



# 10<sup>th</sup> International Real-Time Systems Open Problems Seminar (RTSOPS 2019)

## Seminar Organizers:

Liliana Cucu-Grosjean, Inria, Paris, France

Robert Davis, University of York, UK

Nathan Fisher, Wayne State University, USA

# Workshop Goal

The aim of the workshop is to promote a spirit of friendly co-operation and collaboration within the real-time systems community.

The workshop consists of a series of short presentations about interesting open and unsolved problems in a variety of different areas of real-time system research, followed by discussions, interaction, and exchange of ideas.

Presentation slots are 20 minutes in total. Speakers are encouraged to leave plenty of time for questions and discussion (i.e. 10-15 minute talks).

A convivial atmosphere is expected for this informal event. Please do ask questions and get involved.

# Program Schedule

- 09:00 – 10:30: **Intro and Session 1**
- 10:30 – 11:00: **Coffee and Cake Break**
- 11:00 – 12:00: **Session 2**
- 12:00 – 12:30: **Coffee Break**
- 12:30 – 13:30: **Session 3**
- 13:30 – 15:00: **Lunch**
- 15:00 – 16:00: **Session 4**
- 16:00 – 16:30: **Coffee Break**
- 16:30 – 17:40: **Session 5 and Wrap-up**

# Detailed Program (Session 1)

## 9:00 Session 1

Introduction

*Rob Davis and Nathan Fisher*

Real-Time Communication over Low-Power Wide-Area Network: Challenges and Directions

*Abusayeed Saifullah*

From Java to Real-Time Java: A Model-Driven Methodology with Automated Toolchain

*Wanli Chang, Shuai Zhao, Ran Wei, Andy Wellings, Alan Burns*

System-Wide Power Management for Real-Time Systems

*Roberto Medina and Liliana Cucu-Grosjean*

Can the RUN Scheduling Algorithm go Beyond Periodic Task Models?

*George Lima*

**10:30 Coffee and Cake break**

# Detailed Program (Session 2)

## **11:00 Session 2**

Towards an Automated, Efficient, and Accurate Schedulability Analysis for Real-Time Cyber-Physical Systems

*Mitra Nastri*

On Verification and Synthesis of Time-Delay Systems

*Naijun Zhan*

Validation of Statistical Timing Models of a Periodic Task on a Microcontroller

*Anna Friebe, Alessandro V. Papadopoulos, and Thomas Nolte*

## **12:00 Coffee break**

# Detailed Program (Session 3)

## **12:30 Session 3**

Can we Synthesize Resource Allocation Policies from Examples?

*Sathish Gopalakrishnan and Theepan Moorthy*

On the verification of autonomous systems and the role of real-time research

*Bjorn Andersson and Dionisio de Niz*

Open and collaborative classification of RTSS papers

*Enrico Bini*

## **13:30 Lunch**

# Detailed Program (Session 4)

## **15:00 Session 4**

A Multi-Dimensional Adaptive Variable Rate Task Model and Its Potential Role in Reducing Resource Utilization of Embedded Systems

*Tam Chantem and Nathan Fisher*

Programming Language Support for Time-Sensitive CPS

*Aviral Shrivastava*

Micro-Architectural Attacks on Cyber-Physical Systems

*Heechul Yun*

## **16:00 Coffee break**

# Detailed Program (Session 5)

## **16:30 Session 5**

On Beyond Time: Managing Cyber-Physical Inter-Dependence and Interference of Real-Time Tasks

*Chris Gill*

Open Problem Space for Real-Time CPS Software Engineering Research

*Qixin Wang*

Computing Request/Demand Bound Functions for Task Automata

*Nan Guan*

Wrap-up

*Rob Davis and Nathan Fisher*

**17:40 Approx. finish.**



# Website

- Detailed program and proceedings (abstracts) are on the website: <https://project.inria.fr/rtsops2019/>

# Acknowledgements

- Thanks to Inria for providing the venue and sponsoring the workshop