

Conference Programme



The 8th International Conference On Pervasive Computing

17 – 20 May 2010 Helsinki, Finland

Organized by Helsinki Institute for Information Technology HIIT and University of Helsinki



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Greeting from the General Chair



Patrik Floréen

- Director of Helsinki Institute for Information Technology HIIT at Aalto University and University of Helsinki
- Interim Helsinki Node Director for EIT ICT Labs

It is with great pleasure that I have the honour to welcome you to Helsinki, the capital of Finland, for the Eighth International Conference on Pervasive Computing. After Toronto, Sydney and Nara, the conference has now returned to Europe, to Helsinki, the “daughter of the Baltic Sea.”

The conference takes place in the historical main building of the University of Helsinki, right in the very centre of town. The University was moved in 1828 from Turku to Helsinki after the great fire there. Following the plan of the German architect Carl Ludwig Engel, the central “powers” of the State are gathered around the main square, the Senate Square: the Church, the Government and the University. The University building was finalised in 1832. The Festival Hall, in which the main programme of the conference takes place, was seriously damaged in the Second World War. The entrance doors are still the original ones, brought to Helsinki when moving from the Academy in Turku, but the fresco above the doors originally by Albert Edelfelt is a replica, since the original was destroyed in the bombings.

Today the University of Helsinki, which is the largest in Finland, operates on four campus areas. The Department of Computer Science is on Kumpula Campus six kilometres from the main building. The conference is organized by this department and by Helsinki Institute for Information Technology HIIT, which is a joint research institute of Aalto University and the University of Helsinki. Aalto University is a new university in Finland, resulting from the merger at the beginning of 2010 of Helsinki University of Technology TKK, Helsinki School of Economics and the University of Art and Design Helsinki.

Greeting from the General Chair

The first day of the conference is dedicated to 12 workshops and a doctoral colloquium. This year we have an especially rich set of workshops. The main programme of the conference includes 25 technical papers, 17 posters, 19 demonstrations and 12 videos. The last day of the conference includes four high-class tutorials.

We are collaborating with the Ubiquitous Computing Cluster Programme in Finland, which is part of the Centre of Expertise Programme (OSKE), and with the ICT SHOK DIEM programme, which make real-life testing of services for an intelligent conference as part of the arrangements of the conference.

We would like to thank the Rector of the University of Helsinki for giving a reception on Tuesday evening. On Wednesday evening we have a boat trip and a banquet in the harbour of Helsinki. We look forward to interesting talks from prominent keynote speakers Henry Tirri and Hideyuki Tokuda.

We thank the organizers, committee members, reviewers, authors, student volunteers and conference participants for making all this happen. The arrangements of the conference have indeed included a vast amount of work from a large number of volunteers. A thousand thanks to them. We especially thank our Conference Manager Greger Lindén for making an outstanding contribution to the arrangements of the conference.

We would like to express our gratitude for the financial support provided by our platinum sponsors Nokia and the Centre of Expertise Programme (OSKE) in Finland, gold sponsor Microsoft Research, silver sponsor Intel, and all organizations that have provided direct or indirect support.

We hope that you have an enjoyable spring-time stay in Helsinki. If the weather is good, Helsinki is a lovely city. Most importantly, we hope that the conference provides you with a programme that is interesting and inspiring!

Patrik Floréen
General Chair of Pervasive 2010

Henry Tirri

Conference keynote

Senior Vice President
Head of Nokia Research Center

Tuesday 18 May 2010, 9:00–10:00
Festival Hall, University of Helsinki, Unioninkatu 34,
Helsinki



For world's developing communities the most pervasive technology comes in the form of mobile communication devices and associated services. For billions of people across the world, primary access to communication networks, including Internet, comes through their mobile phones – not from personal computers or fixed landlines telephony. This pervasive communication technology is on its way to fundamentally change social networking in local communities and dramatically improving education for remote schools. The same pervasive technology combined with sensor technologies is revolutionizing fieldwork in health care for rural areas. For the 3B people in the world that do not have a bank account, pervasiveness of the mobile devices allows development of services that help these people to manage their finances and make payments without having to travel long distances or wait hours in line at banks. In this talk we will look at a range of technical and social science research that both helps us to understand the social context of pervasiveness of technology and to develop technological solutions designed for emerging and underserved markets in developing regions. We will use examples from the research performed at Nokia Research Center in Growth Economy initiatives and outline challenges for the research communities interested in ubiquitous computing for the next billion people.

Hideyuki Tokuda

Joint keynote with UbiSummit 2010

Dean, Faculty of Environment and Information Studies,
Keio University, Japan

Monday 17 May 2010, 17:00–18:00
Stock Exchange, Fabianinkatu 14, Helsinki



Pervasive computing and communication is the key technology for achieving economic growth, sustainable development, safe and secure community towards a ubiquitous network society. Although the technology alone cannot solve the emerging problems, it is important to deploy services everywhere and reach real people. We have been creating smart spaces where every object is connected to networks seamlessly and supports our everyday life. In smart spaces, we can test new context-aware ubiquitous services for easy deployment.

In this talk, we will discuss the issues and challenges in creating smart spaces everywhere. We first review the ubiquitous network projects in Japan. Then, we discuss applications and architecture for creating various types of smart spaces. Several applications such as DIY smart object services, uCare services, follow-me services, real-time ranking service for consumers, and an environmental monitoring service for a city park are described. We then address the challenges in creating smart spaces and conclude with the importance of creating social and technological innovation together for future society.

