# **UBICOMM 2015**

## **Forward**

The Ninth International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies (UBICOMM 2015), held between July 19-24, 2015 in Nice, France, was a multi-track event covering a large spectrum of topics related to developments that operate in the intersection of mobile and ubiquitous technologies, on one hand, and educational settings in open, distance and corporate learning on the other, including learning theories, applications, and systems.

The rapid advances in ubiquitous technologies make fruition of more than 35 years of research in distributed computing systems, and more than two decades of mobile computing. The ubiquity vision is becoming a reality. Hardware and software components evolved to deliver functionality under failure-prone environments with limited resources. The advent of web services and the progress on wearable devices, ambient components, user-generated content, mobile communications, and new business models generated new applications and services. The conference made a bridge between issues with software and hardware challenges through mobile communications.

The goal of UBICOMM 2015 was to bring together researchers from the academia and practitioners from the industry in order to address fundamentals of ubiquitous systems and the new applications related to them. The conference provided a forum where researchers were able to present recent research results and new research problems and directions related to them.

Advances in web services technologies along with their integration into mobility, online and new business models provide a technical infrastructure that enables the progress of mobile services and applications. These include dynamic and on-demand service, context-aware services, and mobile web services. While driving new business models and new online services, particular techniques must be developed for web service composition, web service-driven system design methodology, creation of web services, and on-demand web services.

As mobile and ubiquitous computing becomes a reality, more formal and informal learning will take pace out of the confines of the traditional classroom. Two trends converge to make this possible; increasingly powerful cell phones and PDAs, and improved access to wireless broadband. At the same time, due to the increasing complexity, modern learners will need tools that operate in an intuitive manner and are flexibly integrated in the surrounding learning environment.

Educational services will become more customized and personalized, and more frequently subjected to changes. Learning and teaching are now becoming less tied to physical locations, co-located members of a group, and co-presence in time. Learning and teaching increasingly take place in fluid combinations of virtual and "real" contexts, and fluid combinations of presence in time, space and participation in community. To the learner full access and abundance in communicative opportunities and information retrieval represents

new challenges and affordances. Consequently, the educational challenges are numerous in the intersection of technology development, curriculum development, content development and educational infrastructure.

The conference had the following tracks:

- Information ubiquity
- Ubiquitous multimedia systems and processing
- Ubiquitous mobile services and protocols
- Ubiquitous software and security
- Users, applications, and business models
- Ubiquitous networks
- Fundamentals

Similar to previous editions, this event attracted excellent contributions and active participation from all over the world. We were very pleased to receive top quality contributions.

We take here the opportunity to warmly thank all the members of the UBICOMM 2015 technical program committee, as well as the numerous reviewers. The creation of such a high quality conference program would not have been possible without their involvement. We also kindly thank all the authors that dedicated much of their time and effort to contribute to UBICOMM 2015. We truly believe that, thanks to all these efforts, the final conference program consisted of top quality contributions.

Also, this event could not have been a reality without the support of many individuals, organizations and sponsors. We also gratefully thank the members of the UBICOMM 2015 organizing committee for their help in handling the logistics and for their work that made this professional meeting a success.

We hope that UBICOMM 2015 was a successful international forum for the exchange of ideas and results between academia and industry and to promote further progress in the area of Mobile Ubiquitous Computing, Systems, Services and Technologies. We also hope that Nice, France, provided a pleasant environment during the conference and everyone saved some time to enjoy the charm of the city.

#### **UBICOMM 2015 Chairs**

#### **UBICOMM Advisory Chairs**

Jaime Lloret Mauri, Polytechnic University of Valencia, Spain
Sathiamoorthy Manoharan, University of Auckland, New Zealand
Zary Segal, UMBC, USA
Yoshiaki Taniguchi, Kindai University, Japan
Ruay-Shiung Chang, National Dong Hwa University, Taiwan
Ann Gordon-Ross, University of Florida, USA
Dominique Genoud, Business Information Systems Institute/HES-SO Valais, Switzerland

Andreas Merentitis, AGT International, Germany
Timothy Arndt, Cleveland State University, USA
Tewfiq El Maliki, Geneva University of Applied Sciences, Switzerland
Yasihisa Takizawa, Kansai University, Japan
Jens Haupert, German Research Center for Artificial Intelligence (DFKI), Germany

### **UBICOMM Industry/Research Chairs**

Korbinian Frank, German Aerospace Center - Institute of Communications and Navigation, Germany

Carlo Mastroianni, CNR, Italy

Michele Ruta, Technical University of Bari, Italy

Jose Manuel Cantera Fonseca, Telefonica Investigación y Desarrollo, Spain

Yulin Ding, Defence Science & Technology Organization Edinburgh, Australia

Korbinian Frank, German Aerospace Center - Institute of Communications and Navigation, Germany

Inas Khayal, Masdar Institute of Science and Technology - Abu Dhabi, United Arab Emirates Cornel Klein, Siemens AG/Corporate Research and Technologies - Münich, Germany Reinhard Klemm, Avaya Labs Research-Basking Ridge, USA Serena Pastore, INAF- Astronomical Observatory of Padova, Italy Jyrki T.J. Penttinen, Finesstel Ltd, Finland

Jorge Pereira, European Comission, Belgium Miroslav Velev, Aries Design Automation, USA Yu Zheng, Microsoft, USA

Christoph Steup, FIN - OvGU, Germany

#### **UBICOMM Publicity Chairs**

Raul Igual, University of Zaragoza, Spain
Andre Dietrich, Otto-von-Guericke-University Magdeburg, Germany
Rebekah Hunter, University of Ulster, UK
Francesco Fiamberti, University of Milano-Bicocca, Italy
Sönke Knoch, German Research Center for Artificial Intelligence (DFKI GmbH), Germany