# IEEE RTCSA / NVMSA 2023 Program

Updated on August 23, 2023

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<tr>
<td>9:00-10:30</td>
<td>Opening and Keynote</td>
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<td>10:30-11:00</td>
<td>Break</td>
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<td>11:00-12:30</td>
<td>Session 1: Best Paper Candidates</td>
<td>NVMSA 1: Solid-State Drive</td>
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<td>13:30-15:00</td>
<td>Session 2: Real-Time Systems 1</td>
<td>NVMSA 2: Security and Isolation</td>
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<td>Break</td>
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<td>15:30-17:00</td>
<td>Session 3: Embedded Systems 1</td>
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<td>(15:20-17:00)</td>
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<td>17:30-19:30</td>
<td>Welcome Reception &amp; Poster Presentations</td>
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<td>31-Aug</td>
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<tr>
<td>9:30-10:30</td>
<td>NVMSA Keynote</td>
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<td>11:00-12:30</td>
<td>Session 4: IoT, CPS, and Emerging Applications 1</td>
<td>NVMSA 4: Machine Learning in Memory</td>
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<td>12:30-14:00</td>
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<td>15:30-17:00</td>
<td>Session 5A: Real-Time Systems 2</td>
<td>Session 5B: Embedded Systems 2</td>
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<td>18:00-21:00</td>
<td>Banquet (Crowne Plaza - ANA Niigata, 15 min walk from TOKI MESSE)</td>
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<td>1-Sep</td>
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<td>9:00-10:30</td>
<td>Session 6: Real-Time Systems 3</td>
<td>NVMSA 6: Tool and System Software</td>
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<td>10:30-11:00</td>
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<td>11:00-12:15</td>
<td>Session 7A: IoT, CPS, and Emerging Applications 2 (11:00-12:00)</td>
<td>Session 7B: Short Presentations</td>
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<td>Closing</td>
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August 30 (Wed)

August 30 (Wed) 9:00 - 10:30, Room 302
Opening and RTCSA Keynote
Chair: Hiroshi Yamada (Tokyo University of Agriculture and Technology)
- Personalized Predictions of Clinical Outcomes and Treatment Response with Wearables and Machine Learning
  Chenyang Lu (AIM Institute, Washington University in St. Louis)

August 30 (Wed) 11:00 - 12:30, Room 302
Session 1: Best Paper Candidates
Chairs: Nan Guan (City University of Hong Kong) and Hiroyuki Tomiyama (Ritsumeikan University)
- Timing Analysis of Embedded Software Updates
  Ahmed El Yaacoub (Uppsala University), Luca Mottola (Politecnico di Milano & Uppsala University), Thiemo Voigt (Uppsala University & RISE), Philipp Rümmer (University of Regensburg & Uppsala University)
- PELSI: Power-Efficient Layer-Switched Inference
  Ehsan Aghapour (University of Amsterdam), Dolly Sapra (University of Amsterdam), Andy D. Pimentel (University of Amsterdam), Anuj Pathania (University of Amsterdam)
- Self-supervised multi-LIDAR object view generation using single LiDAR
  Yi-Hung Kuo (National Taiwan University, Taiwan), Chi-Sheng Shih (National Taiwan University, Taiwan), Shih-Hao Hung (National Taiwan University, Taiwan; Mohamed bin Zayed University of Artificial Intelligence, Abu Dhabi)

August 30 (Wed) 11:00 - 12:30, Room 301
Session 1: Solid-State Drive
Chair: Daichi Fujiki (Keio University)
- Read Disturb and Reliability: The Complete Story for 3D CT NAND Flash (Best paper)
  Tianyu Ren, Qiao Li, Min Ye and Chun Jason Xue.
- Retention Leveling: Leverage Retention Refreshing and Wear Leveling Techniques to Enhance Flash Reliability with the Awareness of Temperature
  Wei-Chen Wang, Chien-Chung Ho, Yuan-Hao Chang, Tei-Wei Kuo and Yu-Ming Chang
- Efficient Read Disturb Management Schemes in Resource-constrained Flash Memory Controller
  Ilkjoon Son and Jin-Soo Kim