W1 – Designing for Crowds

Room : Auditorium XVII

Organizers: Stuart Reeves, Scott Sherwood, Oskar Juhlin, Kenton O'Hara

W2 – Energy Awareness and Conservation through Pervasive Applications

Room: Auditorium XI

Organizers: Giulio Jacucci, Tatsuo Nakajima, Marko Turpeinen, Luciano Gamberini, Anna Spagnoli

W3 – How to Do Good Activity Recognition Research? Experimental Methodologies, Evaluation Metrics, and Reproducibility Issues

Room: Room 7

Organizers: Paul Lukowicz, Stephen Intille, Jamie Ward

W4 – Multimodal Location Based Techniques for Extreme Navigation

Room: Room 8

Organizers: Charlotte Magnusson, David McGookin, Margarita Anastassova, Wilko Heuten, Arantxa Renteria, Susanne Boll

W5 – Pervasive Advertising and Shopping

Room: Auditorium IV

Organizers: Jörg Müller, Florian Alt, Daniel Michelis, Georgos Roussos

W6 – Pervasive Personalisation

Room: Auditorium X

Organizers: Judy Kay, Bob Kummerfeld

W7 – Programming Methods for Mobile and Pervasive Systems (PMMPS)

Room: Room 4

Organizers: Simon Dobson, Dominic Duggan

W8 – 2nd International Workshop on Security and Privacy in Spontaneous Interaction and Mobile Phone Use

Room: Auditorium IX

Organizers: Rene Mayrhofer, Marc Langheinrich, Kaisa Nyberg, Alexander De Luca

W9 – Ubicomp in the Large: Collaborative Sensing and Collective Phenomena

Room: Auditorium VI

Organizers: Paul Lukowicz, Hans Gellersen, Kamil Kloch

W10 – UBIPROJECTION 2010 – Workshop on Personal Projection

Room: Room 14

Organizers: Enrico Rukzio, Johannes Schöning, Michael Rohs, Jonna Häkkinä, Raimund Dachsel

W11 – Workshop on Ubiquitous Virtual Reality

Room: Auditorium XVIII

Organizers: Mark Billinghurst, Woontack Woo, Joe Paradiso

W12 – What can the Internet of Things do for the Citizen (CIoT)

Room: Auditorium III

Organizers: Florian Michahelles, Stephan Karpischek, Albrecht Schmidt

Conference Opening

08:45–09:00, Festival Hall

Keynote: Pervasive Technology that Changed the World

09:00–10:00, Festival Hall

Dr. Henry Tirri

Session 1: Positioning

10:30–12:05, Festival Hall

Chair: Alex Varshavsky

- ***Virtual Compass: relative positioning to sense mobile social interactions***
Nilanjan Banerjee, Sharad Agarwal, Victor Bahl, Ranveer Chandra, Alec Wolman, Mark Corner
- ***The geography of taste: analyzing cell-phone mobility in social events***
Francesco Calabrese, Francisco C. Pereira, Giusy Di Lorenzo, Liang Liu, Carlo Ratti
- ***Indoor Positioning using GPS Revisited***
Mikkel Baun Kjærgaard, Henrik Blunck, Torben Godsk, Thomas Toftkjær, Dan Lund Christensen, Kaj Grønbæk
- ***Pervasive Technologies in Airplane Seats: Towards Safer and Stress-Free Air Travel (Video 6'17")***
Mikkel Baun Kjærgaard, Henrik Blunck, Torben Godsk, Thomas Toftkjær, Dan Lund Christensen, Kaj Grønbæk

Session 2: Navigation and Tracking

13:00–14:05, Festival Hall

Chair: Khai Truong

- ***Specification and Verification of Complex Location Events with Panoramic***
Evan Welbourne, Magdalena Balazinska, Gaetano Borriello, James Fogarty
- ***Tactile Wayfinder: Comparison of Tactile Waypoint Navigation with Commercial Pedestrian Navigation Systems***
Martin Pielot, Susanne Boll
- ***Scratch Video Documentation of Translocational Radio Drama (Video 7'03")***
Nye Parry, Helen Bendon, Stephen Boyd Davis, Magnus Moar

Session 3: Applications

14:10–15:35, Festival Hall

Chair: Shin'ichi Konomi

- ***PrintTicket: Simplifying Mobile Printing With Optical Codes (Video 1'43")***
Kurt Partridge, Hua Liu, Alan Walendowski, Bo Begole
- ***Jog Falls: A Pervasive Healthcare Platform for Diabetes Management***
Lama Nachman, Amit Baxi, Sangeeta Bhattacharya, Vivek Darera, Piyush Deshpande, Nagaraju N Kodalapura, Vincent Mageshkumar, Satish Rath, Junaith Ahemed, Shahabdeen Acharya
- ***EyeCatcher: a digital camera for capturing a variety of natural looking facial expressions in daily snapshots***
Koji Tsukada, Maho Oki
- ***TreasurePhone: Context-Sensitive User Data Protection on Mobile Phones***
Julian Seifert, Alexander De Luca, Bettina Conradi, Heinrich Hussmann
- ***Collecting Faces - Augmented Reality Playful Application for Mobile Phones (Video 2'43")***
Jussi Holopainen, Elina Ollila

Plaza Madness (posters, demonstrations, videos)

16:00–16:45, Festival Hall

Chairs: Elaine Huang, Jukka Riekkilä, Jonna Häkkinen, Tatsuo Nakajima, Peter Fröhlich, Gerd Kortuem

16:45–17:00, Break

Reception held by the University of Helsinki

17:00–19:00, University main building, 2nd floor

Vice Rector **Johanna Björkroth**

Pervasive Plaza (posters, demonstrations, videos)

