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Preface

Following the previous 11 successful editions of the conference – IDCS 2008 in Khulna, Bangladesh; IDCS 2009 in Jeju Island, South Korea; IDCS 2010 and IDCS 2011 in Melbourne, Australia; IDCS 2012 in Wu Yi Shan, China; IDCS 2013 in Hangzhou, China; IDCS 2014 in Calabria, Italy; IDCS 2015 in Windsor, UK; IDCS 2016 in Wuhan, China; IDCS 2017 in Mana Island, Fiji; IDCS 2018 in Tokyo, Japan – IDCS 2019 was the 12th in the series to promote research in diverse fields related to the Internet and Distributed Computing Systems.

Under the influence of the most advanced technologies, human production and life are gradually changing in today's vision of common habits and lifestyles. The impact of Internet-related technologies is fully pervasive, while the evolution of distributed systems, in a wider and semantically consistent meaning, is simply definable as rule-breaking. In this scenario, the non-renounceable features such as complexity management capability, reliable elasticity, dependability, and security are enforced by modern systems such as distributed systems, cloud computing, mobile computing, edge computing, and fog computing in order to provide the best user experience in both human/machine and machine/machine contexts. Strategically, any complex system must be accounted as a cyber-physical system dealing with dynamic events or actions in highly connected environments. For the most part of the novel internet and distributed system based applications leverage diverse and different technologies in order to perform data gathering, processing, and knowledge extraction using machine learning related techniques. In particular, this new class of applications has distinctive running ecosystems where the self-adaptation to unknown situations is not a feature but a design requirement. Although we could state that internet connectivity is *a conditio sine qua non* of any advanced application and/or methodology, the real power still must be unchained. The long-awaited pervasive diffusion of the next generation of cellular networks and, above all, the diffusion of other connection strategies enforce and reinforce the Internet society and related applications to logistics, transportation, food quality control, environmental hazard mitigation, global climate changes, crime fighting, and, in general, any improvement in the quality of life. The academic and industrial worlds are constantly developing and innovating in areas such as machine learning and data science, pushed by enabling technologies such as the Internet of Things and Cloud Computing. In the meantime, accelerators and the computation at the edge, delivering the integration of the digital world with the physical environment, place mankind on the brink of a new scientific, technological, social, and economic revolution.

IDCS 2019 received papers focused on emerging models, paradigms, technologies, and novel applications related to cloud computing, virtualization, distributed systems, Internet of Things, cyber-physical systems, wireless sensor networks, extreme-scale networked systems, and self-adaptive systems.

The audience included researchers and industry practitioners interested in different aspects of the Internet and distributed systems, with a particular focus on practical experiences with the design and implementation of related technologies as well as their theoretical perspectives.

IDCS 2019 received a large number of submissions from which 47 regular papers were accepted after a careful review and selection process. This year's conference also featured four invited talks: (i) "Intelligent Task Scheduling for Distributed Green Cloud Data Centers" by Prof. Mengchu Zhou, New Jersey Institute of Technology, USA; (ii) "Coordinating Distributed Speaking Objects" by Prof. Franco Zambonelli, University of Modena e Reggio Emilia, Italy; (iii) "Scheduling Real-Time Jobs in the Cloud, Research Trends and Challenges" by Prof. Helen Karatza, Aristotle University of Thessaloniki, Greece; and (iv) "Practical Edge-assisted Mobile Computing: The Cases of Augmented Reality and Virtual Reality" by Prof. Ben Hui, University of Helsinki, Finland.

IDCS 2019 was held in the breathtaking Villa Doria d'Angri, University of Naples Parthenope, Italy, on the beautiful hill of Posillipo, located on a cliff by the sea. The conference organization was supported by the Department of Science and Technology of the University of Naples Parthenope and the University of Calabria, Italy.

The successful organization of IDCS 2019 was possible thanks to the dedication and hard work of a number of individuals.

Specifically, we would like to thank our program chairs Sokol Kosta (Aalborg University, Denmark), Sandra Geising (University of Notre Dame, Indiana, USA), Beniamino Di Martino (University of Campania Luigi Vanvitelli, Italy), Min Chen (Huazhong University of Science and Technology, China); our local and program chair Raffaele Montella (University of Naples Parthenope, Italy); our special session co-chairs Sisi Duan (University of Maryland, Baltimore, USA) and Giancarlo Fortino (University of Calabria, Italy); our web chair Claudio Savaglio (University of Calabria, Italy); our finance chair Antonio Guerrieri (ICAR-CNR, Italy); our social media and communication chair Federica Izzo (University of Naples Parthenope, Italy); our publication chair Antonio Liotta (Edinburgh Napier University, UK); our industrial co-chairs Giuseppe Coviello (NEC Laboratories America, USA) and Mukaddim Pathan (Telstra, Australia); our publicity co-chairs Salvatore Venticinque (University of Campania Luigi Vanvitelli, Italy), Jingtao Sun (National Institute of Informatics, Japan), and Fabio Narducci (University of Napoli Parthenope, Italy) for their commendable work with the conference organization. We also express our gratitude to the general chair Ian Foster (University of Chicago, Illinois, USA); the general co-chair Angelo Ciaramella (University of Naples Parthenope, Italy); and the conference co-chairs Raffaele Gravina (University of Calabria, Italy), Giuseppe Di Fatta (University of Reading, UK), and JianhuaMa (Hosei University, Japan) for their support of the conference.

Last but not least, we are grateful for the outstanding work of our secretary and logistics manager Diana Di Luccio (University of Naples Parthenope, Italy) and the volunteer staff members: Juan Armando Barrón Lugo (Cinvestav Tamaulipas, Mexico),

Ciro Giuseppe De Vita, Gennaro Mellone, and Antonio Pilato (University of Naples Parthenope, Italy).

October 2019

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