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Brief Presentations Chair:
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RTSS 2018 will be held at the Hilton Nashville Downtown hotel located at 121 4th Ave South, Nashville, TN 37201, USA in the heart of Nashville downtown. Nashville is the capital city of the State of Tennessee, USA. It is referred to as Music City USA for its rich musical heritage and recording studios, and also as the Athens of the South for its numerous institutions of higher learning including Vanderbilt University. Nashville observes the US Central Time Zone. At the time of the conference, it will be on Central Standard Time (UTC-6).

Transportation between Nashville International Airport and Hilton Downtown:

The hotel is located less than 10 miles from the Nashville International Airport (Airport code: BNA). Ground transportation is available at the lower level (one level below baggage claim). Flat rate to from downtown to airport on taxis is $25. Uber and Lyft are also available. The Nashville Metropolitan Transportation Authority (MTA) operates Bus number 18 (http://www.nashvillemta.org/maps/route18.pdf) between the airport and downtown. Travelers board the bus at Music City Center (number 2 on the map) and get off at the airport stop (number 7 on the map). The conference venue and hotel is only 0.2 miles walk from the music city center.

Conference Venue

Conference Banquet

The conference banquet will be held from 18:30 - 22:00 on Thursday December 13, 2018 in the Country Music Hall of Fame, which is located just across the street from the conference hotel. Please meet in the hotel lobby at 18:25.
Inside the Hotel: Workshops and Main Conference

The main conference and workshops will be held on the second floor and can be accessed via the stairway or elevators. The conference lunch will be on the first floor (main lobby floor). The hotel concierge is on the right side as you enter the main lobby.
# December 11 (Tuesday)

## WORKSHOPS

<table>
<thead>
<tr>
<th>Time</th>
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<th>Location</th>
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<tbody>
<tr>
<td>08:30</td>
<td>Registration Opens</td>
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<tr>
<td>09:20 - 10:20</td>
<td>WORKSHOPS SESSION 1</td>
<td>Ryman 1</td>
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<tr>
<td>10:20 - 10:50</td>
<td>Coffee Break</td>
<td>Prefunction</td>
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<td>12:30 - 14:00</td>
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<td>WORKSHOPS SESSION 3</td>
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</tr>
<tr>
<td>16:10 - 17:50</td>
<td>WORKSHOPS SESSION 4</td>
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</tr>
<tr>
<td>18:00</td>
<td>RECEPTION</td>
<td>Boone</td>
</tr>
</tbody>
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1. **Program for the 1st Workshop on Efficient Real-time Data Networks (ERDN)**
   - Workshop Chairs: Huayu Zhang, and ChinaHui Li

2. **Program for the 1st International Workshop on Trustworthy and Real-time Edge Computing for Cyber-Physical Systems (TREC4CPS)**
   - Workshop Chairs: Áron Lászka and Abhishek Dubey

3. **Program for the 6th International Workshop on Mixed Criticality Systems (WMC)**
   - Workshop Chairs: Zhishan Guo, and Jing Li

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See Page 7, 8, & 9 for detailed agendas.
Workshop ERDN

Program for the 1st Workshop on Efficient Real-time Data Networks (ERDN)

Workshop Chairs: Huayu Zhang and ChinaHui Li

08:30 Registration Opens

09:20 - 10:20 WORKSHOPS SESSION 1  
Ryman 1

Keynote: Trends in Avionics Communication Systems  
Jean-Luc Scharbarg

10:20 - 10:50 Coffee Break  
Prefunction

10:50 - 12:30 WORKSHOPS SESSION 2  
Ryman 1

Comparative Analysis of Scheduling Strategies for Heterogeneous Avionics Applications  
Ahlem Mifdaoui, Anaïs Finzi, Fabrice Francès, and Emmanuel Lochin

Achieving Consistent Real-time Latency in a Collocated Commodity Virtual Machine Environment by LLC Partitioning  
Chung-Fan Yang, Oscar García, and Yasushi Shinjo

12:30 - 14:00 Lunch  
Atrium Lobby

14:00 - 15:40 WORKSHOPS SESSION 3  
Ryman 1

EcoCAM: A Power-saving and Memory Efficient Packet Classification Scheme in TCAMs  
Chonghui Ning, Wenjun Li, Xinwei Liu, Ting Huang, Wenxia Le, and Hui Li

