



9th International Conference on
Pervasive Computing Technologies for Healthcare

PervasiveHealth

May 20–23 **2015**

Istanbul, Turkey

9th International Conference on Pervasive Computing Technologies for Healthcare

PervasiveHealth 2015

May, 20-23 2015
Istanbul, Turkey



Boğaziçi University,
Istanbul, Turkey



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Welcome to PervasiveHealth 2015

Dear Participants,

In the name of the Organizing Committee, we cordially welcome all participants to the 9th International Conference on Pervasive Computing Technologies for Healthcare held in the historical campus of Boğaziçi University, Istanbul, Turkey. Istanbul and the Boğaziçi University are known as places where East and West meet. In this spirit we believe that the Boğaziçi University is a convenient place where Technology and Health meet.

We have received many high quality submissions this year. With acceptance rates of below 30% and below 16% for long and short papers respectively, we are proud to present a high quality program which consists of 8 sessions with a total of 30 presentations, 15 posters, 3 demos and one medical perspective.

We are pleased that with Prof. Oliver Amft, Dr. Gülüstü Kaptanoğlu, and Prof. Paul Lukowicz we have three distinguished keynote speakers who will share their long-year experiences from technical and medical perspectives.

On the first conference day we have the following three workshops and a doctoral colloquium in parallel: Workshop on Adaptive Treatments and Therapies (WATT 2015), Workshop on Personal Health Systems for Chronic Diseases (PHSCD 2015), Workshop on Process-Oriented Approach For Patient-Centered Care Delivery (ProCare 2015).

In order to realize such a program, a dedicated effort of many people is required. First, we would like to thank all authors for conducting their research and presenting their high quality submissions. Second, we thank all members of the organizing committee for their dedicated efforts to manage all the scientific and administrative work. Third, we would like to thank all workshop organizers for their efforts to arrange the one-day workshops. Fourth, we would like to thank all reviewers for their valuable expert reviewing and for providing valuable comments to the authors. Finally, we thank the EAI team for their efficient collaboration.

We wish all participants an exciting conference. We've tried to provide enough time between the sessions in order to allow participants to meet, to exchange ideas and to start new collaborations. We hope that some of you stay a bit longer in order to enjoy Istanbul.

Assist. Prof. Bert Arnrich

Prof. Cem Ersoy

General Chairs



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Istanbul, Turkey

Organizing Committee:

General Chairs

Bert Arnrich, Boğaziçi University Istanbul, Turkey.

Cem Ersoy, Boğaziçi University Istanbul, Turkey.

TPC Chairs

Anind Dey, Carnegie Mellon University, USA

Kai Kunze, Keio University, Japan

Nadia Berthouze, UCL, UK

Short Papers and Posters Chairs

Özlem Durmaz İncel, Galatasaray University, Turkey

Gabriela Marcu, Carnegie Mellon University, USA

Demo Chairs

Mads Frost, IT University of Copenhagen, Denmark

Wilko Heuten, OFFIS, Germany

Workshop Chair

Katarzyna Wac, University of Geneva, CH

Doctoral Colloquium Chair

Katie Siek, Indiana University, USA

Medical Perspectives Chair

Stefan Wagner, Aarhus University, Denmark

Publication Chair

Rafal Kocielnik, TUE, Netherlands



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Istanbul, Turkey

Web Chair

Gökhan Remzi Yavuz, Boğaziçi University, Turkey

Publicity Chair

Venet Osmani, CREATE-NET, Italy

Steering Committee Chair

Oscar Mayora, CREATE-NET, Italy

Local Chair

Hande Özgür Alemdar, Boğaziçi University, Istanbul

Steering Committee

Imrich Chlamtac, CREATE-NET, Italy (co-chair)

Oscar Mayora, CREATE-NET, Italy (co-chair)

Upkar Varshney, Georgia State University, Atlanta, USA

Venet Osmani, CREATE-NET, Italy



Keynote Speakers

Oliver Amft

Sensor Technology and ACTLab, University of Passau, Germany



Oliver Amft is a full professor heading the Chair of Sensor Technology and the ACTLab research group at University of Passau. He received the Dipl.-Ing. (M.Sc.) from Chemnitz Technical University in 1999 and the Dr. Sc. ETH (Ph.D.) from ETH Zurich in 2008, both in Electrical Engineering and Information Technology. Until 2004, he has been an R&D project manager with ABB Inc., leading product developments in embedded communication systems. Between 2009 and 2013 Oliver has been with TU Eindhoven as an assistant professor, where he initiated the ACTLab research group. Oliver's interest focuses on multi-modal activity pattern recognition, human behaviour inference algorithms, and ubiquitous sensing systems, with applications (among others) in healthcare, sports, and building automation. Oliver co-authored more than 100 publications and received several awards in this area. He has coordinated the European research consortia iCareNet and GreenerBuildings. For more information, please see: www.actlab.uni-passau.de

Keynote Title: "What smart eyeglasses and other wearables will soon know about our body"

Today's 'smart' wearable devices, whether research prototypes or commercial, are either obtrusive or suffer from very limited functionality. However, combined sensing and processing could enable daily accessories to provide additional context-aware functions or gather data that is otherwise available in lab settings only. In this talk, I will introduce our recent work on smart eyeglasses that provide unique access to physiological and activity data and thus have the potential to change the way eyeglasses are being used today. Moreover, I will show examples of context-aware wearables that we use in circadian phase modelling, stroke patient recovery tracking, and cardiorespiratory fitness estimation without maximal or sub-maximal tests. The activity recognition and discovery algorithms that drive the before-mentioned applications will be discussed with an emphasis on their dynamic adaptivity and energy efficiency for continuous everyday operation.