August 30 (Wed) 13:30 - 15:00, Room 302
Session 2: Real-Time Systems 1
Chair: Pablo Gutiérrez Peón (TTTech Auto AG)
- Hardware Acceleration with Zero-Copy Memory Management for Heterogeneous Computing
  Oren Bell (Washington University at St Louis, USA), Chris Gill (Washington University at St Louis, USA), Xuan Zhang (Washington University at St Louis, USA)
- BandWatch: A System-Wide Memory Bandwidth Regulation System for Heterogeneous Multicore
  Eric Seals (University of Kansas), Michael Bechtel (University of Kansas), Heechul Yun (University of Kansas)
- IRQ Coloring and the Subtle Art of Mitigating Interrupt-generated Interference
  Diogo Costa (Universidade do Minho, Portugal), Luca Cuomo (Huawei Pisa Research Center, Italy), Daniel Oliveira (Universidade do Minho, Portugal), Ida Maria Savino (Huawei Pisa Research Center, Italy), Bruno Morelli (Huawei Pisa Research Center, Italy), José Martins (Universidade do Minho, Portugal), Alessandro Biasci (Huawei Pisa Research Center, Italy), Sandro Pinto (Universidade do Minho, Portugal)

August 30 (Wed) 14:00 - 15:00, Room 301
Session 2: Security and Isolation
Chair: Takaaki Fukai (AIST)
- FSD: File-related Secure Deletion to Prolong the Lifetime of Solid-State Drives
  Shih-Chun Chou, Yi-Shen Chen, Ping-Xiang Chen, Yuan-Hao Chang, Ming-Chang Yang, Tei-Wei Kuo, Yu-Fang Chen and Yu-Ming Chang
- Achieving Performance Isolation in Docker Environments with ZNS SSDs
  Yejin Han, Myunghoon Oh, Seehwan Yoo, Jaedong Lee, Bryan S. Kim and Jongmoo Choi

August 30 (Wed) 15:30 - 17:00, Room 302
Session 3: Embedded Systems 1
Chair: Shuo-Han Chen (National Taipei University of Technology)
- Memory-Aware DVFS Governing Policy for Improved Energy-Saving in the Linux Kernel
  Philkyue Shin (Seoul National University, Republic of Korea), Dahn Kim (Seoul National University, Republic of
Korea), Seongsoo Hong (Seoul National University, Republic of Korea)

- TEEvseL4: Trusted Execution Environment for Virtualized seL4-based Systems
  Borna Blazevic (Technical University of Munich), Michael Peter (NIO GmbH), Mohammad Hamad (Technical University of Munich), Sebastian Steinhorst (Technical University of Munich)
- Improving Read Performance for LDPC-Based SSDs with Adaptive Bit Labeling on Vth States
  Jia-Xin Hou (National Yang Ming Chiao Tung University, Taiwan), Li-Pin Chang (National Yang Ming Chiao Tung University, Taiwan)

August 30 (Wed) 15:20 - 17:00, Room 301
Session 3: Invited talk
Chair: Ryuichi Sakamoto (Tokyo Institute of Technology)
- 15:20-15:50 TBA
- 15:50-16:30 Compute Express Link (CXL), the next generation interconnect -- Overview and the status of Linux --
  Yasunori Gotou (Fujitsu)
- 16:30-17:00 Computation-in-Memory Architecture for AI Accelerator
  Ken Takeuchi (The University of Tokyo)