Diting: A Real-time Distributed Feature Serving System for Machine Learning  
Meng Wan, Siyu Yu, and Chongxin Deng

15:40 - 16:10 Coffee Break  
Prefunction

16:10 - 17:50 WORKSHOPS SESSION 4 :  
Ryman 1

INVITED TALK & FINAL DISCUSSIONS
Evolutionary Optimisation of Real-Time Systems and Networks  
Leandro Indrusiak

18:00 RECEPTION  
Boone
Workshop TREC4CPS

Program for the 1st International Workshop on Trustworthy and Real-Time Edge Computing for Cyber-Physical Systems (TREC4CPS)

Workshop Chairs: Aron Laszka and Abhishek Dubey

08:30  Registration Opens

09:20 - 10:20  WORKSHOPS SESSION 1: INVITED TALK
Supporting Resiliency and Timeliness in Edge Applications with Dispersed Computing
Aaron Paulos

10:20 - 10:50  Coffee Break

10:50 - 12:30  WORKSHOPS SESSION 2
Scheduling of Smart Factories using Edge Computing and Clouds
Piotr Dziurzanski, Jerry Swan, and Leandro Indrusiak
Network Slicing as an Ad-Hoc Service: Opportunities and Challenges in Enabling User-Driven Resource Management in 5G
Madhumitha Harishankar, Patrick Tague, and Carlee Joe-Wong
Control over the Edge Cloud – An MPC Example
Karl-Erik Årzén, Per Skarin, William Tärneberg, and Maria Kihl

12:30 - 14:00  Lunch

14:00 - 15:40  WORKSHOPS SESSION 3
Machine Learning Enhanced Real-Time Intrusion Detection Using Timing Information
Hang Xu, Frank Mueller, Mithun Acharya, and Alok Kucheria
Social Welfare-based Optimization for Data/Service Delivery to Connected Vehicles via Edges
Deepak Gangadharan, Oleg Sokolsky, Insup Lee, and BaekGyu Kim
RRP Edge Computing System
Guangli Dai, Pavan Kumar Paluri, and Albert Cheng

15:40 - 16:10  Coffee Break

16:10 - 17:50  WORKSHOPS SESSION 4 : PANEL DISCUSSION
Taming Uncertainty in Edge Computing to Assure Performance Reliability

18:00  RECEPTION
Workshop WMC

Program for the 6th International Workshop on Mixed Criticality Systems (WMC)

Workshop Chairs: Zhishan Guo and Jing Li

08:30  Registration Opens

09:20 - 10:20  WORKSHOPS SESSION 1: KEYNOTE  Ryman 3

Mixed-Criticality Scheduling theory: Scope, Promise, and Limitations
Sanjoy Baruah

10:20 - 10:50  Coffee Break  Prefunction

10:50 - 12:30  WORKSHOPS SESSION 2  Ryman 3

Mixed-Criticality Probabilistic Real-Time Systems Analysis using Discrete Time Markov Chain
Jasdeep Singh, Luca Santinelli, David Doose, Julien Brunel, and Guillaume Infantes

Supporting Graceful Degradation through Elasticity in Mixed-Criticality Federated Scheduling
Chris Gill, James Orr, and Steven Harris

Decoupling Criticality and Importance in Mixed-Criticality Scheduling
Konstantinos Bletsas, Muhammad Ali Awan, Pedro Souto, Benny Akesson, Alan Burns, and Eduardo Tovar

Journal-Never-Presented: Utilization-Based Scheduling of Flexible Mixed-Criticality Real-Time Tasks
Gang Chen, Nan Guan, Todor Stefanov, and Wang Yi

12:30 - 14:00  Lunch  Atrium Lobby

14:00 - 14:30  WORKSHOPS SESSION 3  Ryman 3

Supporting Critical Modes in AirTight
James Harbin, David Griffin, Alan Burns, Iain Bate, Rob Davis, and Leandro Indrusiak

14:30 - 15:40  WORKSHOPS SESSION 4: INVITED TALKS

MPSoCs for Mixed-Criticality Systems: Challenges and Opportunities
Mohamed Hassan

Geoffrey Nelissen

15:40 - 16:10  Coffee Break  Prefunction

16:10 - 17:50  WORKSHOPS SESSION 5:
INVITED TALKS & PANEL DISCUSSION  Ryman 3

Mixed-Criticality Systems: Safety & Statistical Guarantees
Sathish Gopalakrishnan