Gülüstü Kaptanoğlu

Behavioral Neurology, Dementia and Movement Disorders Clinic
Boğaziçi University, Istanbul, Turkey



Gülüstü Kaptanoğlu, M.D. graduated from Istanbul Medical Faculty of Istanbul University (1991), completed residency in Neurology and fellowship in Behavioral Neurology and Movement Disorders Clinic of same Medical School (1998), was awarded a scholarship from TEV (Turkish Education Foundation) for clinical research in Alzheimer's Disease and worked with Prof Marsel Mesulam and Prof Sandra Weintraub at Cognitive Neurology and Alzheimer's Disease Research Center of Northwestern University, as a research fellow and a research associate (1998-2002). Dr Kaptanoğlu has been in private practice, running her own Behavioral Neurology, Dementia and Movement Disorders Clinic since 2003 and teaches part time at Boğaziçi University, conducts clinical research in affiliation with a group of dementia specialists. Gülüstü Kaptanoğlu is also a founder and president of the 65+ Elders Rights Association of Turkey."



Keynote Title: "In sickness and in health"

"There are various levels the field of pervasive health can touch lives. Healthy and active living already benefits from feedback provided from wearable devices. For health related questions, search engines are sought more often than physicians and electronic health records are part of our lives. Every day on the news there is again some health issue our smart phones can diagnose and treat. In this talk as a neurodegenerative disease specialist working with elderly patients with Parkinson's disease or Alzheimer's disease and the like, I will go over the potential clinical application of the tools we already have and drive attention to what we will need in the near future. The levels of healthcare we need to discuss are effective aid in patient assessment, diagnosis, follow up, treatment, improvements in daily life and last but not the least preventive measures. I will be going over different variables of patient assessment like cognition, behavior, movement, sleep and autonomic nervous system and look at how both physicians and patients can be aided in evaluation and follow up by new technologies. As a specific example our ongoing research with Parkinson's disease and other movement disorders patients will be summarized."

Paul Lukowicz

DFKI and Kaiserslautern University of Technology, Germany



Paul Lukowicz is Professor of AI at the DFKI and Kaiserslautern University of Technology in Germany where he heads the Embedded Intelligence group. He holds an MSc. and a Ph.D. in Computer Science and a MSc. in Physics. His research focuses on context aware ubiquitous and wearable systems including sensing, pattern recognition, system architectures, models of large scale self organized systems, and applications. These include a long history of pervasive health related projects ranging from wearable monitors for cardiac patients, through smartphone based analysis of mood related disorders, to various smart home based AAL approaches.

Keynote Title: "Sensing trends for pervasive healthcare"

The talk will discuss new sensing trends and their relevance for Pervasive Health. It will on one hand analyze available and emerging commercial devices including smart watches and smart glasses with respect to various health related application areas. On the other hand the talk will present a range of experimental devices developed by our group such as large scale textile pressure sensor arrays, textile capacitive sensors and infrared sensor arrays. We will discuss the sensor principle, their limitations as well as concrete applications. Overall the aim will be to provide the audience with an in depth overview and understanding of what to expect in terms of sensing opportunities in the next future.



PERVASIVEHEALTH 2015

PROGRAM

Istanbul, May 20-23 2015

Wednesday May 20th 2015

WORKSHOPS AND DOCTORAL COLLOQUIUM

Venue: Vedat Yerlici Conference Hall, located at the roof of Perkins Hall
(The Faculty of Engineering)

WATT 2015 - Workshop on Adaptive Treatments and Therapies

08.30-09.00	Registration
09.00-09.05	Welcome
09.05-10.00	<i>Invited Talk: Prof. Jesse Hoey – “Affective Reasoning and Cognitive Assistive Technologies”</i>
10.00-11.00	<i>Invited Talk: Prof. Philip J. Morrow – “Gamification Approaches to Adaptive and Personalised Rehabilitation Therapies”</i>
11.00-11.30	<i>Coffee Break</i>
11.30-12.40	Session 1
	“Requirements Identification Towards a Design of Adaptive ICTs for Supporting Bipolar Disorder Treatment in Different Healthcare Contexts” Emanuele Torri - APSS, Trento Italy, Oscar Mayora – CREATE-NET, Italy, Jesús Cobo , Diego Palao - CSPT, Spain
	“Improving classification of posture based attributed attention assessed by ranked crowd-raters” Patrick Heyer, Jesús J. Rivas, Luis Enrique Sucar, Felipe Orihuela-Espina - National Institute for Astrophysics, Optics and Electronics, Mexico
12.40-14.20	<i>Lunch</i>
14.20-15.30	Session 2
	“Haptic Feedback in Motor Hand Virtual Therapy Increases Precision and Generates Less Mental Workload” Cristina Ramírez–Fernández, Alberto L. Morán, Eloísa García–Canseco - Universidad Autónoma de Baja California, Mexico
	“Detecting affective states in virtual rehabilitation” Jesús J.Rivas, Felipe Orihuela-Espina, L.Enrique Sucar - Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE)-Mexico, Lorena Palafox, Jorge Hernández-Franco - Instituto Nacional de Neurología y Neurocirugía (INNN), Nadia Bianchi-Berthouze - University College of London (UCL), United Kingdom
15.30-15.50	Panel on the Future of ATT's
15.50-16.00	Closure
16.00	<i>Coffee Break</i>