August 30 (Wed) 17:30-19:30, Room 201
Poster Presentations
- Parameter Optimization for EDF-Like Scheduling of Self-Suspending Tasks
  Mario Günzel (TU Dortmund University), Jian-Jia Chen (TU Dortmund University)
- Response-time Analysis of Fault-Tolerant Hard Real-Time Systems under Global Scheduling
  Pourya Gohari (Eindhoven University of Technology (TU/e), The Netherlands), Jeroen Voeten (Eindhoven University of Technology (TU/e), The Netherlands), Mitra Nasr (Eindhoven University of Technology (TU/e), The Netherlands)
- Investigating Requirements and Expectations of Wearable Telexistence Robotic Systems
  Abdullah Iskandar (Waseda University, Japan), Mohammed Al-Sada (Qatar University, Qatar), Osama Halabi (Qatar University, Qatar), Tatsuo Nakajima (Waseda University, Japan)
- Designing a 3D Human Pose Estimation-based VR Tennis Training System
  Yuichiro Hiramoto (Waseda University, Japan), Mohammed Al-Sada (Qatar University, Qatar), Tatsuo Nakajima (Waseda University, Japan)
- Visualization System Using Virtual Reality for Work Improvement in Small and Medium Manufacturing Industries
  Shogo Oghara (Toyama Prefectural University, Japan), Tetsuro Kato (IoTry, Inc., Japan), Takeshi Iwamoto (Toyama Prefectural University, Japan)
- A Robot Arm-based Haptic Feedback System for Augmented Reality Applications
  Daichi Watanabe (Waseda University, Japan), Mohammed Al-Sada (Qatar University, Qatar), Kodai Fuchino (Waseda University, Japan)
- Make PLOR Real-time and Fairly Decentralized
  Tung Nguyen (Keio University, Japan), Hideyuki Kawashima (Keio University, Japan)
- T2Remoter: a Remote Table Tennis Coaching System Combining VR and Robotics
  Kodai Fuchino (Waseda University, Japan), Mohammed Al-Sada (Qatar University, Qatar), Tatsuo Nakajima (Waseda University, Japan)
- Extending ROS Transform Library for Massive Autonomous Robots
  Yushi Ogiwara (Keio University), Hideyuki Kawashima (Keio University)
- Analyzing Digital Services across the Compute Continuum using iFogSim
  Saeedeh Baneshi (University of Amsterdam, The Netherlands), Ana Lucia Varbanescu (University of Amsterdam, The Netherlands), Anuj Pathania (University of Amsterdam; TNO-ESI, The Netherlands), Andy Pimentel (University of Amsterdam, The Netherlands)
- ILP based Mapping for Elastic CGRAs
  Makoto Saito (The University of Tokyo, Japan), Takuya Kojima (The University of Tokyo, Japan), Hideki Takase (The University of Tokyo, Japan)
- Modelling ferroelectric hysteresis of HZO capacitor with Jiles-Atherton model for non-volatile memory applications
  Chihyun Lee, Sangeun Chae, Sungho Moon, Kyeungpyo Kim, Sungsoon Park and Hongseok Jeong
- Improving Compaction in LSM Trees through ZNS Simple Copy
  Aakash Yadav, Dong-Hyuk Lim and Hongsik Jeong
- Addressing the Space Overhead of Vector Quotient Filter
  Chaeyoung Hwang, Yongjin Kim, Junhan Lee and Youjip Won
August 31 (Thu)

August 31 (Thu) 9:30 - 10:30, Room 302
**NVMSA 2023 Keynote**
Chair: Takatsugu Ono (Kyushu University)
- New Horizon in Persistent Memory Research
  Prof. Yan Solihin (University of Central Florida)

August 31 (Thu) 11:00 - 12:30, Room 302
**Session 4: IoT, CPS, and Emerging Applications 1**
Chair: Tadaaki Tanimoto (Sony Semiconductor Solutions)
- Shared Dictionary Compression for Efficient Mobile Software Distribution
  Jinheng Li (City University of Hong Kong, China), Qiao Li (Xiamen University, China), Qingan Li (Wuhan University, China), Chun Jason Xue (City University of Hong Kong, China)
- A Comparison of Transformer and AR-SI Oracle For Control-CPS Software Fault Localization
  Shiyu Zhang (The Hong Kong Polytechnic University, China), Wenxia Liu (Nanjing University, China), Qixin Wang (The Hong Kong Polytechnic University, China), Lei Bu (Nanjing University, China), Yu Pei (The Hong Kong Polytechnic University, China)
- Accelerating Scan Transaction with Node Locking
  Kodai Doki (Keio University), Takashi Hoshino (Cybozu Labs, Inc.), Hideyuki Kawashima (Keio University)

