

## Preface

On behalf of the Organizing Committee, I'm honored and pleased to welcome you to the first edition of the International Workshop on Cyber-Physical Social Systems (CPSS 2019) which has been held in conjunction with ACM IoT 2019 at the University of Deusto in the wonderful Bilbao, Spain.

Cyber-physical systems (CPSs) are related to the integration of computing and communication capabilities into physical systems. Currently there are an important domain for research and innovation, including robotics; smart homes, buildings, and mobility solutions; medical implants; drones, and numerous others. CPSs are also the medium through which next-generation Artificial Intelligence and Machine Learning applications will be deployed, and are a growing source of big data. An example of CPSs is the smart city model, which is growing around the prototype of an urban (physical) environment with a new generation of innovative services for transportation, energy distribution, healthcare, environmental monitoring, business, emergency response, and social activities developed in its digital twins. Smart cities are also an example of how CPSs must include people, which can't be neglected in the loop of producing, collecting and consuming data, information and services.

Enabling the technology for such a setting requires a viewpoint of smart cities as system of Cyber-Physical and Social Systems (CPSSs) as the result of the integration of several technologies that cooperate to provide seamless services to end users. Such technologies enable the collection, storage, and processing of massive amount of data sensed from the urban environment/infrastructure and/or produced by citizens themselves; moreover they promote social interactions.

IoT technologies are the foundation of cyber-physical social systems: nowadays, they are applied in smart cities extensively. smart cities as a system of integrated sensors, actuators, infrastructures and people in a whole call for novel integrated and holistic approaches considering both the component resources and their inter-relationships.

The vision of a smart city as a CPSSs corresponds to a closed-loop system with data collection, processing, decision making and control and optimization actions. There is a need for novel approaches in order to cope with CPSS and with the increasing requests of citizens about reliable, secure and affordable services.

The main objectives of this half a day workshop have been twofold. First, the workshop aims at disseminating recent research advancements, offering researchers and practitioners the opportunity to present their novel results. A second goal is to promote sharing of ideas, partnerships and cooperation among all people involved in this field of research, thus contributing to route technical challenges and their impact on the social system.

The core mission of the Workshop is to address key topics on ICT infrastructure (technologies, models, frameworks) and services in cities and smart communities, in order to enhance performance and wellbeing, to reduce costs and resource consumption and to engage more effectively and actively with their citizens.

The technical program of the workshop has covered two main tracks: security and infrastructures topics related to CPSS and the view of the smart city as CPSS

The first edition of CPSS has received 13 valuable manuscripts from all around the world. At least two TPC members were assigned to review each paper. Each submission went through a rigorous peer-review process. The authors were then requested to consider the Reviewers' remarks in preparing the final version of their papers. At the end of the process, 5 papers satisfying the requirements of quality, novelty and relevance to the Workshop scope were selected for inclusion in the Workshop proceedings (acceptance rate: 38%). Three more papers have been invited by the TPC because results come from EU or national projects.

We are confident that researchers can find in the Proceedings inspiration for facing existing or emerging problems and, hopefully, ideas and insights for further activities in the relevant and wide research area of CPSS.

Moreover, the best workshop contribution award has been assigned to the paper entitled: “Preserving Privacy in Cyber-physical-social systems: An Anonymity and Access Control Approach” by Tanusree Sharma, John Christian Bambenek and Masooda Bashir. The award has been appointed by the TPC chairs based on paper review scores.

We would like to thank all the persons, who contributed to make this workshop successful. First and foremost we would like to express our gratitude to the Authors of the papers: CPSS 2019 would not have been possible without their valuable contributions.

Special thanks go to Hesplora srl, which has partially supported the organization of the workshop under the dissemination activities of “APOLLON - environmentAl POLLution aNalyzer” project, granted by the Apulian Region (Italy) within the “Bando INNONETWORK 2017” in the framework of the “FESR - Fondo Europeo di Sviluppo Regionale”.

The success of the Workshop is also due to the great support provided by the ACM IoT 2019 Local Organization Committee, especially by Diego Casado-Mansilla and Diego López de Ipiña from University of Deusto.

Last but not least, we would like to thank all of the participants for coming. We hope they have enjoyed the program, as well as their stay in Bilbao.

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**Antonella Longo**  
*CPSS2019 General Chair*  
*(on behalf of Workshop's General Chairs)*