



4th International Conference on Pervasive Computing Technologies for Healthcare 2010

Campus Garching, Technische Universität München, München Germany,
March 22-25, 2010

Tuesday, 23 March 2010

9:00-9:20 Opening

9:20-10:00 **Keynote 1: Prof. Heinz Gerhauser, Fraunhofer IIS**

10:00-11:00 **Session 1: Human Motion with Accelerometers (Chair: Katie Siek)**

- Toward Free-Living Walking Speed Estimation Using Gaussian Process-based Regression with On-Body Accelerometers and Gyroscopes
 - Harshvardhan Vathsangam, University of Southern California
 - Adar Emken, University of Southern California
 - Donna Spruijt-Metz, University of Southern California
 - Gaurav Sukhatme, University of Southern California
- User-friendly System for Recognition of Activities with an Accelerometer
 - Gerd Krassnig, Fraunhofer Institute
- Comparison of accelerometer-based energy expenditure estimation algorithms
 - Niall Twomey, UCC

11:00-11:20 Break

11:20-12:40 **Session 2: Patient and User Needs (Chair: Eric Wade)**

- Embedded Assessment of Aging Adults: A Concept Validation with Stakeholders
 - Matthew L Lee, Carnegie Mellon University
 - Anind Dey, Carnegie Mellon University
- Acceptance and use of a social robot by elderly users in a domestic environment
 - Tineke Klamer, University of Twente
 - Somaya Ben Allouch, University of Twente
- Asthma Management Practices of Families and Pediatric Patients with Asthma
 - Tae-Jung Yun, Georgia Institute of Technology
 - Hee Young Jeong, Georgia Institute of Technology
 - Hee Rin Lee, Georgia Institute of Technology
 - Rosa Arriaga, Georgia Institute of Technology
 - Gregory D. Abowd, Georgia Institute of Technology
- Training Social Problem Solving Skills in Adolescents with High-Functioning Autism
 - Fatima A Boujarwah, Georgia Institute of Technology
 - Hwajung Hong, Georgia Institute of Technology
 - Jackie Isbell, Georgia Institute of Technology
 - Rosa Arriaga, Georgia Institute of Technology
 - Gregory D. Abowd, Georgia Institute of Technology

12:40-14:00 Lunch

14:00-15:00 Session 3: Applications (Chair: Bert Arnrich)

- Mobile Music Touch: Vibration Stimulus as a Possible Hand Rehabilitation Method
 - Tanya Thais Markow, Georgia Institute of Technology
 - Thad Starner, Georgia Institute of Technology
- Mobile Phone Based Drunk Driving Detection
 - Jiangpeng Dai, Southeast University/The Ohio State University
 - Jin Teng
 - Xiaole Bai, The Ohio State University
 - Zhaohui Shen, The Ohio State University
 - Dong Xuan, The Ohio State University
- Towards Developing Effective Continence Management through Wetness Alert Diaper: Experiences, Lessons Learned, Challenges and Future Directions
 - Aung Aung Phyo Wai, Research Engineer
 - Foo Siang Fook
 - Maniyeri Jayachandran
 - Jit Biswas
 - Jer En Lee
 - Philip Yap

15:00-15:20 Break

15:20-16:20 Session 4: Self Monitoring (Chair: Fatima Boujarwah)

- *Improving Activity Classification for Health Applications on Mobile Devices using Active and Semi-Supervised Learning (candidate for best paper)*
 - Brent Longstaff, CENS UCLA
- Salud!: An Open Infrastructure for Developing and Deploying Health Self-management Applications
 - Yevgeniy Medynskiy, Georgia Institute of Technology
 - Elizabeth Mynatt, Georgia Institute of Technology
- A System for Unobtrusive In-Car Vital Parameter Acquisition and Processing
 - Lorenzo Tancredi D'Angelo, TU München
 - Jan Parlow
 - Wolfgang Spiessl
 - Stefan Hoch
 - Tim Lueth, MiMed - Technical University Munich

Wednesday, 24 March 2010

9:00-10:00 Panel Discussion – Chaired by Tim Lueth

- *Pervasive Healthcare – Who is really benefiting and how can benefits be proven?*
 - Katie A. Siek, University of Colorado at Boulder
 - Johannes Kornhuber, Universitätsklinikum Erlangen
 - Hartmut Strese, VDI/VDE-IT Innovation + Technik GmbH
 - Jörg Walter, Vitaphone

