



Pervasive Health 2009 Final Program

Wednesday, April 1

- 8.50 – 9:00 **Opening**
Place: Northampton Suite
Kay Connelly and Bert Arnrich
- 9.00 – 10:00 **Keynote Speech**
Place: Northampton Suite
Title: Ambient Technologies for the elderly population
Prof. Dr. med. Elisabeth Steinhagen-Thiessen
- 10.00 – 11:00 **Session 1: Gait**
Place: Northampton Suite
Session Chair: Gerhard Troester
- Developing a Motion Language: Gait Analysis from Accelerometer Sensor Systems
Anita P Sant'Anna, Nicholas Wickström
 - Design and Testing of Lightweight Inexpensive Motion-Capture Devices with Application to Clinical Gait Analysis
Eric Wade, Maja J Mataric
 - A Wireless System for Gait and Posture Analysis Based on Pressure Insoles and Inertial Measurement Units
Marco Benocci, Laura Rocchi, Elisabetta Farella, Lorenzo Chiari, Luca Benini
- 11.00 – 11:20 **Break**
- 11:20 – 12:40 **Session 2: User-Centered Investigations**
Place: Northampton Suite
Session Chair: Kay Connelly
- Investigating the Potential of In-home Devices for Improving Medication Adherence
Young S Lee, Joe Tullio, Nitya Narasimhan, Pallavi Kaushik, Jonathan R Engelsma, Santosh Basapur
 - User Experiences of Mobile Wellness Applications in Health Promotion
Aino Ahtinen, Elina Mattila, Antti Väättänen, Lotta Hynninen, Jukka Salminen, Esa Koskinen, Klaus Laine
 - Flowie: A Persuasive Virtual Coach to Motivate Elderly Individuals to Walk
Iñaki Merino Albaina, Thomas Visser, Charles A.P.G. van der Mast, Martijn H. Vastenburg
 - Persuasion not required: Improving our understanding of the sociotechnical context of dietary behavioural change.
Julie Maitland, Matthew Chalmers, Katie A. Siek
- 12.40 – 14:20 **Lunch Break**



14:20 – 15:40 **Parallel Sessions (3&4)**
Session 3: Remote Rehabilitation

Place: Room Level 3C

Session Chair: *Maria Martini*

- A Home-Based Care Model for Outpatient Cardiac Rehabilitation Based on Mobile Technologies
Antti Sarela, Jukka Salminen, Esa Koskinen, Ole Kirkeby, Ilkka Korhonen, Darren Walters
- A design framework for a home-based stroke rehabilitation system: identifying the key components
Stefan J Rennick Egglestone, Lesley Axelrod, Thomas Nind, Ruth Turk, Anna Wilkinson, Jane Burridge, Geraldine Fitzpatrick, Sue Mawson, Zoe Robertson, Anne Marie Hughes, Kher Hui Ng, Will Pearson, Nour Shublaq, Penny Probert-Smith, Ian Ricketts, Tom Rodden
- Decision support for teletraining of COPD patients
Bianying Song, Klaus-Hendrik Wolf, Matthias Gietzelt, Osama al Scharaa, Uwe Tegtbur, Reinhold Haux, Michael Marschollek
- Gesture Therapy: a Clinical Evaluation
Luis E Sucar

Session 4: Sensor Frameworks

Place: Room C302

Session Chair: *Muttukrishnan. Rajarajan*

- On the Design of Distributed Autonomous Embedded Systems for Biomedical Applications
Jose A Germano, Rui Ramalho, Leonel Sousa
- Performance Analysis of an Activity Monitoring System using the SPINE Framework
Roberta Giannantonio, Raffaele Gravina, Philip Kuryloski, Ville-Pekka Seppä, Fabio Bellifemine, Jari Hyttinen, Marco Sgroi
- An Integrated Multi-Sensing Framework for Pervasive Healthcare Monitoring
M. ElHelw, J. Pansiot, D. McIlwraith, R. Ali, B. Lo, L. Atallah
- Realising Management and Composition of Self-Managed Cells in Pervasive Healthcare
Alberto E Schaeffer-Filho, Emil Lupu, Morris Sloman