18:00  RECEPTION  Boone
December 12 (Wednesday)

08:00 Registration Opens

08:40 - 09:00 OPENING REMARKS
Introduction: Robert I. Davis and Isabelle Puaut

09:00 - 09:30 AWARD SPEECH
Session Chair: Isabelle Puaut
Real-Time Computing and the Evolution of Embedded System Designs
Tei-Wei Kuo
(See page 16 for details)

09:30 - 10:20 SESSION 1: NETWORKS
Session Chair: Isabelle Puaut
Rapid routing with guaranteed delay bounds
Sanjoy Baruah
Distributed Real-Time Shortest-Paths Computations with the Field Calculus
Giorgio Audrito, Ferruccio Damiani, Mirko Viroli, and Enrico Bini

10:20 - 10:50 Coffee Break

10:50 - 12:30 SESSION 2: AUTONOMOUS SYSTEMS AND APPLICATIONS
Session Chair: Tam Chantem
RIM: Robust Intersection Management for Connected Autonomous Vehicles
Mohammad Khayatian, Mohammadreza Mehrabian, and Aviral Shrivastava
bCharge: Data-Driven Real-Time Charging Scheduling for Large-Scale Electric Bus Fleets
Guang Wang, Xiaoyang Xie, Fan Zhang, Yunhuai Liu, and Desheng Zhang
Dynamic Channel Selection for Real-time Safety Message Communication in Vehicular Networks
Yunhao Bai, Kuangyu Zheng, Zejiang Wang, Xiaorui Wang, and Junmin Wang
ApNet: Approximation-aware Real-Time Neural Network
Soroush Bateni and Cong Liu

12:30 - 14:00 Lunch
**December 12 (Wednesday)**

**14:00 - 15:40**  
**SESSION 3: REAL-TIME SUPPORT ON GPUs**  
Crockett  
Session Chair: Alessandro Biondi  

**Making OpenVX Really “Real Time”**  
Ming Yang, Tanya Amert, Kecheng Yang, Nathan Otterness, James H. Anderson, F. Donelson Smith, and Shige Wang  

**CycleTandem: Energy-Saving Scheduling for Real-Time Systems with Hardware Accelerators**  
Sandeep D’souza and Ragunathan (Raj) Rajkumar  

**PredJoule: A Timing-Predictable Energy Optimization Framework for Deep Neural Networks**  
Soroush Bateni, Husheng Zhou, Yuankun Zhu, and Cong Liu  

**Deadline-based Scheduling for GPU with Preemption Support**  
Nicola Capodieci, Roberto Cavicchioli, Marko Bertogna, and Aingara Paramakuru

**15:40 - 16:10**  
**Coffee Break**  
Prefunction

**16:10 - 17:50**  
**SESSION 4: BRIEF PRESENTATIONS / RTSS@WORK**  
Crockett  
Session Chairs: Martina Maggio and Bryan Ward  

*See listing of Brief Presentations on page 17  
See listing of RTSS@Work Demos on page 18*

**18:00**  
**POSTERS AND DEMOS RECEPTION**  
Boone
08:00  Registration Opens

08:40 - 10:20  SESSION 5: I/O AND FORMAL METHODS  Crockett
  Session Chair: Gedare Bloom
  
  Partitioned Real-Time NAND Flash Storage
  Katherine Missimer and Richard West

  Tuned Pipes: End-to-end Throughput and Delay Guarantees for USB Devices
  Ahmad Golchin, Zhuoqun Cheng, and Richard West

  Automatic Trace Generation for Signal Temporal Logic
  Pavithra Prabhakar, Ratan Lal, and James Kapinski

  A Generic Coq Proof of Typical Worst-Case Analysis
  Pascal Fradet, Maxime Lesourd, Jean-François Monin, and Sophie Quinton

10:20 - 10:50  Coffee Break  Prefunction

10:50 - 12:30  SESSION 6: MULTICORE SYSTEMS  Crockett
  Session Chair: Zhishan Guo

  Analysis of Dynamic Memory Bandwidth Regulation in Multi-core Real-Time Systems
  Ankit Agrawal, Renato Mancuso, Rodolfo Pellizzoni, and Gerhard Fohler

  Optimal Implementation of Simulink Models on Multicore Architectures with Partitioned Fixed Priority Scheduling
  Shamit Bansal, Yecheng Zhao, Haibo Zeng, and Kehua Yang

