Program at a Glance

Monday 3/11

Mon. 1-1:   mhealth and behavioral informatics
Mon. 1-2:   Special session on ubiquitous smart wireless communication technologies for remote healthcare
Mon. 2-1:   Mobile health for the elderly and people with disabilities
Mon. 2-2:   Advances in wearable devices
Mon. 3-1:   Special session on current trends in wearable technologies, body sensor networks and Internet-of-Things enabling pervasive healthcare
Mon. 3-2:   Workshop on advances in personalized healthcare services, wearable mobile monitoring, and social media pervasive technologies
Mon. 4-1:   Advances in portable and wearable devices
Mon. 4-2:   Advances in signal processing and analysis for mobile healthcare
Mon. 5-1:   Satellite event on innovative systems and services
Mon. 5-2:   Decision support algorithms for data analysis

Tuesday 4/11

Tue. 1-1:   Smart environments and mobile applications for healthcare
Tue. 1-2:   Remote health management and ambient assistive technologies
Tue. 2-1:   Workshop on smart wearable and autonomous devices for wound monitoring and therapy
Tue. 2-2:   Workshop on infrastructure and services for remote multi-parametric monitoring, analysis and support
Tue. 3-1:   Sensing and analysis of human motion
Tue. 3-2:   Electromagnetic issues in advanced mobile health care applications
Tue. 4-1:   Satellite event on innovative systems and services
Tue. 4-2:   Special session on RF challenges and opportunities
Tue. 5:   Apps4med Hackathon Awards presentation / IEEE EMB Greece Chapter Best Diploma Thesis Award

Wednesday 5/11

Wed. 1-1:   Body-centric wireless communication technologies
Wed. 1-2:   Special session on current trends in wearable technologies, body sensor networks and Internet-of-Things enabling pervasive healthcare
Wed. 2-1:   Connected Health Workshop
Rapid Fire: Student Paper Competition co-sponsored by IEEE J-BHI
Wed. 3-1:   Energy management and optimisation issues in biomedical devices and networks
Wed. 3-2   Special session on ubiquitous smart wireless communication technologies for remote healthcare

Monday, 3 November 2014

Opening – Awards

Welcome & Opening by Conference Chairs

Honorable award by Mobihealth 2014 Organising Committee to Prof. Maria-Teresa Arredondo Waldmeyer

Honorable award by IEEE EMBS Greece Chapter to Prof. Dimitrios Dionyssios Koutsouris

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Keynote Lecture by A. Lymberis

The Innovation Potential of Miniaturised Smart Systems in Healthcare and Wellbeing: The EC Funding Programs Experience and H2020's Shift Paradigm

Chair: Konstantina S. Nikita

Session Mon. 1-1: mhealth and behavioral informatics
Chairs: Nikos Maglaveras, Venet Osmani

Tidal volume variability and respiration rate estimation using a wearable accelerometer sensor
Atena Roshan Fekr, Katarzyna Radecka, Zeljko Zilic
Department of Electrical and Computer Engineering, McGill University, Canada

Preventing obesity and eating disorders through behavioural modifications: the SPLENDID vision
Christos Maramis[1], Christos Diou[2], Ioannis Ioakeimidis[3], Irini Lekka[1], Gabriela Dudnik[4], Monica Mars[5], Nikos Maglaveras[1], Cecilia Berghk[6], Anastasios Delopoulos[2]
[1] Department of Medicine, Aristotle University of Thessaloniki, Greece
[2] Department of Electrical and Computer Engineering, Aristotle University of Thessaloniki, Greece
[3] Division for Applied Neuroendocrinology, Karolinska Institutet, Sweden
[4] Electronics & Firmware (Systems Division), CSEM S.A, Switzerland
[5] Division of Human Nutrition, Wageningen University, The Netherlands
[6] kMando Group AB, Sweden

A method for estimating hunger degree based on meal and exercise logs
Isamu Sugita, Morihiko Tamai, Yutaka Arakawa, Keiichi Yasumoto
Graduate School of Information Science, Nara Institute of Science and Technology, Japan

Using wearable technology for psychophysiological experiments. Gender roles and cognitive appraisal impact cardiac response to socio-evaluative stress
Eric Mayor, Liudmila Gamaiunova
Institute of Work and Organizational Psychology, University of Neuchâtel, Switzerland

