamed bin Zayed University of Artificial Intelligence*).

☆ Time-Predictable Acceleration of Deep Neural Networks on FPGA SoCs with Multi-Core DPUs Federico Aromolo, Niko Salamini, Jacopo Del Granchio, Alessandro Biondi, Mauro Marinoni, Giorgio Buttazzo (all: *Scuola Superiore Sant'Anna*).

Generative Profiling for Soft Real-Time Systems and its Applications to Resource Allocation Georgiy A. Bondar (*University of California*), Abigail Eisenklam (*University of Pennsylvania*), Yifan Cai (*University of Pennsylvania*), Robert Gifford (*University of Pennsylvania*), Tushar Sial (*University of Pennsylvania*), Linh Thi Xuan Phan (*University of Pennsylvania*), Abhishek Halder (*Iowa State University*).

Session 7: Networked Control Systems

14:00-16:00, Thursday, May 14th
Chair: Iryna de Albuquerque Silva (*CEA*)

MIRAGE: MILP-Based Block Grouping for Real-Time Signal Processing Tiancheng He, Bryan Ward (all: *Vanderbilt University*).

RT-Radar: Maneuver-Aware Real-Time Beam Scheduling for Multi-Target Tracking Tasks Jinsoo Park (*Sungkyunkwan University*), Hanwoong Park (*Hanwha Systems Co.*), Youngjin Cho (*Hanwha Systems Co.*), Jinkyu Lee (*Yonsei University*).

Bi-phased Uplink and Downlink Scheduling for Mesh Networked Control Systems Ruijie Fu, Yehan Ma (all: *Shanghai Jiao Tong University*).

Balancing Security and Schedulability: WCET Evaluation and Security Optimization in CPS Zihan Li (*Washington University in St. Louis*), Marion Sudvarg (*Washington University in St. Louis*), Ching-Hsiang Chan (*Washington University in St. Louis*), Ryan Burrow (*MIT Lincoln Laboratory*), Nathan Burow (*MIT Lincoln Laboratory*), Cailani Lemieux-Mack (*Vanderbilt University*), Sanjoy Baruah (*Washington University in St. Louis*), Ning Zhang (*Washington University in St. Louis*), Bryan Ward (*Vanderbilt University*).

Latency-Optimized Data Harvesting in LoRa Networks Using a Mobile Sink Abusayeed Saifullah (*University of Texas at Dallas*), Nasif Ahmed (*University of Texas at Dallas*), Aakriti Jain (*University of Texas at Dallas*), Md Yusuf Sarwar Uddin (*University of Missouri-Kansas City*), Mohammad Ashiqur Rahman (*Florida International University*).

Session 8: OS and Applications

18:00-18:30, Wednesday, May 13th (first paper)
16:30-17:20, Thursday, May 14th (second and third papers)
(This session is split due to insufficient time for the full session on Thursday.)
Chair: Bryan Ward (*Vanderbilt University*)

Supporting Mixed-Criticality and Mutually Exclusive Callback Groups in Multi-Thread ROS 2 Abdullah Al Arafat (Florida International University), Kurt Wilson (North Carolina State University), Shareef Ahmed (University of South Florida), Zhishan Guo (North Carolina State University).

Anytime ROS 2: Timely Task Completion in Non-Preemptive Robotic Systems Harun Teper (*TU Dortmund University*), Daniel Kuhse (*TU Dortmund University*), Yun-Chih Chen (*TU Dortmund University*), Georg von der Brüggen (*TU Dortmund University*), Zhishan Guo (*North Carolina State University*), Jian-Jia Chen (*TU Dortmund University*).

Scheduling Constraints: A Universal OS Mechanism for Managing Shared Resources Moritz Lumme (*ETH Zurich*), Michael Roitzsch (*Barkhausen Institut*), Adam Lackorzyński (*TU Dresden*).