  Scheduling Multi-Periodic Mixed Criticality DAGs on Multi-Core Architectures
  Roberto Medina, Etienne Borde, and Laurent Pautet

  NoCo: ILP-based Worst-Case Contention Estimation for Mesh Real-Time Manycores
  Jordi Cardona, Carles Hernandez, Enrico Mezzetti, Jaume Abella, and Francisco J. Cazorla

12:30 - 14:00  Lunch  Atrium Lobby

14:00 - 15:40  SESSION 7: INDUSTRY PANEL SESSION  Crockett
  Session Chair: Xenofon Koutsoukos

  Topic: Real-time Internet of Things: Existing Solutions, Current Problems, and Future Challenges
December 13 (Thursday)

15:40 - 16:10  Coffee Break  Prefunction

16:10 - 17:25  SESSION 8: COMMUNICATIONS  Crockett
Session Chair: Ahlem Mifdaoui

  TDMH-MAC: Real-time and multi-hop in the same wireless MAC
  Federico Terraneo, Paolo Polidori, Alberto Leva, and William Fornaciari

  MC-SDN: Supporting Mixed-Criticality Scheduling on
  Switched-Ethernet Using Software-Defined Networking
  Kilho Lee, Taejune Park, Minsu Kim, Hoon Sung Chwa, Jinkyu Lee,
  Seungwon Shin, and Insik Shin

  Optimizing Network Calculus for Switched Ethernet Network
  with Deficit Round Robin
  Aakash Soni, Xiaoting Li, Jean-Luc Scharbarg, and Christian Fraboul

17:30 - 18:15  TCRTS MEETING (open to all conference participants)  Crockett
Choose the venue for RTSS 2020

18:30 - 22:00  MUSEUM VISIT AND BANQUET  Country Music Hall of Fame
Meet in the hotel lobby at 18:25
December 14 (Friday)

08:00 Registration Opens

08:40 - 10:20 SESSION 9: MEMORY AND I/O  
Session Chair: Robert Kaiser

- Memory Feasibility Analysis of Parallel Tasks Running on Scratchpad-Based Architectures  
  Daniel Casini, Alessandro Biondi, Geoffrey Nelissen, and Giorgio Buttazzo

- BUNDLEP: Prioritizing Conflict Free Regions in Multi-Threaded Programs to Improve Cache Reuse  
  Corey Tessler and Nathan Fisher

- Semi-Extended Tasks: Efficient Stack Sharing Among Blocking Threads  
  Christian Dietrich and Daniel Lohmann

- Exploiting Locality for the Performance Analysis of Shared Memory Systems in MPSoCs  
  Selma Saidi and Alexander Syring

10:20 - 10:50 Coffee Break

10:50 - 12:30 SESSION 10: UNI-PROCESSOR SCHEDULING  
Session Chair: Julio Medina

- The SRP Resource Sharing Protocol for Self-Suspending Tasks  
  Geoffrey Nelissen and Alessandro Biondi

- Uniprocessor Mixed-Criticality Scheduling with Graceful Degradation by Completion Rate  
  Zhishan Guo, Kecheng Yang, Sudharsan Vaidhun, Samsil Arefin, Sajal K. Das, and Haoyi Xiong

- An Efficient Knapsack-Based Approach for Calculating the Worst-Case Demand of AVR Tasks  
  Sandeep Kumar Bijinemula, Aaron Willcock, Thidapat Chantem, and Nathan Fisher

- Schedulability Analysis of Adaptive Variable-Rate Tasks with Dynamic Switching Speeds  
  Chao Peng, Yecheng Zhao, and Haibo Zeng

12:30 - 14:00 Lunch
December 14 (Friday)

14:00 - 15:40  SESSION 11: MULTI-PROCESSOR SCHEDULING  
Session Chair: Enrico Bini

An Optimal Semi-Partitioned Scheduler Assuming Arbitrary Affinity Masks
Sergey Voronov and James H. Anderson

Partitioned Fixed-Priority Scheduling of Parallel Tasks Without Preemptions
Daniel Casini, Alessandro Biondi, Geoffrey Nelissen, and Giorgio Buttazzo

Dependency Graph Approach for Multiprocessor Real-Time Synchronization
Jian-Jia Chen, Georg von der Brüggen, Junjie Shi, and Niklas Ueter

