Abstract

IoT (Internet of Things) has been predicted as the next wave of information and communications technologies (ICT) after the widely accepted smartphones market. Some has estimated that more than 50 billions of IoT devices may be deployed by 2020. The success of IoT will heavily rely on the virtuous cycle of innovations from cloud computing, to broadband networks, to big data, and to smart but lightweight devices. Our future life might be surrounded by a lot of IoT devices. The service model of IoT that differs from others of ICT lies in its capability of “situating” itself in its serving environment, therefore being able to learn the context and collaborate and interact with the environment. This kind of “situated computing” has several interesting properties: (i) put-in-place computing, (ii) collaborative context learning, (iii) M2M opportunistic communications, (iv) fast developable and deployable, and (v) massive connected devices. We then look at these features and raise several examples to show why IoT has big potentials and how IoT can be smarter. We will then discuss recent efforts of the community in building common hardware and software platforms and open M2M standards to achieve this situated service-oriented computing.

Biography

Yu-Chee Tseng is Dean, College of Computer Science, National Chiao-Tung University, Taiwan. He received his Ph.D. in Computer and Information Science from the Ohio State University in 1994. He was the Department Chair (2005-2009). Dr. Tseng has been awarded as NCTU Chair Professor (2011-present) and Y. Z. Hsu Scientific Chair Professor (2012-2013). He received the Outstanding Research Award from the Taiwan National Science Council in 2001, 2003, and 2009. He received the Best Paper Award at the International Conf. on Parallel Processing in 2003. He has received Elite I. T. Award (2004), and Distinguished Alumnus Award of the Ohio State University (2005), and the Y. Z. Hsu Scientific Paper Award (2009). His research interests include mobile computing, wireless communication, and sensor networks. Dr. Tseng is an IEEE Fellow. He served/serves on the editorial boards of IEEE Trans. on Vehicular Technology, IEEE Trans. on Mobile Computing, IEEE Trans. on Parallel and Distributed Systems, and IEEE Internet of Things Journal. His h-index is more than 50.
SOCA 2014 Keynote 2

Compose it now!
From travel services to coordinating the Internet of Things

Prof. Marco Aiello
Johann Bernoulli Institute, University of Groningen, The Netherlands

Abstract
Since its emergence, one of the most advertised opportunities offered by service oriented computing has been the possibility of composing loosely coupled services on a per need basis. Services, like Lego pieces, act as modular building blocks which are assembled when a given articulated user request comes and are ready to be reused for other requests. Over the years, the promise has been of reducing recoding and refactoring efforts while achieving scalability, run-time adaptability, and infinite reuse. In this talk, I will review 12 years of experiences and research in dynamic service composition, going from initial work on composing trips based on a number of independent travel service operations to the more recent research in home and building automation where services often represent interconnected things in a defined physical space. In particular, I will present the RuG-planner, our current service composition framework, which is able to defer composition decisions to run-time and to seamlessly make revisions in response to a constantly evolving execution environment.

Biography
Marco Aiello is full professor of Distributed Systems at the Johann Bernoulli Institute. He is also a member of the Energy Academy Europe, member of the evaluation panel for energy projects of the Italian government (CCSE), board member of the startup Nerdelize, and member of the working group on Smart Factories (lead by Philips, Fokker and Ten Cate). His career has developed across a number of (mostly European) countries: 2006 Lise Meitner Fellow, Technical University of Vienna, Austria; 2002-2006 Assistant Professor, University of Trento, Italy; 1997 Volunteer, World Wildlife Fund (WWF), Rome, Italy; and 1995 Summer Intern, Apple Co, Cupertino, USA. He has published over 120 papers, sits on 5 editorial boards, has been invited to deliver keynotes and sit in panels of international conferences. He holds a PhD from the University of Amsterdam and a Master in Engineering from La Sapienza University of Rome (cum laude).