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# Pervasive Systems, Algorithms and Networks

16th International Symposium, I-SPAN 2019  
Naples, Italy, September 16–20, 2019  
Proceedings

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# Preface

On behalf of the Organizing Committee, it is our pleasure to present the 16th International Symposium on Pervasive Systems, Algorithms and Networks (I-SPAN 2019), held in Napoli, Italy, during September 16–20, 2019. The papers included in the proceedings present novel ideas or state-of-the-art perspectives regarding the topics of interest of the conference.

Pervasive systems, intelligent algorithms, and networks are emerging fields of research and revolutionary paradigm for next-generation IT applications. I-SPAN 2019 aimed to establish an international forum for engineers and scientists to present their excellent ideas, latest innovations, and experiences on Pervasive Systems, Algorithms, and Networks.

I-SPAN 2019 followed the tradition of previous successful I-SPAN conferences, I-SPAN 1994 (Kanazawa, Japan), I-SPAN 1996 (Beijing, China), I-SPAN 1997 (Taipei, Taiwan), I-SPAN 1999 (Perth/Freemantle, Australia), I-SPAN 2000 (Dallas/Richardson, USA), I-SPAN 2002 (Manila, Philippines), I-SPAN 2004 (Hong Kong, SAR China), I-SPAN 2005 (Las Vegas, USA), I-SPAN 2008 (Sydney, Australia), I-SPAN 2009 (Kaoshiung, Taiwan), I-SPAN 2011 (Dalian, China), I-SPAN 2012 (San Marcos, USA), I-SPAN 2014 (Chengdu, China), I-SPAN 2017 (Exeter, UK), and I-SPAN 2018 (Yichang, China).

In this edition the value, overall quality, and scientific and technical depth of the I-SPAN conference continued to strengthen and grow in importance for both the academic and industrial communities. Such strength was evidenced this year by having a significant number of high-quality submissions resulting in a highly selective program. All submissions received at least three reviews according to a high-quality peer review process involving about 50 Program Committee members and several additional reviewers. On the basis of the review results, 22 papers were selected for presentation at the conference, with an acceptance rate below 37%. In addition, the conference also featured two invited talks and three workshops.

- IW-HPCA 2019 (Chairs: Che-Lun Hung, Chun-Yuan Lin, Chih-Hong Chang) - The goal of this workshop was to provide a forum for researchers and practitioners to discuss and share their research and development experiences and outputs on the high performance computing technologies including software frameworks and algorithms and the applications which adopt high performance computing technologies. In the past few years, high performance computing has been utilized to accelerate the research domains including: image processing, molecular dynamics, astrophysics, financial simulation, computer tomography, quantum chemistry, bioinformatics, and many others. Especially, General Purpose Graphic Process Units (GPGPUs) have become popular to lot of scientific computing domains. Leveraging computing power of GPGPUs, the computational cost of many applications are able to be significantly decreased.

- IW-ConSec 2019 (Chairs: Andrea Bruno, Luigi Catuogno) - Nowadays, the growing complexity and widening capabilities of consumer ICT based devices and services, increasingly threaten end user's ability to control them, their actions, and related consequences. Moreover, the raising pervasiveness, ergonomics, and "intelligence" of such commodities are making the perception of their presence slide towards the threshold of unawareness. Within this scenario, consumers are often exposed to the risks introduced by the improper use of such technologies, both due to the lack of skillfulness and the unfair and deceptive intents. This workshop aims to investigate issues and trends of technologies and practices, pursuing the enhancement of security and privacy preservation in the consumer IT arena, adopting a multidisciplinary approach. To this end, the workshop brings together different approaches, experiences, and sensitivities involved in the field of IT security into a multidisciplinary discussion on the state-of-art consumer IT security technologies and practices, goals, and forthcoming challenges. In particular, IW-ConSec 2019 was open to contributions by researchers and operators from academia, industry, and governmental institutions involved in research on IT security and privacy, human-computer interaction, computer science education, and law enforcement.
- IWVT 2019 (Chairs: Shih-Yang Lin, Dong Guo) - The role of this workshop was to provide a forum for focused, intensive scientific exchange among researchers and practitioners interested in the specific topic. The workshop was the primary venue for the exploration of emerging ideas, as well as for the discussion of novel aspects of relevant research topics including autonomous driving, vehicles platooning, advanced driving, extended sensors, remote driving, advanced ITS, etc. In the past few years, intelligent and connected cars have been developed to accelerate the research of autonomous driving, which includes image processing, environment perception, data fusion, decision making, and control mechanism. Technical progress in autonomous driving and connected vehicles enables automated control mechanism and cooperative interaction of traffic participants. The key concern is the exchange of information and/or the negotiation of driving plans via V2X communications between automated vehicles, infrastructure, conventionally driven vehicles, and road users. The purpose of this workshop was to bring together people researching various aspects of autonomous driving and connected cars. Participants presented and discussed relevant problems and solutions.

The support and help of many people are needed in order to organize an international event. We would like to thank all authors for submitting and presenting their papers. We also greatly appreciated the support of the Program Committee members and the external reviewers who carried out the most difficult work of carefully evaluating the submitted papers.

We sincerely thank all the chairs and technical Program Committee members. Without their hard work, the success of I-SPAN 2019 would not have been possible.

Last but certainly not least, our thanks go to all the attendees that contributed to the success of the conference. Finally, we are confident that the beautiful location and the relaxing atmosphere of the venue provided the perfect ingredients for a successful international event, and created a unique opportunity for both researchers and technologists to present, share, and discuss leading research topics, developments, and future directions in their area of interest.

September 2019

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