Leveraging medication safety through mobile computing: decision support and guidance services for adverse drug event prevention
Vassilis Koutkias, Vassilis Kilintzis, Nikolaos Beredimas, Nicos Maglaveras
Laboratory of Medical Informatics, Medical School, Aristotle University of Thessaloniki, Greece

Persuasive technology for healthy aging and wellbeing
Emmnouil G. Spanakis[1], Silvina Santana[2], Boaz Ben-David[3], Kostas Marias[1], Chariklia Tziraki-Segal[4]
[1] Institute of Computer Science (ICS), Foundation for Research and Technology (FORTH), Greece
[2] Institute of Electronics Engineering, and Telematics of Aveiro (IEETA), University of Aveiro, Portugal
[3] Communication Aging and Neuropsychology Lab, School of Psychology, Israel
[4] Association of Community Elders' Clubs, MELABEV, Israel

Session Mon. 1-2: Special session on ubiquitous smart wireless communication technologies for remote healthcare
Chairs: Qammer H. Abbasi, Muhammad Zeeshan Shakir

Multi-objective computation offloading for mobile biosensors via LTE
Pascal Libuschewski[1], Dennis Kaulbars[2], Bjorn Dusza[2], Dominic Siedhoff[3], Frank Weichert[3], Heinrich Muller[3], Christian Wietfeld[2], Peter Marwedel[1]

[1] Department of Computer Science XII, TU Dortmund University, Germany
[2] Communication Networks Institute, TU Dortmund University, Germany
[3] Department of Computer Science VII, TU Dortmund University, Germany

Prediction of time series using ARMA models in an energy-efficient body area network

Karel Heurtefeux[1], Nasreen Mohsin[1], Hamid Menouar[1], Najah AbuAli[2]
[1] Qatar Mobility Innovations Center Doha, Qatar
[2] College of Information Technology, UAE University, United Arab Emirates

On the improved MB-OFDM system for wireless personal area networks

Aifeng Ren[1], Zhiwang Yang[1], Xiaodong Yang[1], Qammer Hussain Abbasi[2], Masood Ur Rehman[3]
[1] School of Electronic Engineering, Xidian University, China
[2] Texas A&M University, Qatar
[3] Centre for Wireless Research, University of Bedfordshire, United Kingdom

On-off body performance of a multiband antenna for wireless health monitoring

Masood Ur Rehman, Shyqyri Haxha
Centre for Wireless Research, University of Bedfordshire, United Kingdom

Chemical sensors integrated with mobile phones for remote medical diagnostics: state-of-the-art and beyond

Amann Anton[1,2], Milt Statheropoulos[3]
[1] Breath Research Institute of the University of Innsbruck, Austria
[2] Univ.-Clinic for Anesthesia, Innsbruck Medical University, Austria
[3] School of Chemical Engineering, National Technical University of Athens, Field Analytical Chemistry and Technology Unit, Greece

Performance of energy expenditure assessment using a chest-worn wireless patch sensor

Nandakumar Selvaraj

Vital Connect Inc., United States

Keynote Lecture by G. Roesems-Kerremans
mHealth, Issues at Stake
Chair: Dimitris Fotiadis

Session Mon. 2-1: Mobile health for the elderly and people with disabilities
Chairs: Stefan Hey, Athanasios Kakarountas

Radio frequency identification (RFID) enhanced indoor navigation framework for seniors

Charalampos Tsirmpas, Athanasios Anastasiou, Alexander Rompas, Dimitris Koutsouris
Biomedical Engineering Laboratory, School of Electrical and Computer Engineering, National Technical University of Athens, Greece

Involving the elderly in the content development of a health enhancing tablet-based service

Reija Kuoremäkia[1], Marita Poskiparta[2], Pekka Neittaanmäki[3]
[1] Agora Center, University of Jyväskylä, Finland
[2] Faculty of Sport and Health Sciences, Health Science, University of Jyväskylä, Finland
[3] Faculty of Information Technology, Computer Science, University of Jyväskylä, Finland

PathPass: opening doors for people with disabilities

Panagiotis Lymperopoulos, Kevin Meade
Mechanical, Material and Aerospace Engineering Department, Illinois Institute of Technology, United States

Disappearing computing for elderly assisted living

Athanasios Kakarountas
Department of Business Administration, TEI of Ionian Islands, Greece