An Improved Speedup Factor for Sporadic Tasks with Constrained Deadlines under Dynamic Priority Scheduling
Xin Han, Liang Zhao, Zhishan Guo, and Xingwu Liu

15:40 - 16:10  Coffee Break  
Prefunction

16:10 - 17:50  SESSION 12: OUTSTANDING PAPERS  
Session Chair: Rob Davis

Shedding the Shackles of Time-Division Multiplexing
Farouk Hebbache, Mathieu Jan, Florian Brandner, and Laurent Pautet

Design and Analysis of SIC: A Provably Timing-Predictable Pipelined Processor Core
Sebastian Hahn and Jan Reineke

Reservation-Based Federated Scheduling for Parallel Real-Time Tasks
Niklas Ueter, Georg von der Brüggen, Jian-Jia Chen, Jing Li, and Kunal Agrawal

On the Off-chip Memory Latency of Real-Time Systems: Is DDR DRAM Really the Best Option?
Mohamed Hassan

17:50 - 18:20  CLOSING REMARKS & PRESENTATION OF RTSS 2019  
Bredesen

Robert I. Davis

See details of RTSS 2019 on page 21
Abstract:
Real-time computing provides insightful ways to explore the optimization in resource usages, especially from the time point of view. Nevertheless, real-time task scheduling is recognized by its high complexity when there are non-preemptive shared resources and multiple processors. When more and more practical factors in system designs are considered, such as energy consumption and memory allocation, even some sub-problems in real-time task scheduling become intractable. Although people often criticize various artificial assumptions in real-time task scheduling, they have to admit that ideas in real-time computing and their extensions, such as tradeoff in cost, performance, energy, and even the quality of service, can be applied to multi-dimensional optimization in system designs. In this direction, we witness the rapid development of the embedded system industry and join the task force in system designs, especially mobile devices and non-volatile memory systems. Resource management on mobile devices, with a special emphasis on user experience, should not only consider the response time but also the visual perception of users. Non-volatile memory has also blurred the boundary between the memory and the storage, that enables certain unified considerations of the main memory and storage and also in-memory computing. It shows the ways to break the boundaries between hardware and software layers and have better integration of computing and memory/storage units. The advance in mobile systems and memory innovations inspire the evolution of embedded real-time computing and have also brought us insights to solutions regarding how systems should be restructured and how computing should be done. They might also provide their feedback to real-time computing and even shape the future direction of real-time computing in various innovative ways.

Biography:
Tei-Wei Kuo received his B.S.E. and Ph.D. degrees in computer science from the National Taiwan University and the University of Texas at Austin in 1986 and 1994, respectively. He is the Interim President (2017.10-now), the Executive Vice President for Academics and Research (2016.08-now), and a Distinguished Professor of the Department of Computer Science and Information Engineering, National Taiwan University, where he served as the Department Chairman from August 2005 to July 2008. Prof. Kuo served as a Distinguished Research Fellow and the Director of the Research Center for Information Technology Innovation, Academia Sinica, between January 20, 2015, and July 31, 2016. Prof. Kuo was the Program Director of the Computer Science Division of the Ministry of Science and Technology (2013-2015) and was an executive committee member of the IEEE Technical Committee on Real-Time Systems (2005-2017). He is an executive committee member of the IEEE Technical Committee on Real-Time Systems and the Vice Chair of ACM SIGAPP. His expertise is embedded systems, real-time systems, non-volatile memory system and software, and neuromorphic computing.

Prof. Kuo is an ACM Fellow and an IEEE Fellow. He is the Editor-in-Chief of the ACM Transactions on Cyber-Physical Systems and serves in the editorial board of the Journal of Real-Time Systems, IEEE Transactions on Industrial Informatics, and ACM Transactions on Transactions on Design Automation of Electronic Systems. He received the Distinguished Research Award from the Pan Wen Yuan Foundation and the 12th Y.Z. Hsu Scientific Chair Professorship in 2018, the 2017 Outstanding Technical Achievement and Leadership Awards of the IEEE Technical Committee on Real-Time Systems, the 2017 Distinguished Leadership Award from the IEEE Technical Committee on Cyber-Physical Systems, the TECO Award in 2015, the ROC Ten Young Outstanding Persons Award in 2004, the Distinguished Research Award from the ROC National Science Council/Ministry of Science and Technology for three times, and the Young Scholar Research Award from Academia Sinica, Taiwan, ROC, in 2001.
Brief Presentations

