The IADIS International Conference Wireless Applications and Computing 2008 (part of the IADIS Multi Conference on Computer Science and Information Systems) was hosted in Amsterdam, The Netherlands, 22-24 July 2008.

The IADIS Wireless Applications and Computing 2008 Conference purpose was to address several themes related to theory and practice within wireless networks, computing and application related areas. Enormous developments in wireless technologies, which were made in recent years, enabled both researchers and industry to create new, innovative wireless and mobile application and services, protocols, middleware platforms and application frameworks. Corresponding research is related to all communication layers, but also includes application-related topics, theoretical results and non-technical issues.

The topics for this Conference included the following:

- Ad-hoc Networking
- Cellular Phone Networks and Satellite Based Systems
- Context Aware Applications
- Distributed Systems Aspects of Wireless Applications
- Integration of Wired and Wireless Networks
- Location-based Applications and Services
- Mobile Commerce
- Mobile Computing Software Architectures
- Mobile Entertainment, Gaming and Learning
- Performance and Simulation Aspects of Wireless Networks
- Pervasive Computing
- Security in Wireless Networks
- Wireless Access Networks
- Wireless Application Frameworks
- Wireless Applications Programming
- Wireless Communication Middleware
- Wireless Database Access
- Wireless End-user Devices
- Wireless Home Networks
- Wireless Multimedia
- Wireless Peer-to-Peer Networks
- Wireless Positioning Technologies
- WLANs and WPANs

The WAC 2008 received 48 submissions from more than 16 countries. Each submission had been anonymously reviewed by an average of five independent reviewers, to ensure that accepted submissions were of a high standard. Consequently only 14 full papers were published which meant an acceptance rate of about 29 %. A few more papers were accepted as short papers and posters. An extended version of the best papers was published in a special issue of the "International Journal of Information Technology and Web Engineering" (IJITWE) (ISSN: 1554-1045) and in the IADIS International Journal on Computer Science and Information Systems (ISSN: 1646-3692).
Besides the presentation of full papers, short papers and posters, the conference also included a keynote presentation from an internationally distinguished researcher Dr. Axel Küpper, of the LMU Munich, Germany and one tutorial from Professor Ananth Srinivasan, Director of the Centre for Digital Enterprise, The University of Auckland, New Zealand.

**Keynote Presentation:**

LOCATION SHARING AND WEB 2.0 OPPORTUNITIES AND RISKS OF LOCATION-BASED COMMUNITY SERVICES by Dr. Axel Küpper, of the LMU Munich, Germany

Abstract:

For a long time, the market of Location-based Services (LBSs) was dominated by unspectacular restaurant finders and sightseeing guides, which suffered from low-accuracy positioning methods like Cell-Id, low data rates of 2G mobile networks, and inconvenient user interfaces. Not surprisingly, the user acceptance of such services was comparatively low, and mobile network operators and service providers very soon turned their attention towards other “killer applications” predicted by the market analysts. However, the latest market penetration of GPS-capable mobile devices as well as of appliances dedicated to car and bike navigation on the one hand, as well as the emergence of new providers offering geographic content on the other are currently shifting back the focus onto LBSs. These developments are being accompanied by the Web 2.0 paradigm, which stands for user-centricity, mesh-ups, and a broad range of community services, for example, YouTube or Facebook. Thus, when searching for location-based applications beyond navigation, it is obvious to combine the ideas of Web 2.0 with LBSs, which leads to the concept of location sharing.

Simply speaking, location sharing means that users disclose their geographic positions to other parties, which may happen in different degrees of accuracy, different modes of interactivity, and under consideration of different constraints. Location sharing can thus be used to extend existing community services in the Internet or to create entirely new ones. The presentation gives an overview of location sharing, provides a taxonomy for it, explains the underlying technologies, and identifies new functions like proactive proximity detection. However, the presentation does not only sketch the positive aspects of location sharing, but also highlights some risks in the context of privacy. Different scenarios are presented that are sensitive with regard to a user’s privacy, and the pros and cons of solutions for privacy protection are discussed.

**Conference Tutorial:**

THE SERVICES REVOLUTION: IMPLICATIONS FOR RESEARCH AND TEACHING by Dr Professor Ananth Srinivasan, Director of the Centre for Digital Enterprise, The University of Auckland, New Zealand

Abstract:

The growth of services as a component of many economies has been rapid in the recent past and the trend in the future seems to indicate that this will continue. The formal study of services has traditionally occurred in disciplinary pockets where the identity of the discipline has overshadowed more important lines of enquiry about the fundamental nature of services. Recently the term Service Science Management and
Engineering has emerged as an idea to capture the important dimensions of the issue under one umbrella. The key concept is that a proper study of services as a discipline in its own right involves the coming together of management practice, engineering design, and scientific enquiry and draws from existing well established disciplines. This has led to the joint design of research and teaching imperatives in many institutions around the world. In this talk, we will explore the nature of service science and explore various aspects of research and teaching in the area.

**Best Papers:**

**VORODSPT: A VORONOI BASED OVERLAY FOR SPATIAL OBJECTS** by Dominic Heutelbeck, Christina Sergel and Matthias Hemmje, University of Hagen, Germany.

Abstract:

Recent announcements of distributed space partitioning trees (DPSTs) (Heutelbeck and Hemmje (2006)), describe a distributed spatial index for storage and access of the so-called location knowledge. Location knowledge is acquired in a complex distributed process through positioning, tracking, and program logic to support location-based services which are based upon knowledge about the physical location, shape, and size of real and virtual entities, such as persons, vehicles, cities or other location-based services. Location knowledge is needed at diverse applications in geographical information systems (GIS), virtual collaboration systems and mobility management. The previous implementation of a DSPT, RectNet (Heutelbeck and Hemmje, 2006), was built on an adaptive binary tree shaped network topology. The use of a recursive space partitioning can be useful for load balancing. However, previous implementation requires complex operations to restructure the network. These operations cause significant bursts in network traffic. In this paper we present VoroDSPT, a new DSPT implementation, by using the well-known geometric structure Voronoi Diagram as a new topology that provides both greedy-routing for supporting efficient spatial queries and information sharing, providing the base for implementing future efficient heuristics of load balancing.

**A WIRELESS SENSOR NETWORK PROTOCOL PROVIDING ROBUST ONE-TO-MANY TRANSACTIONS TOGETHER WITH ROUTE MANAGEMENT** by Toshihiko Kato and Atsuo Yamaguchi, University Of Electro-communications, Japan.

Abstract:

Recently, a sensor network is studied actively as a new application of network technologies. In some cases, it is considered as an example of ad hoc networks, but its requirements of functionality and power usage limitation are different from those for ad hoc networks, that is, the control system and the sensor nodes are asymmetric in terms of the functionality and the power usage. The communication scheme is also different. In a sensor network, the application level communication is performed mainly between the control system and the sensor nodes. On the other hand, the communication quality requirements, such as the reliability of data transfer, are similar. In this paper, we propose a new information retrieval protocol for a wireless sensor network. The proposed protocol takes account of the functional and power limitation requirements of sensors and provides high quality of communication. This paper describes the detailed design and the performance evaluation of our protocol.

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