17:30–19:30, University main building, 2nd floor

Session 4: Tools, Modelling

08:30–10:05, Festival Hall

Chair: Judy Kay

- ***Walk-through of the OPPORTUNITY dataset for activity recognition in sensor rich environments (Video 5'54")***
Daniel Roggen, Alberto Calatroni, Mirco Rossi, Thomas Holleczeck, Kilian Förster, Gerhard Tröster, Paul Lukowicz, David Bannach, Gerald Pirkl, Florian Wagner, Alois Ferscha, Jakob Doppler, Clemens Holzmann, Marc Kurz, Gerald Holl, Ricardo Chavarriaga, Marco Creatura, Hesam Sagha, Hamidreza Bayati, José del R. Millan
- ***Recruitment Framework for Participatory Sensing Data Collections***
Sasank Reddy, Deborah Estrin, Mani Srivastava
- ***Out of the Lab and into the Fray: Towards Modeling Emotion in Everyday Life***
Jennifer Healey, Lama Nachman, Sushmita Subramanian, Junaith Shahabdeen, Margaret Morris
- ***The secret life of machines - boundary objects in maintenance, repair and overhaul***
Matthias Betz

Session 5: Studies

10:30–12:05, Festival Hall

Chair: Anind Dey

- ***Automatic Assessment of Cognitive Impairment Through Electronic Observation of Object Usage***
Mark R Hodges, Ned Kirsch, Mark W. Newman, Martha E. Pollack
- ***Further into the Wild: Running Worldwide Trials of Mobile Systems***
Donald McMillan, Alistair Morrison, Owain Brown, Matthew Chalmers
- ***Studying the Use and Utility of an Indoor Location Tracking System for Non-Experts***
Shwetak Patel, Julie A. Kientz, Sidhant Gupta
- ***The Formamat: Investigating the Dispensability of Pervasive Data (Video 4'26")***
Zane Kripe, Hanna Schraffenberger, Arnout Terpstra

Session 6: Activity Recognition

13:00–14:35, Festival Hall

Chair: Patrick Olivier

- ***Object-based Activity Recognition with Heterogeneous Sensors on Wrist***
Takuya Maekawa, Yutaka Yanagisawa, Yasue Kishino, Katsuhiko Ishiguro, Koji Kamei, Yasushi Sakurai, Takeshi Okadome
- ***GasSense: Appliance-Level, Single-Point Sensing of Gas Activity in the Home***
Gabe Cohn, Sidhant Gupta, Jon E Froehlich, Eric Larson, Shwetak Patel
- ***Transferring Knowledge of Activity Recognition across Sensor Networks***
Tim Van Kasteren, Gwenn Englebienne, Ben Kröse
- ***Aided Eyes: Eye Activity Sensing for Daily Life (Video 4'26")***
Yoshio Ishiguro, Adiyana Mujibiya, Takashi Miyaki, Jun Rekimoto

Workshop and Doctoral Colloquium Madness

15:00–15:30, Festival Hall

Session 7: Sensing

15:30–17:10, Festival Hall

Chair: James Scott

- ***The E-Sense Project: Investigating the Extended Mind by Building Sensory Augmentation Devices (Video 7'12")***
Jon Bird, Yvonne Rogers, Janet van der Linden, Simon Holland
- ***Common Sense Community: Scaffolding Mobile Sensing and Analysis for Novice Users***
Wesley Willett, Paul M. Aoki, Neil Kumar, Sushmita Subramanian, Allison Woodruff
- ***Active Capacitive Sensing: Exploring a New Wearable Sensing Modality for Activity Recognition***
Jingyuan Cheng, Oliver Amft, Paul Lukowicz
- ***Using Height Sensors for Biometric Identification in Multi-resident Homes***
Vijay Srinivasan, John Stankovic, Kamin Whitehouse
- ***Cat@Log: Cat Wearable Sensing for Supporting Human-Animal Interaction (Video 4'54")***
Kyoko Yonezawa, Masaru Naruoka, Takashi Miyaki, Jun Rekimoto

Session 8: Resource Awareness

09:00–10:05, Festival Hall

Chair: Shwetak Patel

- ***Supporting Energy-Efficient Uploading Strategies for Continuous Sensing Applications on Mobile Phones***
Mirco Musolesi, Mattia Piraccini, Kristóf Fodor, Antonio Corradi, Andrew T. Campbell
- ***Efficient Resource-Aware Hybrid Configuration of Distributed Pervasive Applications***
Stephan Schuhmann, Klaus Herrmann, Kurt Rothermel
- ***Motion Sensitive Clothing (Video 5'29")***
Holger Harms, Oliver Amft, Dominique Favre, Christian Liesen, Daniel Roggen, Gerhard Tröster

Session 9: Interaction

10:30–12:05, Festival Hall

Chair: A.J. Brush

- ***Touching the Untouchables: Vision-based Real-time Interaction with Public Displays through Mobile Touchscreen Devices(Video 4'26")***
Matthias Baldauf, Peter Fröhlich, Peter Reichl
- ***12Pixels: Exploring Social Drawing on Mobile Phones***
Karl D.D. Willis, Ivan Poupyrev
- ***No-Look Notes: Accessible Eyes-Free Multi-Touch Text Entry***
Matthew Bonner, Jeremy Brudvik, Gregory D Abowd, Keith W. Edwards
- ***On the use of brain decoded signals for online user adaptive gesture recognition systems***
Kilian Förster, Andrea Biasiucci, Ricardo Chavarriaga, José del R. Millán, Daniel Roggen, Gerhard Tröster
- ***SmartDice: Organizing smart objects networks through mobile phones and the Titan framework (Video 4'36")***
Clemens Lombriser, Mirco Rossi, Dominique Favre, Christian Liesen, Daniel Roggen, Gerhard Tröster