15:40 – 17:30 **Posters Session & Coffee**

Place: Room C350

Thursday, April 2

9.00 – 10:00 **Session 5: Fall Prevention and Detection**

Place: Northampton Suite

Session Chair *Ian McClelland:*

- A Pervasive Solution for Risk Awareness in the context of Fall Prevention
Nicholas Caporusso, Irene Lasorsa, Oliviero Rinaldi, Leonardo la Pietra
- A Theoretic Algorithm for Fall and Motionless Detection
Shumei Zhang, Paul McCullagh, Chris Nugent, Huiru Zheng
- Parkinson's disease patients' perspective on context aware wearable technology for auditive assistance
Marc Bächlin, Meir Plotnik, Daniel Roggen, Noit Inbar, Nir Giladi, Jeffrey Hausdorff, Gerhard Tröster



10,00 – 11:00 **Session 6: Semantics**

Place: Northampton Suite

Session Chair: Venet Osmani

- Location based semantic annotation for ward analysis
Mark J. Weal, Danius T. Michaelides, Kevin R. Page, David C. De Roure, Mary Gobbi, Eloise Monger, Fernando Martinez
- Semantic Coordination of Ambient Intelligent Medical Devices - A Case Study
Safdar Ali, Stephan Kiefer
- A Model Driven Ontology-based Architecture for Supporting the Quality of Services in Pervasive Telemedicine Applications
Ebrahim Nageba, Jocelyne Fayn, Paul Rubel

11.00 – 11:20 **Break**

11:20 – 12:40 **Session 7: Privacy and Security**

Place: Northampton Suite

Session Chair: Yousef Jasemian

- Privacy Enforcement for Distributed Healthcare Queries
Michael Siegenthaler, Ken Birman
- Privacy-aware Access to Patient-controlled Personal Health Records in Emergency Situations
Md. Nurul Huda, Shigeki Yamada, Noboru Sonehara
- Secure Healthcare Information Exchange for Local Domains
Guy C Hembroff, Sead Muftic
- Secure Sensor Data Transmission over Wireless Cellular Networks
George M Stamatelos

12.40 – 14:20 **Lunch Break**

14:20 – 16:00 **Panel Session**

Place: Northampton Suite

Title: Implementing successful telehealthcare systems – what's needed?

Moderator: *Ian McClelland, Private Consultant*

Panelists: *Professor John Cleland, Professor of Cardiology, University of Hull*

Charles Lowe, Product Manager, Telehealth Solutions Ltd.

Martin Scarfe, WSD Programme Director, London Borough of Newham

Dr Kevin Doughy, JRF Centre for Usable Home Technology, U. of York

16:00 – 16:20 **Break**

16:20 – 17:20 **Session 8: Wearable Technologies**

Place: Northampton Suite

Session Chair: Bert Arrrich

- Textile sensors to measure sweat pH and sweat-rate during exercise
Shirley M Coyle, Deirdre Morris, King-Tong Lau, Dermot Diamond, Nicola Taccini, Daniele Costanzo, Pietro Salvo, Fabio Di Francesco, Maria Giovanna Trivella, Jacques Andre Porchet, Jean Luprano
- Low Power Real-Time Seizure Detection for Ambulatory EEG
Kunjan Patel, Chern-Pin Chua, Stephen Faul, C. J. Bleakley
- A fitting Method for Headphones to compensate individual Hearing Impairments
Hannah Baumgartner, Arne Schulz, Andreas Hein, Inga Holube, Tobias Herz



19:30

Conference Dinner

Place: The Medieval Banquet London

<http://www.medievalbanquet.com/home.php>

Bus shuttle is organized leaving from City University at 19: 00.

Friday, April 3

9.00 – 10:00

Session 9: Hodge Podge

Place: Northampton Suite

Session Chair: *Katie Siek*

- Informing the Design of an Automated Wayfinding System for Individuals with Cognitive Impairments
Alan L. Liu, Harlan Hile, Gaetano Borriello, Henry Kautz, Pat A. Brown, Mark Harniss, Kurt Johnson
- Context-aware Multi-lead ECG Compression Based on Standard Image Codecs
Maria G. Martini, Alessandro Polpetta, Paolo Banelli
- The Smart Condo: Visualizing Independent Living Environments in a Virtual World
Nicholas M. Boers, David Chodos, Jianzhao Huang, Pawel Gburzy'nski, Ioanis Nikolaidis, Eleni Stroulia

