

Workshop proposal for WF-IoT 2019

Workshop title

NewNets 2019 - The 1st Workshop on Emerging Technologies and Trends in Engineering Low-Power Networks

Length of the workshop (half/full-day)

NewNets is intended to be a half-day workshop.

Names, main contact, and a short bio (200 words) of the organizers

NewNets is organized by Ramona Marfievici, Usman Raza, and Oana Iova who will serve as TPC co-chairs.

Ramona Marfievici (ramona.marfievici@cit.ie) is a Senior Researcher at the Nimbus Research Centre, Cork Institute of Technology, Ireland. She has worked on low power-wireless networks and sensing systems with a special interest in experimentation methodologies. She has contributed to the community with tools for in-field connectivity and routing performance assessment of short and long-range communication.

More information at <http://mramona.github.io>

Usman Raza (usman.raza@toshiba-trel.com) is Principal Research Engineer at Toshiba Research Europe Limited, Bristol, UK. His current research interests include cyber-physical systems, industrial wireless systems, and low power wide area networks. During his multiple roles in both academia and industry, he has filed patents, published conference and journal papers, participated as an invited panelist, and served as a TPC member. He was a recipient of the Endeavour Research Fellowship at The University of New South Wales Australia and an offer of the Fulbright Scholarship from the U.S. Department of State. He received two best paper awards at IEEE venues including the Mark Weiser Award at IEEE PerCom'12.

For more details about his work, please, see https://www.researchgate.net/profile/Usman_Raza

Oana Iova (oana.iova@insa-lyon.fr) is an Associate Professor at INSA Lyon, France and a member of the Inria Agora research group. Her research focuses on wireless networks for the Internet of Things, using as building blocks both new long-range wireless communication technologies and conventional short-range technologies. She has worked on developing energy efficient solutions for several IoT communication protocols, increasing the lifetime of short and long-range wireless networks.

More information at <http://perso.citi.insa-lyon.fr/oiova/>

Brief description of the workshop including abstract, scope and timeliness

A founding pillar of the Internet of Things concept is the availability of low-cost low-power devices with wireless technologies providing both sensing and actuation. In the past decade, the research community have produced proven solutions to build low-power mesh networks mostly based on short-range technologies (e.g., IEEE 802.15.4, ZigBee, Bluetooth, ZWave). However, due to the increased overhead incurred for maintaining these mesh networks, a new trend appeared: the use of long-range radio modules that remove all the complexity of network maintenance, while keeping the same low-power consumption. These long-range radio communication technologies (e.g., SigFox, LoRa, NB-IoT, 802.15.4g) are now considered as candidate technologies for many IoT applications, especially those that require extended coverage, such as citywide sensing, environmental monitoring, or remote infrastructure monitoring.

The aim of this workshop is to bring together researchers and practitioners working in the field of IoT from both academia and industry, to discuss and explore short-range and long-range solutions, the tradeoffs between these two paradigms, as well as how they can be used in synergy. In order to push the state of the art, several points need to be addressed: new features for the long-range technologies (i.e., over-the-air updates, roaming), radio resource management, regulations and policies on spectrum usage and sharing, business case analysis that are more well suited for certain vertical markets. As such, the workshop is of fundamental importance and fits perfectly in the realm of WF-IoT.

The workshop will consist of presentations of short papers and a panel session. The short papers can be of a technical nature, presenting preliminary technical results, or position papers presenting a thought-provoking view regarding methods and applications based on short- or long-range communication solutions for IoT or both. We are looking for papers that look at: protocol design; hardware platform design; modeling and analysis of low-power short or/and long-range communication; reliability, adaptability, and dependability of short- or/and long-range communication solutions; applications domains (e.g., smart cities, smart health, smart buildings, smart transportation); deployment experiences, case studies, and lessons learned; evaluation and testbeds; business case analysis.

Planned format of the workshop, including projected number of referred papers, hot topic workshop, keynotes, and panel discussions.

The workshop will feature a mix of: 20-minute presentations of accepted papers (6) to inspire stimulating discussions, and a panel discussion with participants from industry and academia .

Potential participants including program committee members and invited speakers.