Town Hall Meeting

13:00–13:30, Festival Hall

Chair: Aaron Quigley

- Best presentation and best video awards
- Closing of the conference

Tutorial 1: Pervasive Computing User Studies

Thursday 20 May 13:30–14:30, Festival Hall

Lecturer: A.J. Brush

Microsoft Research, Redmond, USA

Abstract: Pervasive computing weaves computing into our everyday environments and devices, necessitating an understanding of people's needs and reactions to new technology. The field of human computer interaction (HCI), drawing from other fields including psychology and anthropology, has developed numerous approaches to understanding how people interact with technology. These methods include user studies, focus groups, ethnography, and heuristic evaluations. In an interactive session, this tutorial will provide an introduction to different kinds of user studies with a focus on lab and field studies. The tutorial will discuss how to choose the appropriate study for your research question, practical matters in planning studies, and techniques for analyzing and presenting data collected during user studies. Drawing on examples, the tutorial will also highlight mistakes to avoid and characteristics of successful user studies.

Tutorial 2: Location in Pervasive Computing

Thursday 20 May 14:30–15:30, Festival Hall

Lecturer: Shwetak Patel

University of Washington, USA

Abstract: Location is a large element of context in ubiquitous computing. There are several technologies and systems for computing location to a varying degree of accuracy. We'll outline some examples of location systems and consider their strengths and weaknesses in terms of cost, accuracy, deployment, calibration, and maintenance. The goal will be to provide researchers with advice that will make them better informed at integrating location systems into ubiquitous computing applications. For those wanting to do research in location systems themselves we aim to provide an overview of the challenges currently being faced in this field.

Tutorial 3: Processing Sequential Sensor Data

Thursday 20 May 16:00–17:00, Festival Hall

Lecturer: John Krumm

Microsoft Research, Redmond, USA

Abstract: Sequential sensors are those that product a sequence of sensor readings of the same entity over time, such as GPS and accelerometers. Measurements from sensors like these are important for pervasive computing, because they are used to infer a person's context. Unfortunately, sensors are never perfect in terms of noise or accuracy, and they often do not measure the state variables we really need. This tutorial is aimed at introducing fundamental techniques for processing sequential sensor data to reduce noise and infer context beyond what the sensor actually measures. The techniques discussed are not necessarily on the cutting edge of signal processing, but they are well-accepted approaches that have proven to be fundamentally useful in pervasive computing research. Specifically, this tutorial discusses mean and median filters, the Kalman filter, the particle filter, and the hidden Markov model (HMM). Each of these techniques processes sequential sensor data, but they all have different assumptions and representations, which are highlighted to help you make an intelligent choice. The techniques will be illustrated with a running example.

Tutorial 4: Systems Support for Ubiquitous Computing

Thursday 20 May 17:00–18:00, Festival Hall

Lecturer: Adrian Friday

Lancaster University, UK

Abstract: Building ubicomp systems is essential to the progress of the field as a whole. Experimentally prototyping ubicomp systems enables us to experience them, discover what they are like to use and reason about core precepts such as the boundaries of the system, its invisibility, the role of its users and the degree of artificial intelligence endemic to it. By implementing systems we discover what comprises ubicomp systems, what is and is not computationally tractable, form hypotheses to be tested and uncover the research challenges that underpin and inform the evolving vision of ubicomp itself. In this tutorial we present a design rationale and process for creating 'good' ubicomp systems, drawing on a number of case studies from the literature and personal experience. We offer consolidated tips on what to look for when deploying ubicomp systems 'in the wild'. This is aimed at sensitising researchers in the space to issues that may face you in the design, implementation, deployment and evaluation stages of your projects. It is our profound hope that you will be able to more quickly design, build, deploy and evaluate your ubicomp system, avoiding many of the common pitfalls we have experienced over the years; moving the science of ubicomp systems development forward more rapidly.

Doctoral Colloquium

Monday 17 May 09:00–16:30
Room 16, 4th floor, main building

Doctoral Colloquium Opening, 09:00–09:30

Morning Session, 09:30–12:00

- Semantics based Social Overlay Networks on Mobile Ad Hoc Environment, Bishal Karki
- Model-Based Testing for HMI of Automobile Infotainment Systems, Linshu Duan
- Human and automation - towards useful collaboration in mobile social applications, Sami Vihavainen
- Location-driven adaptation of user interfaces in pervasive environments, Petr Aksenov

Afternoon Session, 13:00–15:00

- MusicJacket: Real-time Multimodal Feedback for Learning the Violin, Rose Johnson
- Smart Support for Balanced Food Choices at Home, Jurgen Wagner
- Self-healing in Wireless Sensor Networks, Themistoklis Bourdenas

General Feedback and Advice, 15:00–16:30

Pervasive 2010 Posters

Accepted posters are presented in University main building
2nd floor
Tuesday 18 May 16:00–19:30