Journals Never Presented

On the Ineffectiveness of 1/m-based Interference Bounds in the Analysis of Global EDF and FIFO Scheduling
Alessandro Biondi and Youcheng Sun

Many Suspensions, Many Problems: A Review of Self-suspending Tasks in Real-time Systems
Jian-Jia Chen, Geoffrey Nelissen, Wen-Hung Huang, Maolin Yang, Björn Brandenburg, Konstantinos Blotsas, Cong Liu, Pascal Richard, Frédéric Ridouard, Neil Audsley, Raj Rajkumar, Dionisio de Niz, and Georg von der Brüggen

Work-in-Progress

Incorporating Deadline-Based Scheduling in Tasking Programming Model for Extreme-Scale Parallel Computing
Albert M.K. Cheng and Panruo Wu

Preference-Oriented Scheduling in Multiprocessor Real-Time Systems
Qin Xia, Dakai Zhu and Hakan Aydin

Combining Real Time and Multithreading
Sims Osborne and James H. Anderson

From Logical Time Scheduling to Real-Time Scheduling
Frédéric Mallet and Min Zhang

Lock-Based Software Transactional Memory for Real-Time Systems
Catherine E. Nemitz and James H. Anderson

New Analysis Techniques for Supporting Hard Real-Time Sporadic DAG Task Systems on Multiprocessors
Zheng Dong and Cong Liu

Response Time Bounds for Typed DAG Parallel Tasks on Heterogeneous Multi-cores
Meiling Han, Nan Guan, Jinghao Sun, Qingqiang He, Qingxu Deng, and Weichen Liu

Making Machine Learning Real-Time Predictable
Hang Xu and Frank Mueller

Real-Time Modeling for Intrusion Detection in Automotive Controller Area Network
Habeeb Oluwofobi, Gedare Bloom, Clinton Young, and Joseph Zambreno

Linwei Niu, Jonathan Musselwhite, and Wei Li

Extending Buffer-Aware Worst-Case Timing Analysis of Wormhole NoCs
Frédéric Giroudot and Ahlem Mifdaoui

Precise Scheduling of Mixed-Criticality Tasks by Varying Processor Speed
Sai Sruti, Ashikahmed Bhuiyan, and Zhishan Guo

Towards Real-time Smart City Communications using Software Defined Wireless Mesh Networking
Akram Hakiri and Aniruddha Gokhale

Joint Network and Computing Resource Scheduling for Wireless Networked Control Systems
Peng Wu, Chenchen Fu, Minming Li, Yingchao Zhao, Chun Jason Xue, and Song Han
Demos

**Time4Sys – Integrating Timing Verification in your Engineering Practices**
Loic Fejoz, Lionel Havet, Aurélien Didier, Benoît Viaud, Anh-Toan Bui Long, Thanh-Dat Nguyen, Yassine Ouhammou, Emmanuel Grolleau, Adriana Gogonel, Cristian Maxim, Liliana Cucu-Grosjean, Rafik Henia, Laurent Rioux, Nicolas Sordon, Nicolas Ayache, and Joris Rehm

**Towards Real-time Object Detection on Mobile Devices**
Byeongkyo Cheong, Donghee Ha, Jinse Kwon, and Hyungshin Kim

**Simulation of Field Calculus-based IoT Applications with Real-Time Guarantees**
Giorgio Audrito, Ferruccio Damiani, Mirko Viroli, Danilo Pianini, and Enrico Bini

**DeepPicar: A Low-cost Deep Neural Network-based Autonomous Car**
Michael Bechtel, Elise McEllhiney, Minje Kim, and Heechul Yun

**HyLAA 2.0: A Verification Tool for Linear Hybrid Automaton Models of Cyber-Physical Systems**
Stanley Bak and Parasara Sridhar Duggirala

**FECBench — A Framework for Measuring and Analyzing Performance Interference Effects for Latency-sensitive Applications**
Yogesh Barve, Shashank Shekhar, Ajay Chhokra, Shweta Khare, Anirban Bhattacharjee, and Aniruddha Gokhale

**Coordinated City-Scale Traffic Management using Quartz “Time-as-a-Service”**
Sandeep D’souza, Ragunathan (Raj) Rajkumar, Heiko Koehler, and Akhilesh Joshi
Local Attractions

**Country Music Hall of Fame**
countrymusichalloffame.org
222 5th Ave S.
*Site of RTSS 2018 banquet, across from the conference hotel*

The Country Music Hall of Fame and Museum in Nashville, Tennessee, is one of the world's largest museums and research centers dedicated to the preservation and interpretation of American vernacular music. Chartered in 1964, the museum has amassed one of the world's most extensive musical collections.