Potential panel members include:

David McDonald (Danalto, Ireland)
Wienke Giezeman (The Things Industries, The Netherlands)
Alex Gluhak (Digital Catapult, UK)
Nick Hunn (WiFore, UK)
Usman Javaid (Vodafone, UK)
Xavier Vilajosana (Universitat Oberta de Catalunya, Spain)
Andrea Zanella (University of Padova, Italy)

Tentative list of program committee members:

Carlo Alberto Boano (Graz University of Technology, Austria)
Victor Cionca (Nimbus Research Centre, Ireland)
Cristina Cano (Universitat Oberta de Catalunya)
Simon Duquennoy (RISE SICS, Sweden)
Evgeny Khorov (Russian Academy of Sciences, Russia)
Gaia Maselli (University of Rome La Sapienza, Italy)
Konstantin Mikhaylov (University of Oulu, Finland)
Georgios Papadopoulos (IMT Atlantique, France)
Rajeev Pyare (Fondazione Bruno Kessler, Italy)
Vijay Rao (Delft University of Technology, The Netherlands)
Zhijin Qin (Lancaster University, UK)
Olga Saukh (CSH Vienna, Austria)
Eirini Eleni Tsipropoulou (University of New Mexico, USA)
Ambuj Varshney (Uppsala University, Sweden)

Publicity chair:

Aline Carneiro Viana (INRIA, France)

Web chair:

Romain Jacob (ETH Zurich, Switzerland)

Brief description of publicity plan

Effective dissemination of the call for papers will be done via email to:

- extensive EU/USA/Asia based academic and industry colleagues/project partners, as former publicity chairs of CPSWeek and SenSys we have access to mailing lists from these conferences
- national mailing lists with the help of the very diverse TPC members
- IEEE Technical Committee on Computer Communications (TCCC) mailing list - used to advertise call for papers for conference
- DB World notice board - ACM special interest group worldwide
- sensorium mailing list - wireless sensor networks community mailing list.

Prior history of the workshop (if any)

N/A

Draft call for papers

A founding pillar of the IoT concept is the availability of low-cost low-power devices with wireless technologies providing both sensing and actuation. In the past decade, the research community have produced proven solutions to build low-power mesh networks. Traditionally, the focus has been on short-range radio communication (e.g., ZigBee, Bluetooth, Z Wave). An appealing alternative that have gained momentum in the IoT landscape, is to equip the nodes with long-range radio modules. As a result, long-range radio communication technologies (e.g., SigFox, LoRa, and 802.15.4g) are considered as candidate technologies for many low-power wide area network (LPWAN) applications, especially those that require extended coverage such as citywide sensing, environmental monitoring, or remote infrastructure monitoring.

The aim of this workshop is to bring together researchers and practitioners working in the field of IoT from both academia and industry, to discuss and explore short- and long-range solutions, the tradeoffs between these two paradigms, as well as how they can be used in synergy. In order to push the state of the art, several points need to be addressed: new features for the long-range technologies (i.e., over-the-air updates, roaming), radio resource management, regulations and policies on spectrum usage and sharing, business case analysis that are more well suited for certain vertical markets. As such, the workshop is of fundamental importance and fits perfectly in the realm of WF-IoT.

The workshop will consist of presentations of short papers and an open discussion session. The short papers can be of a technical nature, presenting preliminary technical results, or position papers presenting a thought-provoking view regarding methods and applications based on short or/and long-range solutions for IoT.

The topics of interest include, but are not limited to:

- protocol design
- hardware platform design
- modeling and analysis of low-power short or/and long-range communication

- reliability, adaptability, and dependability of short and long-range communication solutions
- new features for the long-range technologies (i.e., over-the-air updates, roaming)
- radio resource management
- applications domains (e.g., smart cities, smart health, smart buildings, smart transportation)
- deployment experiences, case studies, and lessons learned
- evaluation and testbeds
- regulations and policies on spectrum usage and sharing
- business case analysis that are more well suited for certain vertical markets.

Paper submission instructions: according to WF-IoT 2019 instructions.

Paper Submission Due Date: December 14, 2018

Paper Acceptance Notification: January 15, 2019

Camera-Ready Submission: February 20, 2019