- **Architectural Support for a Sustainable Service Environment in Smart Gallery**, Choonsung Shin, Taejin Ha, Kiyoun Kim, Hyejin Kim, Changgu Kang, Youngho Lee, Woontack Woo
- **Context-based Local Hot Topic Detection for Mobile User**, Jonghyun Han, Xing Xie, Woontack Woo
- **Contextualizing Mobile Applications for Context-aware Recommendation**, Matthias Böhmer, Moritz Prinz, Gernot Bauer
- **A Data Collection of Bicycle Riding Activities Toward Effective Alert for Safety**, Kosuke Nishijo, Kaori Fujinami
- **Exploring Context-aware Mobile Games**, Alireza Sahami, Sebastian Stünkel, Albrecht Schmidt
- **Lighting Control through Laser Pointer Gestures**, Joern Loviscach
- **My 2 cents - sharing comments about retail products on Twitter**, Stephan Karpischek, Anton Rau, Florian Michahelles
- **Opportunistic Peer-to-Peer Pedestrian Localization System**, Jurgen Wagner, Christian Kray
- **PainSense: Pain Assessment Through Reality Sensing**, Feng-Tso Sun, Heng-Tze Cheng, Senaka Buthpitiya, Patricia Collins, Martin Griss
- **Persim: Pervasive Space Simulation**, Shantonu Hossain, Abdelsalam Helal
- **A Preliminary Experiment on Ambiguous Presentation for Safe and Independent Chemistry Experiments**, Kaori Fujinami, Akifumi Sokan, Nobuhiro Inagawa, Kosuke Nishijo, Norihide Shinagawa, Hironori Egi
- **Touching the Untouchables: Vision-based Real-time Interaction with Public Displays through Mobile Touchscreen Devices**, Matthias Baldauf, Peter Froehlich, Peter Reichl
- **Towards a Mobile Eye-Gaze-based Exploration of Urban Environments**, Matthias Baldauf, Peter Froehlich, Siegfried Hutter
- **A unified smart city environment based on SOFIA's Interoperability Open Platform**, Giorgio Laura, Stefan Rapp, Giada Landi
- **Using Bloom Filters for Energy Conservation in a Mobile Search and Synchronization Application**, Eemil Lagerspetz
- **ZoneTrak: ZoneTrak: Design and Implementation of an Emergency Management Assistance System**, Alexander Müller, Alireza Sahami, Florian Alt, Albrecht Schmidt

Pervasive 2010 Videos

Accepted videos are presented during technical sessions and Pervasive Plaza in University main building, 2nd floor

18 – 20 May

- **Aided Eyes: Eye Activity Sensing for Daily Life (4'23")**, Yoshio Ishiguro, Adiyana Mujibiya, Takashi Miyaki, Jun Rekimoto
- **Cat@Log: Cat Wearable Sensing for Supporting Human-Animal Interaction (4'54")**, Kyoko Yonezawa, Masaru Naruoka, Takashi Miyaki, Jun Rekimoto
- **Collecting Faces - Augmented Reality Playful Application for Mobile Phones (2'43")**, Jussi Holopainen and Elina Ollila
- **The E-Sense Project: Investigating the Extended Mind by Building Sensory Augmentation Devices (7'12")**, Jon Bird, Yvonne Rogers, Janet van der Linden, Simon Holland
- **The Formamat: Investigating the Dispensability of Pervasive Data (4'26")**, Zane Kripe, Hanna Schraffenberger, Arnout Terpstra
- **Motion Sensitive Clothing (5'29")**, Holger Harms, Oliver Amft, Dominique Favre, Christian Liesen, Daniel Roggen, Gerhard Tröster
- **Pervasive Technologies in Airplane Seats: Towards Safer and Stress-Free Air Travel (6'17")**, Cornelia Setz, Johannes Schumm, Dominique Favre, Christian Liesen, Bert Arnrich, Daniel Roggen, Gerhard Tröster
- **PrintTicket: Simplifying Mobile Printing With Optical Codes (1'43")**, Kurt Partridge, Hua Liu, Alan Walendowski, Bo Begole
- **Scratch: Video Documentation of Translocational Radio Drama (7'03")**, Nye Parry, Helen Bendon, Stephen Boyd Davis, Magnus Moar
- **SmartDice: Organizing smart objects networks through mobile phones and the Titan framework (4'36")**, Clemens Lombriser, Mirco Rossi, Dominique Favre, Christian Liesen, Daniel Roggen, Gerhard Tröster
- **Touching the Untouchables: Vision-based Real-time Interaction with Public Displays through Mobile Touchscreen Devices (4'26")**, Matthias Baldauf, Peter Fröhlich, Peter Reichl
- **Walk-through of the OPPORTUNITY dataset for activity recognition in sensor rich environments (5'54")**, Daniel Roggen, Alberto Calatroni, Mirco Rossi, Thomas Holleczeck, Kilian Förster, Gerhard Tröster, Paul Lukowicz, David Bannach, Gerald Pirkl, Florian Wagner, Alois Ferscha, Jakob Doppler, Clemens Holzmann, Marc Kurz, Gerald Holl, Ricardo Chavarriaga, Marco Creatura, Hesam Sagha, Hamidreza Bayati, José del R. Millan

Pervasive 2010 Demonstrations

Accepted demonstrations are presented in the Pervasive 2010 Plaza in University main building, 2nd floor