PHSCD 2015 - Workshop on Personal Health Systems for Chronic Diseases

08.30-09.20	Registration
09.20-09.40	Welcome
Session I, Data Analysis and Data Representation in Personal Health Systems	
09.40-10.00	<p>"A Comparative Study between SVM and Fuzzy Inference Systems for the Automatic Prediction of Sleep Stages and the Assessment of Sleep Quality" Chris Panagiotou, Ioakeim Samaras, John Gialelis, Petros Chondros, Dimitris Karadimas / University of Patras, Greece</p>
10.00-10.40	<p>"Modelling and Simulation for Major Incidents" Eleonora Pacciani - University of Tor Vergata, Rome, Italy, Alessandro Borri - CNR-IASI Biomathematics Laboratory, Rome, Italy, Paolo Maurizio Soave, Daniele Gui, Sabina Magalini - Catholic University of the Sacred Heart, Rome, Italy, Simona Panunzi, Claudio Roberto Gaz - CNR-IASI Biomathematics Laboratory, Rome, Italy, Pasquale Gaudio, Andrea Malizia - University of Tor Vergata, Rome, Italy, Andrea De Gaetano - CNR-IASI Biomathematics Laboratory, Rome, Italy</p>
10.40-11.00	<i>Coffee Break</i>
11.00-11.30	<p>Invited Speaker: Stephan Schraps, CEO of BodyTel, Germany "Challenges ahead for business in m-Health."</p>
11.30-12.00	<p>Invited Speaker: Dr Andrea De Gaetano, Head of Biomatlab Laboratory at CNR-IASI, Italy "Stochastic differential modelling of continuous glucose monitoring data stream"</p>
12.00-13.00	<i>Lunch</i>
Session II, M-health and E-health applications for complex patients	
13.00-13.30	<p>Invited Speaker: Evert Jan Hotjink, CEO of Portavita, Amsterdam "Implementing a successful care management system and the COMMODITY12 experience"</p>
13.30-14.00	<p>Invited Speaker: MD Dr Przemyslaw Kardas, UMED "Type 2 diabetes patients assessment of the COMODITY12 mHealth system."</p>
14.00-14.20	<p>"COMPASS: an Interoperable Personal Health System to Monitor and Compress Signals in Chronic Obstructive Pulmonary Disease" Thomas Hofer, Michael Schumacher, Stefano Bromuri - University of Applied Sciences Western Switzerland</p>
14.20-14.40	<p>"Case-based retrieval of similar diabetic patients" Damien Zufferey, Stefano Bromuri, Michael Schumacher - University of Applied Sciences, Western Switzerland</p>
14.40-15.00	<p>"Recognising lifestyle activities of diabetes patients with a smartphone" Mitja Luštrek, Božidara Cvetkovi'c, Violeta Mirchevska - Jožef Stefan Institute Ljubljana, Slovenia, Özgür Kafalı, Alfonso E. Romero, Kostas Stathis - Royal Holloway, University of London, Great Britain</p>
15.00-15.20	<i>Coffee Break</i>
15.20-16.00	<p>Closing round table discussion about research concerning data analysis, complex patients handling and mobile applications</p>



ProCare 2015 – Workshop on Process-Oriented Approach For Patient-Centered Care Delivery