10:00-11:00 Session 5: Health Care User Needs (Chair: Julie Maitland)

- A Comparative Evaluation Study of Basic Interaction Techniques for PDAs in Point-Of-Care Situations
 - Ole Alsos, NTNU
- Technology acceptability for medical assistance

- Martina Ziefle
- Wiktorija Wilkowska
- Strategies for Development and Supporting Adoption of EHR in German Ambulatory Care
 - Ali Sunyaev , TU München
 - Sebastian Dünnebeil , Technische Universität München
 - Jan Marco Leimeister
 - Helmut Krcmar

11:00-11:20 Break

11:20-12:40 Session 6: Ambient Assisted Living (Chair: Lorenzo D'Angelo)

- *AID-ME: Automatic Identification of Dressing failures through Monitoring of patients and activity Evaluation (candidate for best paper)*
 - Aleksandar Matic, CREATE-NET
 - Priyal Mehta, Georgia Tech
 - James M. Rehg, Georgia Tech
 - Venet Osmani, CREATE-NET
 - Oscar Mayora, CREATE-NET
- Using duration to learn activities of daily living in a smart home environment
 - Shuai Zhang, School of Computing and Information Engineering, University of Ulster
 - Sally McClean, School of Computing and Information Engineering, University of Ulster
 - Bryan Scotney, School of Computing and Information Engineering, University of Ulster
 - Priyanka Chaurasia, School of Computing and Information engineering
 - Chris D Nugent, University of Ulster
- Artifacts' Roaming Beats Recognition for Estimation of Care Activities in a Nursing Home
 - Francisco Eduardo Martinez Perez, Universidad Autonoma De Baja California
 - Angel Gonzalez-Fraga
 - Monica Tentori
- *Robotic Service Cores for Ambient Assisted Living (candidate for best paper)*
 - Matthias Kranz, Technische Universität München

12:40-14:00 Lunch

14:00-15:20 Session 7: Sensors and Health (Chair: Tim Lueth)

- *Automatic Classification of Daily Fluid Intake (candidate for best paper)*
 - Jonathan Lester, University of Washington
 - Shwetak Patel, Georgia Institute of Technology
 - Desney Tan, Microsoft Research
 - A.J. Brush, Microsoft Research
- A Kinetic Energy Harvester with Fast Start-up for Wearable Body-Monitoring Sensors
 - Jacopo Olivo, EPFL
 - Davide Brunelli, University of Trento
 - Luca Benini, University of Bologna
- Recognition of Interactions with Objects based on Radio Modules

- Axel Czabke, Technical University Munich
 - Jakob Neuhäuser
 - Tim Lueth, MiMed - Technical University Munich
 - Achieving Human-Agent Teamwork In eHealth Based Pervasive Intelligent Environments
 - Matthew Ball, University of Essex
 - Vic Callaghan, University of Essex
 - Michael Gardner, University of Essex
 - Dirk Trossen, BT Research
- 15:20-15:50 Minute Madness for Demos**
- 7 Demos quickly pitch their work
- 15:50-17:00 Poster and Demo Session (see last page)**
- 18:00 - end Social Event

Thursday, 25 March 2010

9:00-10:00 Keynote: David Godden, Clinical Professor at University of Aberdeen

- Integration of digital technologies into healthcare systems

10:00-11:00 Session 8: Neurological and Stroke Assistive Applications (Chair: Joachim Hornegger)

- Sensor Device for Testing Activities in Parkinson and ALS Patients
 - Karol Grandez, CEIT and Tecnun (University of Navarra)
 - Gonzalo Solas, CEIT and Tecnun (University of Navarra)
 - Paul Bustamante, CEIT
 - Raul Barrena
- Automated Administration of the Wolf Motor Function Test Assessment
 - Eric Wade, University of Southern California
- Tremor Compensation by Use of a mechatronic Cup Holder
 - Marcus Fischer
 - Markus Schraufstetter
 - Christian Richter
 - Franz Irlinger
 - Tim C. Lueth, MiMed, Technische Universität München

11:00-11:20 Break

11:20-12:00 Session 9: Gait (Chair: Axel Czabke)

- Precise Assessment of Self-Selected Gait Velocity in Domestic Environments
 - Thomas Frenken, OFFIS - Institut
 - Andreas Hein, University of Oldenburg / OFFIS
- Wearable assistant for load monitoring: recognition of on-body load placement from gait alterations
 - Marco Benocci, University of Bologna
 - Marc Bächlin, Swiss Federal Institute of Technology Zurich
 - Elisabetta Farella, University of Bologna
 - Daniel Roggen, ETH Zurich
 - Luca Benini, University of Bologna
 - Gerhard Troester, Institut für Elektronik, Zürich