August 31 (Thu) 11:00 - 12:30, Room 301
**Session 4: Machine Learning in Memory**
Chair: Shuo-Han Chen (National Yang Ming Chiao Tung University)
- Exploring Bit-Level Sparsity for Partial Sum Quantization in Computing-In-Memory Accelerator
  Jinyu Bai, Sifan Sun and Wang Kang
- ES-MPQ: Evolutionary Search enabled Mixed Precision Quantization Framework for Computing-In-Memory
  Sifan Sun, Jinming Ge, Jinyu Bai and Wang Kang
- An In-Memory-Computing STT-MRAM Macro with Analog ReLU and Pooling Layers for Ultra-High Efficient Neural Network
  Linjun Jiang, Sifan Sun, Jinming Ge, He Zhang and Wang Kang

August 31 (Thu) 14:00 - 15:00, Room 302
**Sponsor Talk**
Chair: Hiroshi Yamada (Tokyo University of Agriculture and Technology)
- The Future of Computing - bits/neurons/qubits –
  Shintaro Yamamichi (IBM Research Semiconductors, IBM Japan Ltd.)

August 31 (Thu) 15:30 - 17:00, Room 302
**Session 5A: Real-Time Systems 2**
Chair: Mario Guenzel (TU Dortmund)
- LAG-based Analysis for Preemptive Global Scheduling with Dynamic Cache Allocation
  Yuhan Lin (Northeastern University, China), Jinghao Sun (Dalian University of Technology, China), Qingxu Deng (Northeastern University, China), Meiling Han (Nanjing University of Posts and Telecommunications, China), Shumo Wang (Northeastern University, China)
- Reducing Response-Time Bounds via Global Fixed Preemption Point EDF-like Scheduling
  Joseph Goh (University of North Carolina at Chapel Hill, USA), James H. Anderson (University of North Carolina at Chapel Hill, USA)
- Dynamic Deterministic Quality of Service Model with Behavior-Adaptive Latency Bounds
  Robin Laidig (University of Stuttgart, Germany), Frank Dürr (University of Stuttgart, Germany), Kurt Rothermel (University of Stuttgart, Germany), Stefan Wildhagen (University of Stuttgart, Germany), Frank Allgöwer (University of Stuttgart, Germany)

August 31 (Thu) 15:30 - 17:00, Room 301
**Session 5B: Embedded Systems 2**
Chair: Li-Pin Chang (National Yang Ming Chiao Tung University)
- RDMA-Based Deterministic Communication Architecture for Autonomous Driving
  Hazem Abaza (Huawei Munich Research Center; Technische Universität Dortmund, Germany), Abhinaba Habishyashi (Technische Universität Dresden, Germany), Debayan Roy (Technische Universität Dortmund, Germany), Andrea Bastoni (Technische Universität München, Germany), Zain A. Hammadeh (German Aerospace Center, Germany), Shiqing Fan (Technische Universität Dortmund, Germany), Selma Saidi (Huawei Munich Research Center, Germany), Sergey Tverdyshev (Technische Universität Dortmund, Germany)
• Machine Learning Techniques for Understanding and Predicting Memory Interference in CPU-GPU Embedded Systems
  Alessio Masola (University of Modena and Reggio Emilia, Italy), Nicola Capodieci (University of Modena and Reggio Emilia, Italy), Benjamin Rouxel (University of Modena and Reggio Emilia, Italy), Giorgia Franchini (University of Modena and Reggio Emilia, Italy), Roberto Cavicchioli (University of Modena and Reggio Emilia, Italy)