08.30-09.30	Registration
09.30-09.45	Welcome
09.45-10.30	Keynote by Jan Van Ooteghem
10.30-11.00	<p>“Discovery of the Potential Role of Sensors in a Personal Emergency Response System: What Can We Learn from a Single Workshop?”</p> <p>Femke De Backere, Stijn Verstichel - IBCN - UGent – iMinds, Belgium, Shirley Elprama - SMIT - VUB – iMinds, Belgium, Jan Van den Bergh - EDM - UHasselt – iMinds, Belgium, Femke Ongenae, Filip De Turck - IBCN - UGent – iMinds, Belgium, An Jacobs - SMIT - VUB – iMinds, Belgium, Karin Coninx - EDM - UHasselt – iMinds, Belgium</p>
11.00-11.30	<i>Coffee Break</i>
11.30-12.00	<p>“Supporting and assisting the execution of flexible healthcare processes”</p> <p>Steven Mertens, Frederik Gailly, Geert Poels - Ghent University, Belgium</p>
12.00-12.30	<p>“Managing flexible care with a context aware system for ageing-in-place”</p> <p>Saskia Robber, Lilian Bosch, Pascal Wiggers - Amsterdam University of Applied Sciences, The Netherlands, Jasmien Decancq - Vrije Universiteit Brussel, Belgium, Marije Kanis - Amsterdam University of Applied Sciences, The Netherlands</p>
12.30-13.00	<p>“Modeling Evidence-Based Medicine Applications with Provenance Data in Pathways”</p> <p>Ustun Yildiz - Agency of Health Informatics, Ankara, Turkey, Khalid Belhajjame, Daniela Grigor – LAMSADE, Université Paris Dauphine, France</p>
13.00-14.30	<i>Lunch</i>
14.30-15.00	<p>“Assessing Healthcare Process Maturity: Challenges Of Using A Business Process Maturity Model”</p> <p>Ayca Tarhan - Hacettepe University, Ankara, Turkey, Oktay Turetken - School of Industrial Engineering Eindhoven University of Technology, The Netherlands, Frank J.H.M. van den Biggelaar - Maastricht University Medical Center, The Netherlands</p>
15.00-16.00	Discussion, conclusions and recommendations
16.00	<i>Coffee Break</i>

DOCTORAL COLLOQUIUM

12.30	Registration
13.00-14.00	<i>Lunch</i>
14.00	Doctoral Colloquium



TECHNICAL SESSIONS

Venue: Albert Long Hall

Thursday May 21st 2015

08.30-09.30	Registration
09.30-10.00	Welcome to PervasiveHealth 2015
10.00-11.00	Keynote: Oliver Amft , University of Passau – Germany, introduced by Bert Arnrich
11.00-11.30	<i>Coffee Break</i>
11.30-13.00	Session 1 – Session Chair Kai Kunze
	<p>“Mining Minds: an innovative framework for personalized health and wellness support” Oresti Banos, Muhammad Bilal Amin, Wajahat Ali Khan, Taqdir Ali, Muhammad Afzel - Kyung Hee University, Korea, Byeong Ho Kang - University of Tasmania, Australia, Sungyoung Lee- Kyung Hee University, Korea</p> <p>“Supporting Drug Prescription via Predictive and Personalized Query System” Samamon Khemmarat , Lixin Gao - University of Massachusetts, USA</p> <p>“Towards Designing Social Question-and-Answer Systems for Behavioral Support of Individuals with Autism” Hwajung Hong, Gregory Abowd, Rosa Arriaga – Georgia Institute of Technology, USA</p> <p>“Initial Field Trial of a Coach-Supported Web-Based Depression Treatment” Stephen Schueller, David Mohr – Northwestern University Chicago, USA</p>
13.00-14.30	<i>Lunch</i>
14.30-15.30	Keynote: Gulustu Kaptanoglu , Boğaziçi University, Istanbul – Turkey, introduced by Cem Ersoy
15.30-16.00	<i>Coffee Break</i>
16.00-17.00	Session 2 – Session Chair Venet Osmani
	<p>“Developing Design Considerations for Mobile and Wearable Technology m-Health Applications that can Support Recovery in Mental Health Disorders “ Karen Anne Cochrane, Thecla Schiphorst, Simon Fraser University, British Columbia - Canada</p> <p>“A Wearable Vibration Glove for Improving Hand Sensation in Persons with Spinal Cord Injury Using Passive Haptic Rehabilitation ” LTC Tanya Estes - United States Military Academy, New York, US, Deborah Backus -Multiple Sclerosis Research The Eula C. and Andrew C. Carlos Rehabilitation and Wellness Program at Shepherd Center, Atlanta, USA , Thad Starner - Georgia Institute of Technology, US</p> <p>“Educational Interactive eBook for Newly Diagnosed Children with T1DM: Children’s Role in Design” Damyanka Tsvyatкова, Cristiano Storni - University of Limerick, Limerick, Ireland</p>
17.00	Transfer to ENG
17.30-20.30	POSTER, MEDICAL PERSPECTIVE and DEMO SESSION* in Vedat Yerlici Conference Hall, located at the roof of Perkins Hall (The Faculty of Engineering)
	WELCOME RECEPTION at the roof of Perkins Hall (The Faculty of Engineering)



