

Workshop proposal: Place-Scale Ubiquitous Computing - UbiPlace2010

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***Abstract**—Ubiquitous computing is to seamlessly integrate computers into everyday settings to support people in their everyday tasks. Information of meaningful places is the key context information for ubiquitous systems to provide proactive behaviors. Place-based ubiquitous computing includes methods for modeling and reasoning about places as well as methodologies for developing and evaluating place-based applications. The aim of this workshop is to provide a forum for practitioners, researchers, developers and PhD students to interact and exchange recent experiences and results about the design and implementation of place-based computing systems applied for ubiquitous computing.*

1. TOPIC: PLACE-SCALE UBIQUITOUS COMPUTING

Understanding social meanings of places is important in urban computing. Although there are many research approaches for understanding places as meaningful locations (such as PlaceLab [1]), the social aspects of places [2] have not received adequate research attention. Indeed, there is a lack of models for better understanding about places automatically using computational technologies.

The pervasion of wireless networks and mobile devices in urban environments has been providing an infrastructure for researchers to develop systems that can discover the social aspects of places. The meaning of a place is different with different people, or even with the same person when he/she is in different situations. Services, tasks, applications are often deployed and managed according to individual places (e.g., room, car, street, university, city). Understanding of social context of place may provide a great clue for context-aware mobile applications.

Recently, much research in the areas of urban computing and human-computer interaction has provided fundamental concepts that would be a cornerstone for developing place-based activity recognition. The WikiCity project at MIT Senseable City Lab¹ views a city as a real-time control system that we can measure its performance and determine its current hot spots [3]. In [4], the eigen of a place can be identified by the real-time analysis of WiFi signal over the course of weekdays. Eagle et al. [5] propose a method that uses the meeting patterns of people at specific places to infer the friend relationships among groups of people. The PlaceAware application [6] proposes a method for recognizing social activities by statistically analyzing the frequency and the number of the considered people who have been located at a place at different points in time.

¹ <http://senseable.mit.edu>

Moreover, place provides a natural boundary for deployment of pervasive computing infrastructure such as sensors and other devices that can interact with mobile devices. Malcolm McCullough in his book “Digital Ground” speaks of different types of places where technology or devices might “pile up”. The notion of providing applications that scale up enough to cover an entire place is also interesting.

The notion of digital or virtual counterparts to physical places can provide further enrichment to future places, perhaps redefining the notion of place itself.

2. THE AIMS OF THE WORKSHOP

This workshop is to provide a forum for practitioners, researchers, developers, and PhD students to interact and exchange recent experiences and results about the design and implementation of place-based computing systems in the context of ubiquitous computing.

3. FORMAT OF THE WORKSHOP

3.1. Participant solicitation and selection

We will advertise a call for papers (see the call for papers) on the main conference website as well as on the workshop website. We will electronically handle the papers submitted to us and organize a technical program committee for reviewing the papers. The papers will be reviewed by at least two reviewers.

3.2. Method of interaction

Initially, we will ask each participant to present their paper. We will then break the participants into smaller groups (depend on topics of the accepted papers), to form discussion sessions. We also intend to invite a keynote speaker for our workshop.

3.3. Schedule for the workshop

TBA

4. CO-ORGANIZERS' BACKGROUND

Dr **Seng W. Loke** is a Reader and Associate Professor at the Department of Computer Science and Computer Engineering in La Trobe University. He leads the Pervasive Computing Group at La Trobe, and has authored 'Context-Aware Pervasive Systems: Architectures for a New Breed of Applications' published by Auerbach (CRC Press), Dec. 2006. He has (co-)authored more than 180 research publications including numerous works on context-aware computing, and mobile and pervasive computing. He has been on the program committee of numerous conferences/workshops in the area, including Pervasive'08 and Percom'10. He has also co-organized numerous workshops including the “Context-Aware Pervasive Communities: Infrastructure, Services and Applications” workshop at Pervasive'08. His research has been published in journals such as IEEE Pervasive, Knowledge Engineering Review, Elsevier's Pervasive and Mobile Computing Journal, IEEE Transactions on SMC, MONET, Journal of Systems and Software, and Theory and Practice of Logic Programming.

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Tuan Nguyen is currently a 3rd year PhD candidate at La Trobe University, Melbourne, Australia. His research focuses on providing formalisms, definition of concepts and a framework for place-based virtual communities for integrating and organizing services in pervasive computing environments, using a multi-agent service oriented architecture and engineering a modular ontology to represent place-based virtual communities. He received his Master of Computer Science from the Ho Chi Minh City University of Natural Sciences, Vietnam in 2006. From 1999-2006, Tuan was a Lecturer at the Center for Information Technology Development (CITD) of Vietnam National University of Ho Chi Minh City (VNUHCM), and tutored Mobile Pervasive Computing Course and Software Engineering Projects at La Trobe University from 2007-2010. He has published a variety of papers describing place-based virtual communities, and discussing the social aspects of place.

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Chuong C. Vo is a 2nd year PhD candidate at the department of Computer Science & Computer Engineering, La Trobe University, Australia. His research interests include ubiquitous computing, task-driven computing, and smart spaces.

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Associate Professor **Bharat Dave** (“Critical Research in Digital Architecture” Research Group, Professor at the University of Melbourne), [to be confirmed].

Web: http://crida.net/index.php?option=com_content&task=view&id=25&Itemid=40

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