Tuesday 18 May 16:00–19:30

- **BoxFinder: Finding items in boxes using images and visual markers**, Mizuho Komatsuzaki, Koji Tsukada, Itiro Siio
- **CILIX: a Small CIL Virtual Machine for Wireless Sensor Devices**, Yasue Kishino, Yutaka Yanagisawa, Tsutomu Terada, Masahiko Tsukamoto, Takayuki Suyama
- **Collaborative System Utilizing Interactive Surfaces**, Panu Akerman, Arto Puikkonen, Antti Virolainen, Jonna Riitta Hakkila
- **Demonstrating Tools and Results of a Measurement Campaign for Indoor GPS Positioning**, Mikkel Baun Kjærgaard, Henrik Blunck, Torben Godsk, Thomas Toftkjær, Dan Christensen, Kaj Grønbnæk
- **A Demonstration of a Robust Context Classification System (CCS) and its Context ToolChain (CTC)**, Martin Berchtold, Henning Günther, Michael Beigl
- **Listen to Yourself and Others - Multiuser Mobile Biosignal Sonification Platform EMOListen**, Kai Kuikkaniemi, Ilkka Kosunen, Toni Laitinen, Marko Turpeinen
- **Measuring Head Turns with Electro-oculography for Wearable Mobile User Interfaces**, Jussi Virkkala, Kristian Lukander
- **MediAlarm: alarm-type interface integrating various media**, Maho Oki, Koji Tsukada, Itiro Siio
- **Newport Demo: Using a Mobile Call to Facilitate Sharing**, Junius Gunaratne, A.J. Brush
- **Place-stat* ambient signage system**, Gonzalo Garcia-Perate
- **A Self-Aligning Paper Map for Pedestrian Navigation**, Yutaka Namiki, Ryutaro Nakata, Shinichi Konomi, Yoshito Tobe
- **Spin&Swing: Spatial Interaction with Orientation Aware Devices**, Bashar Altakrouri, Fahim Kawsar, Gerd Kortuem
- **Spotlight Navigation and LumEnActive: Ubiquitous projection user interfaces**, Stefan Rapp
- **Ubice - Multitouch Ice Installation**, Antti Virolainen, Ari-Heikki Sarjanoja, Arto Puikkonen, Jussi Huhtala, Jonna Riitta Hakkila
- **UBI-hotspots: Open infrastructure for long-term large-scale pervasive computing research in real-world setting**, Timo Ojala, Hannu Kukka, Tomas Lindén, Tommi Heikkinen, Marko Jurmu, Simo J Hosio, Fabio Kruger
- **A Wearable Feedback System for Violin Bowing**, Janet van der Linden
- **Wearable Prototype for Sensor Data Acquisition and Context Inference**, André C. Santos, Joao M. P. Cardoso, Diogo R. Ferreira, Pedro Diniz
- **Wi-Foto 2: Heterogeneous device controller using Wi-Fi positioning and template matching**, Ismail Arai, Soichiro Horimi, Nobuhiko Nishio
- **Wireless Air Quality Sensor**, Joni Jämsä, Mika Luimula

Conference receptions:

- Monday 17 May 18:00–20:00, Joint reception with UbiSummit 2010 at Stock Exchange, Fabianinkatu 14
- Tuesday 18 May 17:00–19:00, Conference reception in the main building of the University of Helsinki, Unioninkatu 34, by Vice Rector Johanna Björkroth

Excursion and Banquet:

- Wednesday 19 May 17:30 –
- Before the banquet on Wednesday, we will take a short boat trip in the archipelago of Helsinki. The boat will leave from the Cholera Basin and return to the harbour in front of the Banquet restaurant. The Cholera Basin is two blocks away from the conference venue, the university main building. In 1893 a shipsman from Nagu who came to the herring market died of cholera here.
- The banquet is held in the premises of the Palace Gourmet restaurant at Eteläranta 10, the first restaurant to earn a Michelin star in Finland in 1987. Palace Gourmet is close to the Cholera Basin, about three blocks away from the conference venue.

Lunches:

- 17 – 20 May
- Lunches are included (also during the workshop day) and served outside the Festival Hall on the 2nd floor.

Coffee Breaks:

- 17 – 20 May
- Coffee and snacks are served during breaks



Registration:

The registration desk is located on the 2nd floor of the main building. It will open at 8:30 and close after the last technical session.

Lecture halls and facilities:

- 1st (ground floor): student cafeteria, student refectory, Auditoriums XVII, XVIII
- 2nd floor: Registration desk, Festival Hall, Auditoriums I, II, III and IV: Coffee, Plaza, Rector's reception
- 3rd floor: Auditoriums VI, IX, X, XI, Rooms 4, 7, 8, 9, 11: workshops
- 4th floor: Auditoriums XV, Rooms 14, 16: workshops and doctoral colloquium

WLAN access:

WLAN is available in the main building. Please use the user id and the password included in your conference material. (Each participant is given his or her own id and password.) There are a few desktop computers available in the new side of the building (1st floor, 3rd floor). You can use the same id and password on these computers.

Ready room:

Auditorium II can be used for preparing your slides on your own laptop, or if you just want to sit down and read you email.

Ambient Conference Assistant :

The Ambient Conference Assistant will guide you through the conference. Please see the instructions included in your conference bag.