Friday May 22nd 2015

08.30-09.30	Registration
09.30-10.30	Keynote: Paul Lukowicz , DFKI and Kaiserslautern University of Technology in Germany, introduced by Oscar Mayora
10.30-11.00	Session 3 – Session Chair Gabriela Marcu
	<p>“Lost in persuasion A multidisciplinary approach for developing usable, effective, and reproducible persuasive technology for health promotion” Olivier A. Blanson Henkemans - TNO, Leiden, the Netherlands, Geerte L. Paradies, Mark A. Neerincx, Rosemarijn Looije - TNO Soesterberg, The Netherlands, Pepijn Van Empelen – TNO, Leiden, the Netherlands</p>
11.00-11.30	<i>Coffee Break</i>
11.30-13.00	Session 4 – Session Chair Nadia Berthouze
	<p>“Using Degraded Music Quality to Encourage a Health Improving Walking Pace: <i>BeatClearWalker</i>” Mark Dunlop, Andreas Komninos, David Rowe, Alan Hewitt, Steven Coull - University of Strathclyde, Glasgow, UK</p> <p>“Multi-sensor Exercise-based Interactive Games for Fall Prevention and Rehabilitation” António Santos, Vânia Guimarães, Nuno Matos, João Cevada, Carlos Ferreira, Inês Sousa - Fraunhofer Portugal AICOS, Portugal</p> <p>“A blended user centred design study for wearable haptic gait rehabilitation following hemiparetic stroke” Theodoros Georgiou, Simon Holland, Janet van der Linden - The Open University Milton Keynes, UK, Josie Tetley, Rachel Stockley, Glenis Donaldson, Linda Garbutt, Ornella Pinzone - Manchester Metropolitan University, UK, Fanny Grasselly, Kevin Deleaye - The Open University Milton Keynes, UK</p> <p>“Input Methods for the Borg-RPE-Scale on Smartwatches” Janko Timmermann, Wilko Heuten – OFFIS, Oldenburg, Germany, Susanne Boll - University of Oldenburg, Germany</p>
13.00-14.30	<i>Lunch</i>
14.30-16.00	Session 5 – Session Chair Anind Dey
	<p>“iSenseStress: Assessing stress through human-smartphone interaction analysis” Matteo Ciman – University of Padua, Italy, Katarzyna Wac - University of Geneva Switzerland and University of Copenhagen, Denmark, Ombretta Gaggi – University of Padua, Italy</p> <p>“Towards Using Physiological Signals as Cryptographic Keys in Body Area Networks” Duygu Karaođlan Altop, Albert Levi - Sabancı University, Istanbul, Turkey and Volkan Tuzcu - Istanbul Medipol University, Istanbul, Turkey</p> <p>“MedLink: A Mobile Intervention to Address Failure Points in the Treatment of Depression in General Medicine” David Mohr, Enid Montague, Colleen Stiles-Shields, Susan Kaiser, Christopher Brenner, Eric Carty-Fickes, Hannah Palac - Northwestern University Chicago, USA, Jenna Duffecy - University of Illinois at Chicago, USA</p> <p>“Unintrusive Eating Recognition using Google Glass” Shah Atiqur Rahman, Christopher Merck, Yuxiao Huang, Samantha Kleinberg, Stevens Institute of Technology, Hoboken, USA</p>
16.00-16.30	<i>Coffee Break</i>



16.30-18.00	Session 6 – Session Chair Katarzyna Wac
	<p>“CARE - Extending a Digital Picture Frame with a Recommender Mode to Enhance Well-Being of Elderly People” Thomas Rist - University of Applied Sciences Augsburg, Germany, Andreas Seiderer, Stephan Hammer - Augsburg University, Germany, Marcus Mayr - University of Applied Sciences Augsburg, Germany, Elisabeth Andre - Augsburg University, Germany</p> <p>“Limited but satisfied: Low SES older adults experiences of aging in place” Ginger White, Taruna Singh - Indiana University, USA, Kelly Caine - Clemson University, USA , Kay Connelly - Indiana University, USA</p> <p>“Older Adults’ Attitudes to Self-Management of Health and Wellness through Smart Home Data” Julie Doyle , Niamh Caprani - Dundalk Institute of Technology, Dundalk, Ireland</p> <p>“Design of novel screening environments for Mild Cognitive Impairment: giving priority to elicited speech and language abilities” Sofia Segkouli - Centre for Research and Technology Hellas-CERTH Thessaloniki, Greece and University of Thessaly, Volos, Greece , Ioannis Paliokas, Dimitrios Tzovaras, Dimitrios Giakoumis - Centre for Research and Technology Hellas-CERTH, Thessaloniki, Greece, Charalampos Karagiannidis - University of Thessaly, Volos, Greece</p>
18.00	Transfer to Boat and BOAT GALA DINNER

Saturday, May 23 2015

09.00-.09.30	Registration
09.30-11.00	Session 7 – Session Chair Katie Siek
	<p>“ProxyCare: Integrating Informal Care Into Formal Settings” Florian Güldenpfnigg, Francisco Nunes, Geraldine Fitzpatrick - Vienna University of Technology, Austria</p> <p>“Designing Collaborative Healthcare Technology for the Acute Care Workflow” Michael J. Gonzales, Vanice C. Cheung , Laurel D. Riek - University of Notre Dame, USA</p> <p>“Sleep Monitoring Tools at Home and in the Hospital: Bridging Quantified Self and Clinical Sleep Research” Bert Vandenberghe , David Geerts - CUO Social Spaces iMinds – KU Leuven, Belgium</p> <p>“Roles for Personal Informatics in Chronic Pain” Sergio Felipe, Caroline Bradley, Aneesha Singh, Amanda Williams, Nadia Bianchi-Berthouze</p>
11.00-11.30	<i>Coffee Break</i>
11.30-14.00	Session 8 – Session Chair Özlem Durmaz Incel
	<p>“ BioWatch: Estimation of Heart and Breathing Rates from Wrist Motions” Javier Hernandez, Daniel McDuff , Rosalind Picard - Massachusetts Institute of Technology Cambridge, USA</p>