10,00 – 11:00

Session 10: : On the Body

Place: Northampton Suite

Session Chair: *Daniel Roggen*

- A Context Aware Wireless Body Area Network (BAN)
Tony O'Donovan, John O' Donoghue, Cormac J Sreenan, Dave Sammon, Philip O'Reilly, Kieran O'Connor
- Characterization and modeling of dynamic on-body propagation
Bin Zhen, Minseok Kim, Jun-ichi Takada, Ryuji Kohno
- Vesta: A Secure and Autonomic System for Pervasive Healthcare
Yanmin Zhu, Morris Sloman, Emil Lupu, Sye Loong Keoh

11.00 – 11:20

Break

11:20 – 12:20

Session 11: Self Management

Place: Northampton Suite

Session Chair: *Julie Maitland*

- Mobile Support for Personalized Therapies - OmniSCOPE: Richer Artefacts and Data Collection
Marco de Sá, Luís Carriço
- Pervasive Pain Monitoring System - User Experiences and Adoption Requirements in the Hospital and Home Environments
Ismo Alakärppä, Jukka Riekkki, Rauni Koukkula
- P4Well Concept to Empower Self-Management of Psychophysiological Wellbeing and Load Recovery
Antti P Happonen, Elina Mattila, Marja-Liisa Kinnunen, Veikko Ikonen, Tero Myllymaki, Kirsikka Kaipainen, Heikki Rusko, Raimo Lappalainen, Ilkka Korhonen

12.20 – 12:30

Closing Remarks and Announcement of Pervasive Health 2010

Place: Northampton Suite



List of Accepted Posters:

A wearable passive force sensor powered by an active interrogator intended for intra-splint use for the detection and recording of bruxism *C. González, A. Díaz Lantada*

Probelems: reflecting on a technology probe into peer involvement in cardiac rehabilitation *Julie Maitland, Matthew Chalmers*

Web Services to Improve Interoperability of Home Healthcare Devices *Guido Moritz, Elmar Zeeb, Frank Golasowski, Dirk Timmermann, Regina Stoll*

Managing First Response Medical Aids With An Altruistic Web Application *Stefano Ferretti, Silvia Mirri, Marco Rocchetti, Claudio Sermenghi, Vito Conforti*

A Wearable Inductor Channel Design for Blood Pressure Monitoring System in Daily Life *Seulki Lee, Jerald Yoo, Hoi-Jun Yoo*

Prototyping of a Remote Monitoring System for a medical Personal Area Networks using Python *M. J. Morón, J. R. Luque, A. Gómez-Jaime, E. Casilari, A. Díaz-Estrella*

PERFORM: A system for the monitoring and management of persons with chronic motor neurodegenerative disorders *Dina Baga, Dimitrios Fotiadis, Spiros Konitsiotis, Metin Akay*

A secure electronic diary and data collection tool *Kenny Morrison, Ian W Ricketts, Martyn C Jones, Derek W Johnston, Nigel B Pitts, Frank M Sullivan*

Intelligent Electrode Design for Long-Term ECG Monitoring at Home *Geng Yang, Jian Chen, Hannu Tenhunen, Li-Rong Zheng*

Wearable Sensors for Pervasive Healthcare Management *Daniel Olguin Olguin, Peter A. Gloor, Alex (Sandy) Pentland*

Enabling Pervasive Healthcare by Means of Event-Driven Service-Oriented Architectures - The Case of Bed Management in Mid-Sized to Large-Sized Hospitals *René Fitterer, Bart de Witte*

User-Centered Activity Management System for Elderly *Otjacques Benoît, Krier Marc, Feltz Fernand, Ferring Dieter, Hoffmann Martine*

A Modular Clinical Decision Support System *Fran Wu, Mitch Williams, Peter Kazanzides, Ken Brady, Jim Fackler*

Human activity recognition supporting context-appropriate reminders for elderly *Venet Osmani, Daqing Zhang, Sasitharan Balasubramaniam*

Towards a Sustainable e-Health Deployment: An Integrated Medical Information System for Sri Lankan Case *G.G.D. Nishantha, Y. Uchida, M. Cassim, J. Weerasinghe, G. Gunawardana, Y. Hayashida, M. Goto*

Server-Assisted Context-Dependent Pervasive Wellness Monitoring *Archan Misra, Ben Falchuk, Shoshana Loeb*