12:00-12:40 Town Hall Meeting and Closing Remarks

- Announcement of the next **Pervasive Health 2011 Conference**

List of Accepted Posters

A Study of Vibration-Based Energy Harvesting in Activities of Daily Living

Alberto Olivares, Gonzalo Olivares, Peter Gloesekoetter, Juan Manuel Górriz, Javier Ramírez

Context-aware disclosure of health sensor data

Jatinder Singh, Jean Bacon, Pedro Brandao

Measurement of Angles in Time-of-Flight Data for the Automatic Supervision of Training Exercises

Stefan Soutschek, Johannes Kornhuber, Andreas Konrad Maier, Sebastian Bauer, Patrick Kugler, Joachim Hornegger, Michael Bebenek, S. Steckmann, Simon von Stengel, Wolfgang Kemmler

Teleaudiometry; A Work Toward Accessible Hearing Screening in Rural Areas

Pasin Israsena

Altcare: Safe Living for Elderly People

Muhammad Shoaib

Ambient Assisted Living for Type 2 Diabetic Patients

Markus Schwarz, Nefise Bal

Challenges in participation:Users and their roles in the development of home-based Pervasive Healthcare applications

Erik Grönvall, Rikke Aarhus, Morten Kyng

Iterative Design of Teleoperative Slit Lamp Microscopes for Telemedicine

Kentaro Go

A Low-Power Simplified-MEWS Scoring Wireless Node for Patient Monitoring

Dirk de Jager, Evangelos Mazomenos

Information-centric Pervasive Healthcare Platforms

Dirk Trossen, Dana Pavel, Jatinder Singh, Jean Bacon, Kenneth M. Guild

A Device for Measuring Potentially Hazardous Forces on Medical Equipment for Patient Transport

Nicholas Caporusso

Participatory Design with a Community of Seniors

William Hazlewood

User-driven Design of an Ontology-based Ambient-aware Continuous Care Platform

Femke Ongenaë, Ann Ackaert, An Jacobs, Mieke Van Gils, Annelies Veys, Filip De Turck, Piet Verhoeve

Designing an Interactive Technology Solution to Deliver Balance and Strength Exercises to Older Adults

Julie Doyle

HM4All: A Vital Signs Monitoring System based in Spatially Distributed ZigBee Networks

Ricardo Simoes, Helena Fernandez-Lopez

Physician Usage of Technology and Opportunities for Continuous Care Management of Pediatric Asthma Patients

Adebola A Osuntogun, Rosa Arriaga

SOA-based Integrated Pervasive Personal Health Management System using PHDs

Sung-Hyun Lee, Byoung-Kee Yi

Low Power Compression of EEG Signals Using JPEG2000

Garry C Higgins

Novel Approach for Ensuring Increased Validity in Home Blood Pressure Monitoring

Stefan Wagner

RFID: Recognizing Failures In Dressing activity

Kyriaki Kalimeri, Aleksandar Matic, Alessandro Cappelletti

Democratization of healthcare through self-monitoring technologies

Dana Pavel

List of Accepted Demonstrations

MagTag - A Wearable Wrist Device for Localization Applications

S.Silva, Paulo Mendes, L.Domingues

Continuous Healthcare

Stefan Wagner, Patrick Bentsen, Jesper Hedeager Nielsen, Christen Ring, Jorgen Nybo

Patient Tracking System. Continuous Monitoring and Location Solution for Ambient Assisted Living Facilities

Hugo Gamboa, Filipe Silva, Hugo Silva

A Smart Poultice with Reconfigurable Sensor Array for Wearable Cardiac Healthcare

Long Yan, Hoi-Jun Yoo

Sleep Coach: A home-cared sleep doctor

Shih-Chung Kang, Chia-Hsuan Chiang, I-Ling Chen, Yi Chen, Jhe-Wun Yang, Zai-Ting Yeh, Peng-Chih Wang, Rayleigh Ping-Ying Chiang

Vital-Jacket: A wearable wireless vital signs monitor for patients' mobility in Cardiology and Sports

Joao Paulo Cunha, Bernardo Cunha, Antonio Souse Pereira, William Xavier, Nuno Ferreira, Luis Meireles