	<p>“Inductive Power Transfer for On-body Sensors. Defining a design space for safe, wirelessly powered on-body health sensors” Paul Worgan, Lindsay Clare, Bernard H. Stark, Plamen Proynov , David Coyle - University of Bristol, United Kingdom</p> <p>“A Fault-Tolerant Hardware Architecture for Robust Wearable Heart Rate Monitoring” Qinkun Li, Homa Alemzadeh, Zbigniew Kalbarczyk , Ravishankar K. Lyer - University of Illinois at Urbana-Champaign, Urbana, USA</p> <p>“MuscleMemory: Identifying the Scope of Wearable Technology in High Intensity Exercise Communities” Kim Oakes, Katie Siek , Haley MacLeod - Indiana University, Bloomington, USA</p> <p>“REHAP Balance Tiles: a modular system supporting balance rehabilitation” Victor Donker, Panos Markopoulos - University of Technology Eindhoven, The Netherlands , Bert Bongers - University of Technology Sydney, Australia</p>
14.00	<i>Goodbye Lunch</i>



* POSTER, MEDICAL PERSPECTIVE, and DEMO SESSION

Venue: Vedat Yerlici Conference Hall, located at the roof of Perkins Hall
(The Faculty of Engineering)

Thursday May 21 2015

17.30-20.30

POSTERS

“Promoting Active Aging with a paper-based SNS application“

Raymundo Cornejo - Northwestern University, USA, Nadir Weibel , Jesus Favela - University of California, USA ,
Monica Tentori - Computer Science, CICESE, México

“Eyes on the Clinic: Accelerating Meaningful Interface Analysis through Unobtrusive Eye Tracking”

Steven Rick - University of California San Diego, USA and VA San Diego Healthcare System, USA, Alan Calvitti - VA
San Diego Healthcare System, USA, Zia Agha - University of California San Diego, USA and West Health Institute, La
Jolla , Nadir Weibel - University of California San Diego, USA and VA San Diego Healthcare System, USA

“Tracking rehabilitative progress with Fitts and starts Performance measures in a tablet game for hemi-spatial neglect patients.”

Hendrik Knoche, Kasper Hald, Danny Tamsen , Lars Holm Jespersen - Aalborg University (AAU), Denmark

“Communicating and Interpreting Wearable Sensor Data with Health Coaches”

Kimiko Ryokai - University of California, Berkeley, USA, Florian Michahelles , Mareike Kritzler - Siemens Corporation,
Berkeley, USA, Suhaib Syed - University of California, Berkeley, USA

“Smartphone app usage as a predictor of perceived stress levels at workplace“

Raihana Ferdous, Venet Osmani , Oscar Mayora – CREATE-NET, Trento, Italy

“The Relationship between Clinical, Momentary, and Sensor-based Assessment of Depression“

Sohrob Saeb - CBITs, Northwestern University USA, Mi Zhang - Michigan State University, USA, Mary M. Kwasny,
Christopher J. Karr - CBITs, Northwestern University, USA, Konrad P. Kording - Northwestern University, USA , David
C. Mohr - CBITs, Northwestern University, USA

“Interactive proof-of-concept dashboard to explore patient follow-up in general practice “

Robin De Croon, Joris Klerkx , Erik Duval - KU Leuven, Belgium

“Nekoze! Monitoring and Detecting Head Posture while Working with Laptop and Mobile Phone“

Katsuma Tanaka, Shoya Ishimaru, Koichi Kise - Osaka Prefecture University, Japan, Kai Kunze, Masahiko Inami
Graduate School of Media Design, Keio University, Yokohama, Japan



“One Step Forward, Two Steps Back: The Key to Wearables in the Field is the App“

Bliss Altenhoff, Haley Vaigneur , Kelly Caine - School of Computing, Clemson University, USA

“Supporting Situation Awareness of Dementia Patients in Outdoor Environments“

Philipp Koldrack - German Center for Neurodegenerative Diseases (DZNE), Rostock, Germany, Ron Henkel, Frank Krüger - University of Rostock, Rostock, Germany, Stefan Teipel - German Center for Neurodegenerative Diseases (DZNE), Rostock and University of Rostock, Rostock, Germany ,Thomas Kirste - University of Rostock, Rostock, Germany

“Children’s Rehabilitation with Humanoid Robots and Wearable Inertial Measurement Units“

Arzu Güneysu , Bert Arnrich - Bogazici University,Istanbul, Turkey

“Clinical Feedback and Technology Selection of Game Based Dysphonic Rehabilitation Tool“

Zhihan Lvlv , Chantal Esteve Pablo Gagliardo - FIVAN, Valencia, Spain

“Designing mHealth intervention for Women in Menopausal Period“

Mirim Lee, Bon-chang Koo, Hee-seok Jeong , Joongsing Park, Juhee Cho, Jundong Cho - Sungkyunkwan University, Suwon, Korea