• Traffic Injection Regulation Protocol based on free-time slots requests
  Yilian Ribot González (CISTER Research Centre, ISEP, IPP, Portugal), Geoffrey Nelissen (Eindhoven University of Technology, The Netherlands), Eduardo Tovar (CISTER Research Centre, ISEP, IPP, Portugal)

September 1 (Fri)

September 1 (Fri) 9:00 - 10:30, Room 302
Session 6: Real-Time Systems 3
Chair: Diogo Costa (Universidade do Minho)
• Time-Sensitive Networking’s Scheduled Traffic Implementation on IEEE 802.11 COTS Devices
  Pablo Gutiérrez Peón (TTTech Computertechnik AG, Austria; Mälardalen University, Sweden), Paraskevas Karachatzis (TTTech Computertechnik AG, Austria), Wilfried Steiner (TTTech Computertechnik AG, Austria), Elisabeth Uhlemann (Mälardalen University, Sweden)

• Advanced Modeling and Analysis of Individual and Combined TSN Shapers in OMNeT++
  Rubi Debnath (Technical University of Munich, Germany), Philipp Hortig (Technical University of Munich, Germany), Lixi Zhao (Beihang University, China), Sebastian Steinhorst (Technical University of Munich, Germany)

• DDS Implementations as Real-Time Middleware - A Systematic Evaluation
  Rubi Debnath (Technical University of Munich, Germany), Carsten Trinitis (Technical University of Munich, Germany), Martin Schulz (Technical University of Munich, Germany), David Buettner (Siemens AG, Germany), Tobias Preclik (Siemens AG, Germany)

September 1 (Fri) 9:30 - 10:30, Room 301
Session 6: Tool and System software
Chair: Yuan He (Keio University)
• Rapid NVM Simulation and Analysis on Single Bit Granularity Featuring Gem5 and NVMain
  Nils Hölscher, Minh Duy Truong, Christian Hakert, Tristan Seidl, Kuan-Hsun Chen and Jian-Jia Chen

• Optimizing the Incremental Update Mechanism of Mobile Systems by Inlaying File Indexes on Flash
  Ruiqing Lei, Xianzhang Chen, Duo Liu, Chunlin Song, Yujuan Tan and Ao Ren

September 1 (Fri) 11:00 - 12:15, Room 301
Session 7B: Short Presentations
Chair: Toshiaki Aoki (Japan Advanced Institute of Science and Technology)
• An Integrated Real-Time and Security Scheduling Framework for CPS
  Kriti Kansal (Virginia Tech), Thidapat Chantem (Virginia Tech), Nathan Fisher (Wayne State University), Sanjoy Baruah (Washington University in St. Louis)

• Efficient Response Time Bound for Typed DAG Tasks
  Qingqiang He (The Hong Kong Polytechnic University, China), Yongzheng Sun (The Hong Kong Polytechnic University, China), Weichen Liu (Nanyang Technological University, Singapore)

• Improved Bus Contention Analysis for 3-Phase Tasks
  Jatin Arora (CISTER, ISEP, Portugal), Syed Aftab Rashid (CISTER, ISEP, VORTEX CoLab, Portugal), Geoffrey Nelissen (Eindhoven University of Technology, The Netherlands), Claudio Maia (CISTER, ISEP, Portugal), Eduardo Tovar (CISTER, ISEP, Portugal)
• Accelerating The Permute And N-gram Operations For Hyperdimensional Learning in Embedded Systems
  Pere Vergés (University of California), Igor Nunes (University of California), Mike Heddes (University of California),
  Tony Givargis (University of California), Alexandru Nicolau (University of California)

September 1 (Fri) 12:15 - 12:30, Room 302
Closing

Wi-Fi
SSID : TOKI_Premium_WiFi
PASS : 20thanniv

BANQUET
DATE : August 31.
TIME : 18:00-21:00
VENUE: ANA Crowne Plaza Hotel Niigata
  5Chome-11-20 Bandai, Niigata-shi, Niigata 950-8531