**Nashville Schermerhorn Symphony**
nashvillesymphony.org
1 Symphony Pl.
*Across from the conference hotel*

Nashville's symphony, established in 1946, is one of Tennessee's largest and longest-running non-profit performing arts organization. Handel's Messiah will be playing from Dec 13th thru 16th.

**Ryman Auditorium**
ryman.com
116 5th Ave N.
*2 minute walk from the conference hotel.*

Ryman Auditorium is a 2,362-seat live-performance venue located at 116 5th Avenue North, in Nashville, Tennessee. It is best known as the home of the Grand Ole Opry from 1943 to 1974. Includes a museum.

**Johnny Cash Museum**
johnnycashmuseum.com
119 3rd Ave S.

This red-brick museum displays pictures & memorabilia from the life of music icon Johnny Cash.

**Bridgestone Arena**
bridgestonearena.com
501 Broadway

The 2018 Presidents Cup Winner Nashville Predators Ice Hockey team plays here. Ice hockey fans may want to book their tickets for Predator’s home game(s) during the conference. The Predators will be playing the Ottawa Senators on Dec 11th, Vancouver Canucks on Dec 13th, and New Jersey Devils on Dec 15th.

**Broadway Avenue**
*Adjacent to the conference hotel.*

All of the activity and night life. Several restaurants and souvenir shops are along this street.

**Riverfront Park**
nashvilledowntown.com/go/riverfront-park
100 1st Ave N.
*0.9 mile walk from the conference hotel*

Riverfront Park runs along 1st Avenue Downtown along the Cumberland River. It hosts the Ascend Amphitheater, a dog run, art work and a replica of Fort Nashborough.
Local Restaurants

Broadway Brewhouse Downtown
broadwaybrewhouse.net
317 Broadway
0.1 miles from from the conference hotel
Saloon with dozens of draft beers & eclectic pub grub in an exposed-brick, memorabilia-filled space.

Etch Restaurant
etchrestaurant.com
303 Demonbreun St
0.1 miles from from the conference hotel.
Open-kitchen setting for eclectic, upscale dining, plus a rich cocktail & wine list.

Jacks Bar-B-Que
jacksbarbque.com
416 Broadway
0.1 miles from from the conference hotel
Proudly serving barbecue from “pit to plate.” Jack’s Bar-B-Que offers Tennessee pork shoulder, Texas beef brisket, smoked turkey, Texas sausage, St. Louis-style ribs, smoked chicken, and Southern cuisine. Plus, choose from any of their six award-winning sauces.

Merchants Restaurant
merchantsrestaurant.com
401 Broadway
0.1 miles from from the conference hotel
A lively three-floor restaurant situated in the heart of downtown Nashville on the corner of Broadway and 4th Avenue.

Pancho & Lefty’s Cantina
panchoandleftys.com
428 Broadway
0.1 miles from from the conference hotel
Casual, rustic restaurant & tequila bar serving modern takes on tacos & other Mexican street food.

Sushiyobi
sushiyobitn.com
1526 Demonbreun St.
0.888 miles from from the conference hotel
Variety of Japanese dishes including specialty rolls, fusion fare, tempura & teriyaki dishes.

The Farm House
thefarmhousetn.com
210 Almond St.
0.1 miles from from the conference hotel
Reimagined, farm-fresh Southern classics, local brews & cocktails in a hip space.
40th IEEE Real-Time Systems Symposium (RTSS)

3rd–6th December, 2019
Hong Kong, China

Sponsored by the IEEE Computer Society
Technical Committee on Real-Time Systems

http://2019.rtss.org

Program Chair: X. Sharon Hu, University of Notre Dame, USA
General Chair: Rob Davis, University of York, UK
Local Organizer: Nan Guan, The Hong Kong Polytechnic University, China

Important Dates:
Submission Deadline (FIRM):
Thursday 30th May 2019

Notifications: Friday 9th August 2019
Camera Ready: Friday 13th December 2019 (tentative)
Workshops: Tuesday 3rd December 2019 (tentative)
Conference: Wednesday 4th - Friday 6th December 2019 (tentative)