“Data fusion for automated pain recognition“

Steffen Walter, Sascha Gruss, Harald Traue, Markus Kächele, Friedhelm Schwenker - University of Ulm, Germany, Philipp Werner, Ayoub Al-Hamadi - University of Magdeburg, Germany , Adriano Andrade, Gustavo Moreira - Federal University of Uberlândia, Brasil

MEDICAL PERSPECTIVE

“Patient facing technologies to improve patient/family engagement in inpatient and outpatient settings“

Onur Asan, Medical College of Wisconsin, USA

DEMOS

“A Novel Framework for Supervised Mobile Assessment and Risk Triage of Skin Lesions“

Luís Rosado, Maria João M. Vasconcelos, Fernando Correia, and Nuno Costa - Fraunhofer Portugal AICOS, Portugal
Presented by Fernando Correia - Fraunhofer Portugal AICOS, Portugal

“A Smart Health Device to Measure Waist Circumference“

Jochen Meyer - OFFIS, Oldenburg, Germany, and Timo Schoormann, Daniel Wegmann, and Ahmad Albuhasi - Carl von Ossietzky University, Oldenburg, Germany
Presented by Jochen Meyer - OFFIS, Oldenburg, Germany

“Hybrid Patient Record – Supporting Hybrid Interaction in Clinical Wards“

Steven Houben - University College London, England, and Mathias Schmidt, Mads Frost, and Jakob E. Bardram - IT University of Copenhagen, Denmark
Presented by Mads Frost – IT-University of Copenhagen, Denmark



VENUE

The conference venue is the historical South Campus of Bogazici University located at Rumeli Hisarustu. The eight technical sessions including the keynotes take place at the Albert Long Hall (#3 in the map below). Workshops, doctoral colloquium, poster, demos, medical perspectives, and welcome reception take place in the Vedat Yerlici Conference Hall (#14 in the map on last page), located at the roof of Perkins Hall (The Faculty of Engineering).

Once you enter the entrance of Bogazici University south campus, please follow the main road down as shown in the map below. If you want to go to the Vedat Yerlici Conference Hall, after approximately 200 meters turn left and walk another 50 meters. If you want to go to the Albert Long Hall, follow the main road and you will arrive at the large and green main square. Albert Long Hall is one of the older buildings on that square and has a clock.

Transport Alternatives

Metro

Using the subway called **Metro** is the best and fastest way to get to Boğaziçi University. Once you take Metro line M2, you need to change at Levent station to take line M6. The final stop of line M6 is Bogazici University. After the exit the metro station, please go right. The main entrance to the south campus is located 100 meters away.

Taxi

Taking a **taxi** is another fastest way to get to Rumeli Hisarustu. Here are some approximate prices of cost of taking a taxi from some main locations in Istanbul:

- * From Taksim : around 30 TL, 10 euros
- * From Besiktas : around 25 TL, 8 euros
- * From 4.Levent : around 20 TL, 7 euros
- * From Ataturk Airport : around 80 TL, 25 euros
- * From Sabiha Gokcen Airport : not recommended!

Buses

You will need a ticket before you get on the bus, since tickets are not sold by the drivers. At the airport, at Taksim Square or in many other places look for shops that have a sign "Akbil" or "Istanbul Card". Those places should sell (electronic) tickets that are valid for one trip (4 TL), two (7 TL), three (10 TL), five (15 TL) or ten (30 TL). The more trips you buy, the cheaper it gets. The ticket is validated by holding it against the little box next to the driver, the one that you pass by as you enter the bus. Buses may only be entered through the front door.

Convenient buses to Bogazici University:

- * 43R From Kabatas / Besiktas - Rumeli Hisarustu
- * 559C From Taksim - Rumeli Hisarustu
- * 59R From Sisli - Rumeli Hisarustu
- * 59RS From Sariyer - Rumeli Hisarustu
- * 125 From Kadikoy - Rumeli Hisarustu

The routes and timetables can be found on <http://www.iETT.gov.tr/en>

The stop you need to get off at is called "Bogazici Universitesi". Many, though not all, buses announce the stops, but since you can't rely on it, look outside on your journey and check the names on the actual bus stops. The last three before "Bogazici Universitesi" are "Basin Sitesi", "Cengiz Topel", "Nispetiye", and then "Bogazici Universitesi". The main entrance is located just across the bus stop.



9th International Conference on
Pervasive Computing Technologies for Healthcare

PervasiveHealth

May 20-23 **2015**

Istanbul, Turkey

GENERAL INFORMATION

WiFi: eduroam network is available throughout campus. If you do not have an eduroam account, please consult the registration desk.

Registration desk opening times: 8:30am – 5pm

Lunch: Lunch is included in the registration fee. On 20th May, lunch will be served at Vedat Yerlici Conference Hall Lounge. On 21 – 23th May, it will be served at the garden in front of Albert Long Hall.

Instructions for oral presentations: We have two types of oral presentations:

- Long presentations: 25 minutes including discussion
- Short presentations: 15 minutes including discussion

All presenters need to verify that their presentation equipment works properly by contacting their session chair during the break preceding the session.

Instructions for poster presentations: Authors will have available a poster board of size 135 cm (width) x 115 cm (height).



