

Keynote: Context-aware Computing in the Era of Crowd Sensing *From Personal and Space Context to Social and Community Context*

Daqing Zhang

CNRS SAMOVAR, Institut Mines-TELECOM/TELECOM SudParis, Evry 91011, France

Daqing.Zhang@it-sudparis.eu

KEYNOTE SUMMARY

Since the seminal work of Schilit and Theimer on context-awareness in 1994, great research progress has been made in context-aware computing field. Due to limited deployment scale of sensors and devices, in early years context-aware computing focused mainly on understanding and exploiting personal context in single smart spaces. As a result of the recent explosion of sensor-equipped mobile phones, the phenomenal growth of Internet and social network services, the broader use of the Global Positioning System (GPS) in all types of public transportation, and the extensive deployment of sensor network and WiFi in both indoor and outdoor environments, the digital footprints left by people while interacting with cyber-physical spaces are accumulating with an unprecedented speed and scale. The technology trend towards crowd sensing is creating new challenges and opportunities for context-aware computing – with huge amount, large scale, multi-modal, different granularity, diverse quality of data from various data sources. In this talk, I will present a new research direction called “social and community intelligence (SCI)” as a natural extension of context-aware computing in the era of crowd sensing, with emphasis on extracting community and society level context; in particular I will introduce our work in mining large scale taxi GPS data, mobile phone data and social media data for enabling innovative applications in smart cities. Finally I will briefly summarize the difference between traditional context-aware computing and SCI in terms of data acquisition, modeling, inference, storage and context inferred.

BIOGRAPHY

Daqing Zhang is a full professor on Ambient Intelligence and Pervasive System Design at Institute Mines-Telecom, TELECOM SudParis, France. His research interests include context-aware computing, urban computing, mobile social networking, pervasive elderly care, etc. Dr. Zhang has served as the general or program chair for more than 10 international conferences. He is the associate editor for 4 journals including ACM Transactions on Intelligent Systems and Technology, Journal of Ambient Intelligence and Humanized Computing (Springer), etc. In recent years, he has been exploring a new research direction called “social and community intelligence”, making use of taxi GPS traces, social media data and mobile phone data to extract human and community intelligence and enable innovative services. He is the winner of the Best Paper award at IEEE UIC 2012 and the Best Paper Runner Up award at Mobiquitous 2011. Daqing Zhang obtained his Ph.D. from University of Rome “La Sapienza” in 1996.