



ubiquitous
knowledge discovery

KDubiq Symposium at UBICOMP

incl. the “KDubiq meets UBICOMP Panel on Research Challenges for Ubiquitous Knowledge Discovery in UBICOMP

In order to explore how the **next generation of information intensive, distributed and ubiquitous systems** will look like, we need to establish a common ground for relevant research that has been carried out by several interrelated communities, e.g. ubiquitous Data Mining/Machine Learning, Semantic Web, Ubiquitous Computing and Embedded Systems.

The main objective of the EU-funded KDubiq CA project (IST/ FET 021321, www.kdubiq.org) is to bridge the gap between these communities by supporting common activities and seeking **new relevant research and application challenges for knowledge discovery (data mining) in the fields of ubiquitous computing**. The analysis of data in various distributed and ubiquitous environments such as: *sensor networks, peer-to-peer networks, embedded systems, mobile computing devices, grid computing platforms* among others, demands **new types of knowledge discovery algorithms** that include real-time context knowledge and allow quick adaptability to non-stationary-distributions and heterogeneity of data sources.

The KDubiq Symposium at UBICOMP 2007 will focus on giving a detailed overview about the relevant research and applications done within the Data Mining and Machine Learning Community, including state-of-art research results in ubiquitous and distributed Knowledge Discovery, with special focus on current applications:

- Distributed Data Mining in Ubiquitous Environments
- Data Stream Mining
- Transportation (e.g. car mining, fleet systems), vehicle control and monitoring systems
- Privacy and Security issues related to ubiquitous data mining

The panel will include leading industry and research members from Ubiquitous Knowledge Discovery, UBICOMP and the Semantic Web communities. KDubiq members are looking for the open exchange and discussions for new research and application challenges from the UBICOMP Community.

All interested UbiComp attendants are welcome to join the full day Symposium, to participate to the discussions in the Panel and join the get together after the Symposium, as well get involved into future activities of the KDubiq Coordination Action.

The **KDubiq Symposium** at UbiComp 2007 is organized by the EU-funded project KDubiq (= Knowledge Discovery for Ubiquitous Environments, www.kdubiq.org) - a Coordination Action under 6FP (IST/FET 021321). The KDubiq CA has started in Dec 2005 and will last until Mai 2008.

Moderator: **Michael May** (KDubiq Project Coordinator)
Fraunhofer Institute for Intelligent Analysis and Information Systems
St. Augustin, Germany

Agenda for KDubiq Symposium

September, 16th

09:30 – 10:30	Welcome and Introduction: <i>Overview about the KDubiq project and current research and application challenges in Ubiquitous Knowledge Discovery</i> Dr. Michael May, Fraunhofer Institute for Intelligent Analysis and Information Systems, St. Augustin, Germany
10:30 – 11:00	Coffee break
11:00 – 12:00	Session 1: <i>Resource-Aware distributed Algorithms and Advanced Learning Methods for data streams</i>

"State of the art in Data Stream Mining I"

Prof. Dr. Antoine Cornuejols, LRI, Prs Sud, France

"KDubiq Applications in Data Stream Mining relevant for UBICOMP"

Dr. Joao Gama, Dept. of CS, Univ. Porto, Portugal

12:00 – 13:00	Lunch
13:00 – 15:00	Session 2: <i>Ubiquitous Application Environments</i>
13:00 – 14:00	Invited Keynote Speaker: <i>Distributed Data Mining in Vehicular Sensor Networks: Technical and Research Challenges</i> Prof. Dr. Hillol Kargupta, Associate Professor of CS and Electr. Engineering at the Univ. of Maryland (UMBC), Baltimore County and the President of Agnik (Ubiquitous Computing Company in USA)
14:00 – 14:40	Invited Keynote Speaker: <i>"Ubiquitous Transportation and Car Mining. Lessons learned at Daimler AG"</i> Prof. Dr. Gholamreza Nakhaeizadeh , at Institute for Statistics at Univ. Karlsruhe, Germany and former Leader of Data Mining Dept. at Daimler AG Research Center, Ulm
14:40 – 15:00	Technical Presentation: Challenging KDubiq Applications Prof. Dr. Koen Vanhoof at Dept. of Applied Economic Sciences, Univ. Hasselt, Belgium and member of Transportation Research Institute (IMOB)
15:00 – 15:30	Coffee break
15:30 – 16:30	Session 3: <i>Ubiquitous technologies, Privacy and Security</i>
15:30 – 15:50	Technical Presentation: <i>"General challenges of security in ubiquitous computing, state of the art and roadmap"</i> , Arik Friedmann , PhD student at CS Dept. Technion Univ. Haifa, Israel
15:50 – 16:15	Technical Presentation: <i>"Privacy and anonymity in mobility data mining and ubiquitous knowledge discovery"</i> , Prof. Dr. Dino Pedreschi , Dept. of CS, Pisa KDD Lab., Italy
16:15 – 16:30	<i>Intelligent Data Collection and Interaction</i> Technical Presentation: <i>Machine Learning methods embedded in WSN</i> Dr. Rasmus Pedersen, Head of Embedded Software Lab., Dept. of Informatics at the Copenhagen Business School, Denmark,
16:30 – 17:30	PANEL: Research challenges for Ubiquitous Knowledge Discovery in UbiComp Moderator: Michael May, Fraunhofer IAIS, KDubiq coordinator - Hillol Kargupta, UMBC, USA (UbiComp und KDubiq, Industry) - Dieter Fensel, DERI (Ontologies and ubiq. semantics) - Thomas Strang, DLR and UbiComp PC Chair (UbiComp) - Rhea Nakhaeizadeh, Uni. Karlsruhe and former Daimler AG leader of Dept. for Data Mining at Daimler Research Center, Ulm - Albrecht Schmidt, Fraunhofer IAIS (UbiComp, context awareness)

17:30 After the panel KDubiq has organized a reception together with all other workshops at UBI-COMP.