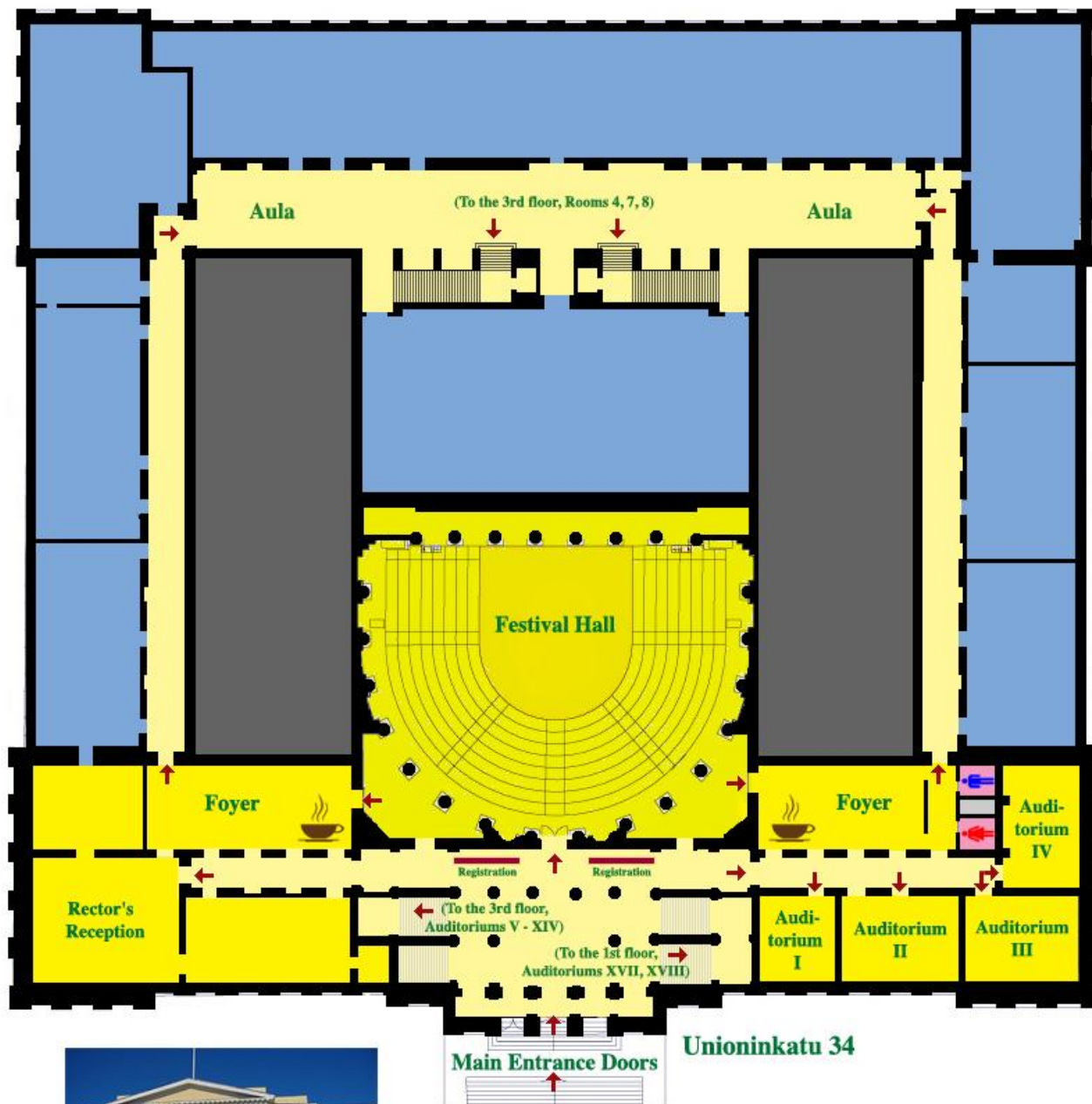


Sites of the conference and social programmes:

- University main building – Pervasive 2010 conference venue, 17 – 20 May, Unioninkatu 34
- Stock Exchange – UbiSummit 2010, Joint keynote and reception, 17 May, Fabianinkatu 14
- Boat trip starting point – Cholera Basin, 19 May
- Palace Gourmet – Banquet, 19 May

Area and Floor Maps

The 2nd floor



Main Building (front view)

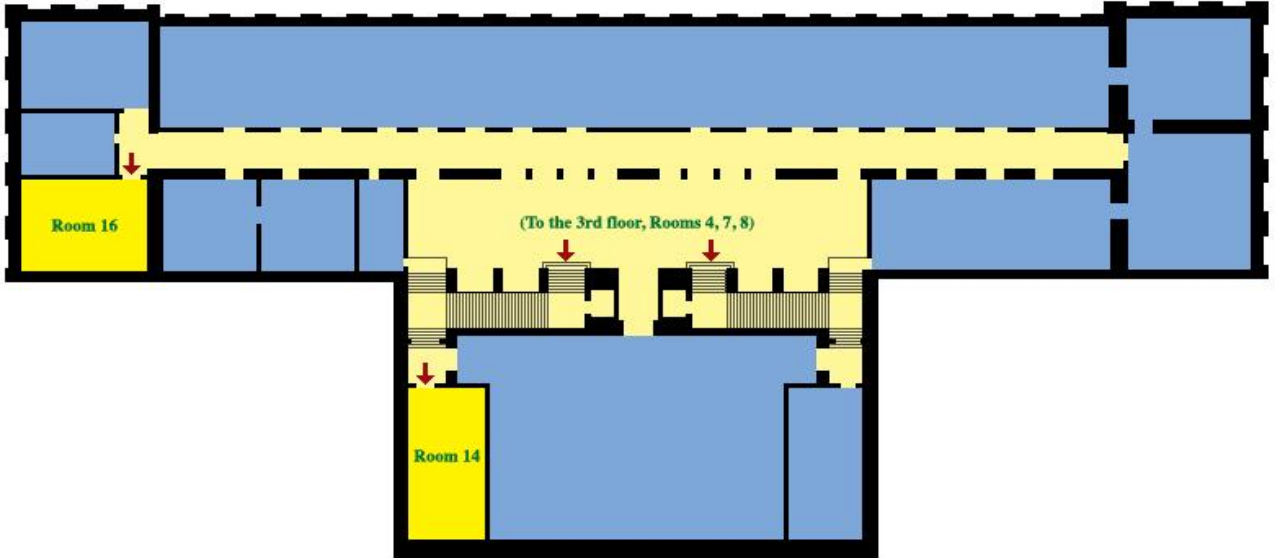
* Photo source: Wikipedia (<http://en.wikipedia.org/wiki/>)