BOĞAZIÇI UNIVERSITY
CAMPUS MAPS



From gate to main square

South Campus

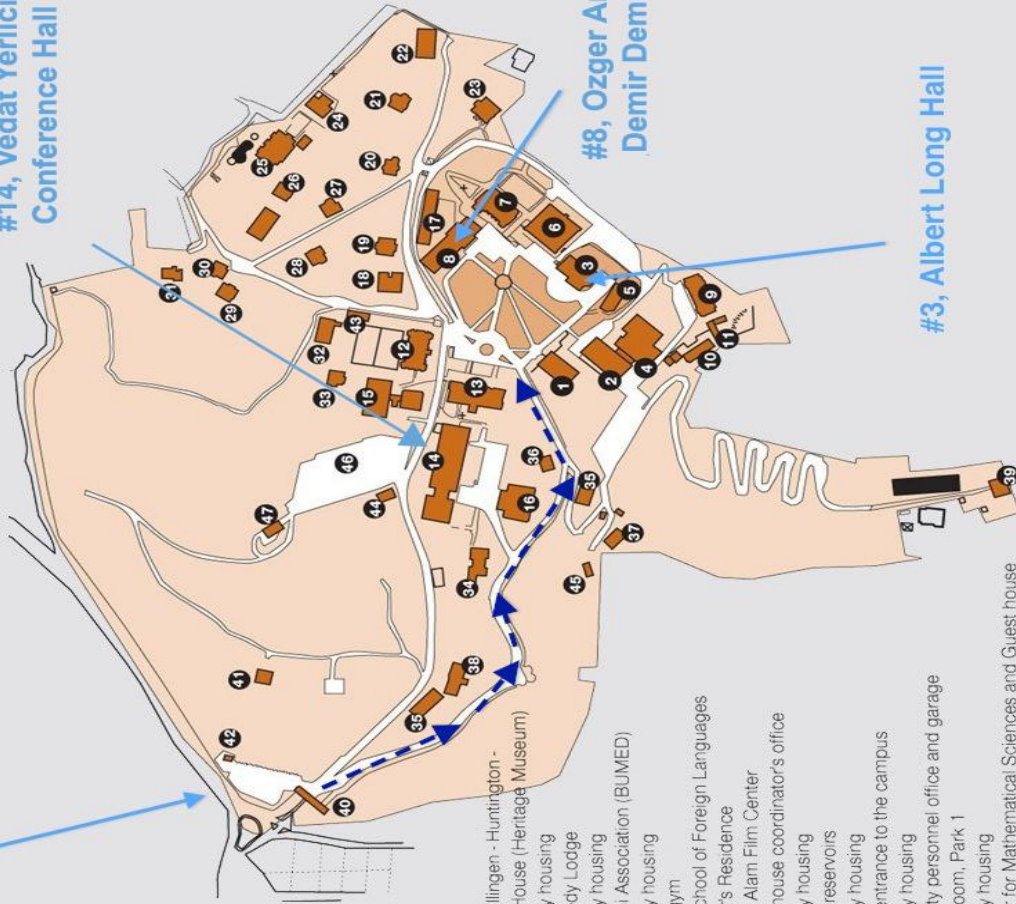
- 1- The Rectorate
- 2- Gates Hall (General Administration Building)
- 3- Albert Long Hall (Cultural Center)
- 4- Natak Birkan Building (the Department of Economics and the Department of Turkish Language and Literature)
- 5- Graduate Institute in Social Sciences and Bank branch
- 6- Hamlin Hall (men's dormitory)
- 7- Washburn Hall (The Faculty of Economics and Administrative Sciences)
- 8- Dodge Gymnasium and Henrietta Washburn Hall (Student Activities Building)
- 9- Sloane Hall (The Departments of Psychology and Sociology)
- 10- Hülya Bozkurt Fine Arts Studio
- 11- Greenhouse
- 12- Theodoros Hall (women's dormitory)
- 13- Anderson Hall (The Faculty of Arts and Sciences)
- 14- Perkins Hall (The Faculty of Engineering)
- 15- The School of Foreign Languages
- 16- Computer Center
- 17- infirmary
- 18- Daycare Center

Bus stop

**#14, Vedat Yerlici
Conference Hall**

**#8, Ozger Arnas
Demir Demirgil**

#3, Albert Long Hall



- 19- Van Millingen - Huntington -
Scott house (Heritage Museum)
- 20/22- Faculty housing
- 23- Kennedy Lodge
- 24- Faculty housing
- 25- Alumni Association (BUMED)
- 26/31- Faculty housing
- 32- Little gym
- 33- The School of Foreign Languages
- 34- Rector's Residence
- 35- Mithat Alam Film Center
- 36- Guesthouse coordinator's office
- 37- Faculty housing
- 38- Water reservoirs
- 39- Faculty housing
- 40- Main entrance to the campus
- 41- Faculty housing
- 42- Security personnel office and garage
- 43- Classroom, Park 1
- 44- Faculty housing
- 45- Center for Mathematical Sciences and Guest house
- 46- South Park
- 47- Classroom, Park 2