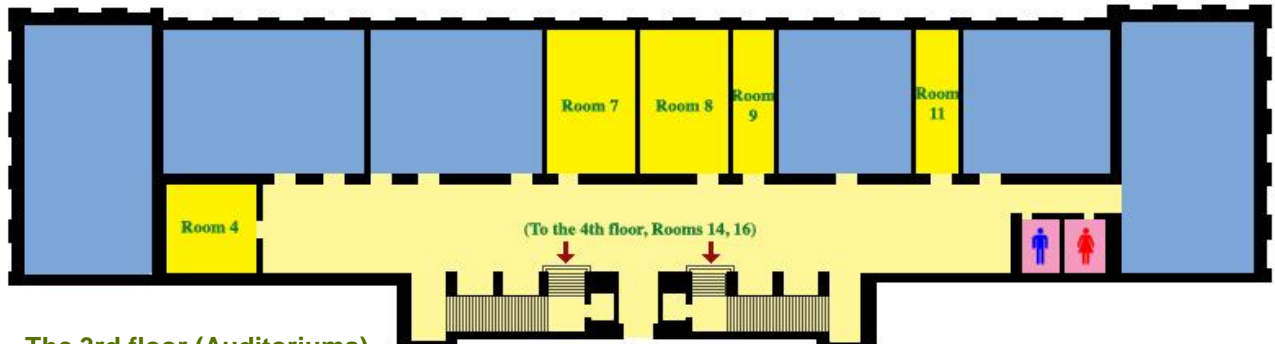
The Senate Square

Area and Floor Maps

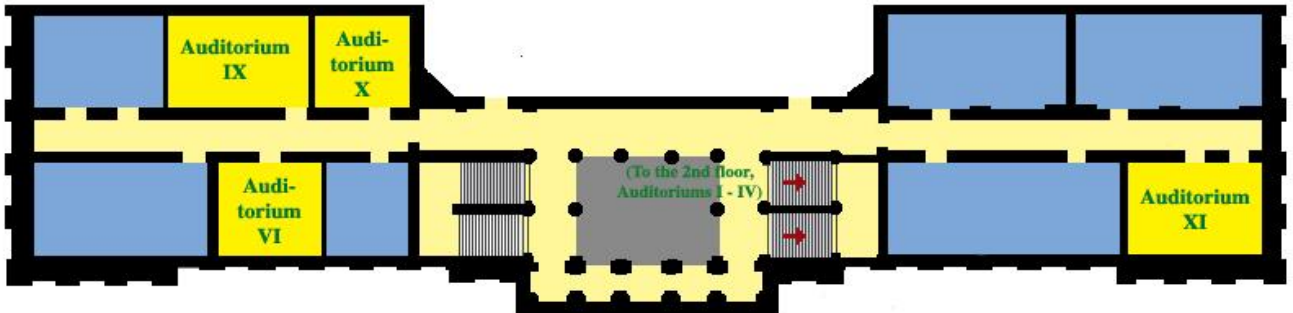
The 4th floor (Rooms)



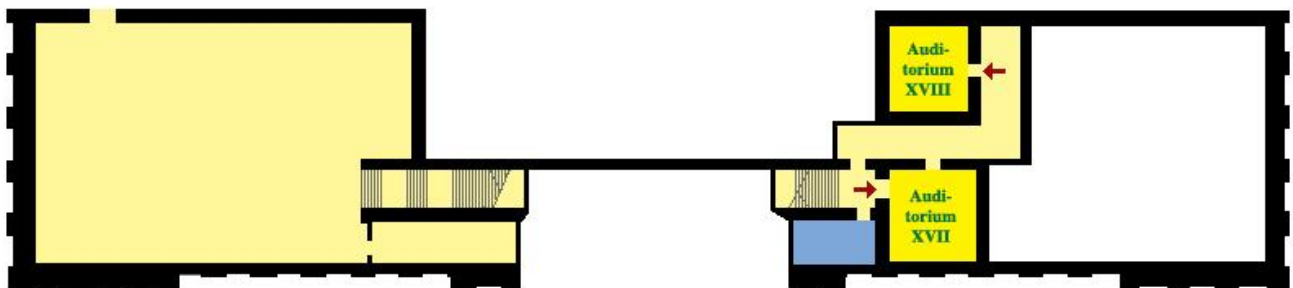
The 3rd floor (Rooms)



The 3rd floor (Auditoriums)



The 1st floor (Auditoriums)



Programme at a Glance

	Mon 17 May	Tue 18 May	Wed 19 May	Thu 20 May
08:00			Registration	
08:30	Registration	Registration, Opening	Session 4: Tools, Modelling	Registration
09:00	Workshops & Doctoral Colloquium	Conference Keynote		Session 8: Resource Awareness
10:00	Coffee	Coffee	Coffee	Coffee
10:30	Workshops & Doctoral Colloquium	Session 1: Positioning	Session 5: Studies	Session 9: Interaction
11:00				
12:00	Lunch	Lunch	Lunch	Lunch
13:00	Workshops & Doctoral Colloquium	Session 2: Navigation and Tracking	Session 6: Activity Recognition	Town Hall Meeting
14:00				Tutorial 1: Pervasive Computing User Studies
14:30	Coffee	Session 3: Applications	Coffee	Tutorial 2: Location in Pervasive Computing
15:00	Workshops & Doctoral Colloquium		Workshop & Doctoral Colloquium Madness	
15:30		Coffee	Coffee	
16:00		Plaza Madness	Session 7: Sensing	Tutorial 3: Processing Sequential Sensor Data
16:30	Break		Break	Tutorial 4: Systems Support for Ubiquitous Computing
17:00	Joint Keynote with UbiSummit 2010	Greeting & Conference Reception	Excursion & Banquet	
17:30				
18:00	Joint Reception with UbiSummit 2010	Pervasive Plaza		
19:00				