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Session Mon. 2-2: Advances in wearable devices
Chairs: Franco Chiarugi, Nada Philip

Empatica E3 - A wearable wireless multi-sensor device for real-time computerized biofeedback and data acquisition

Maurizio Garbarino[1], Matteo Lai[1], Dan Bender[1], Rosalind W. Picard[2], Simone Tognetti[1]
[1] Empatica Inc., United States and Italy
[2] Massachusetts Institute of Technology, United States

An instrumented shoe for ambulatory prevention of diabetic foot ulceration

Anwar S. Benbakhti, Samir Boukhenous, Cherif Zizoua, Mokhtar Attari
Laboratory of Instrumentation, LINS, Faculty of Electronics and Computers, Algeria

Electrical and mechanical design of a vest measuring a large set of physiological signals

Josias Wacker[1], Olivier Chételat[1], Michaël Rapin[1], Christophe Meier[1], Jacques-André Porchet[1], Y. L. Chang[2], Barbara K. Pierscionek[3], Reem Kayyali[3], Shereen Elnabhani[3], Nada Philip[3]
[1] CSEM, Switzerland
[2] Croydon University Hospital, United Kingdom
[3] Kingston University, United Kingdom

Design and development of low-cost smart training pants (STants)

Sarvenaz Salehi, Gabriele Bleser, Didier Stricker
DFKI GmbH, Germany

Keynote Lecture by R. Kemkers
Innovation Opportunities in Patient Care
Chair: Benny Lo

Session Mon. 3-1: Special session on current trends in wearable technologies, body sensor networks and Internet-of-Things enabling pervasive healthcare
Chairs: Amir-Mohammad Rahmani, Geng Yang

Smart garments for performance and training assessment in sport

Giuseppe Andreoni[1], Paolo Perego[1], Marcello C. Fusca[1], Riccardo Lavezzari[1], Giorgio C. Santambrogio[2]
[1] Design Department, Politecnico di Milano, Italy
[2] DEIB Department, Politecnico di Milano, Italy

Wearable biosignal monitoring system for newborns

Paolo Perego[1], Giuseppe Andreoni[1], Rianldo Zanini[2], Roberto Bellù[2], Alessia Moltani[3]
[1] Design Department, Politecnico di Milano, Italy
[2] AO provincia di Lecco "A. Manzoni", Italy
[3] Comftech srl Monza, Italy

Pervasive health monitoring based on Internet of Things: two case studies

Anurag Anurag[1], Sanaz Rahimi Moosavi[1], Amir-Mohammad Rahmani[1], Tomi Westerlund[1], Geng Yang[2], Pasi Liljeberg[1], Hannu Tenhunen[1]
[1] Department of Information Technology, University of Turku
[2] School of Information and Communication, KTH

Towards energy-efficient healthcare: an Internet-of-Things architecture using intelligent gateways

Jose Granados[1], Amir-Mohammad Rahmani[1], Pekka Nikander[2], Pasi Liljeberg[1], Hannu Tenhunen[1]
[1] Department of Information Technology, University of Turku, Finland
[2] Department of Computer Science and Engineering, Aalto University, Sweden

Confidence: dependencies and their critical role in fostering user acceptance in pervasive applications

Mario Vega-Barbas[1,2], Iván Pau[2], Fenando Seoane[1,3]
[1] School of Technology and Health, KTH, Sweden
[2] School of Telecommunications, Systems and Engineering, UPM, Spain
[3] School of Engineering, University of Borås, Sweden

Supporting heart failure patients through personalized mobile health monitoring

Andreas Triantafyllidis[1], Carmelo Velardo[1], Syed Ahmar Shah[1], Lionel Tarassenko[1], Tracey Chantler[2], Chris Paton[2], Kazem Rahimi[2]
[1] Institute of Biomedical Engineering, Department of Engineering Science, University of Oxford, United Kingdom
[2] George Institute for Global Health, Nuffield Department of Population Health, University of Oxford, United Kingdom

Session Mon. 3-2: Workshop on advances in personalized healthcare services, wearable mobile monitoring, and social media pervasive technologies
Chairs: Emmanouil G. Spanakis, Andrea Corradini

MyHealthAvatar: personalized and empowerment health services through Internet of Things technologies
Emmanouil G. Spanakis[1], Po Yang[2], Zhikun Deng[2], Vangelis Sakkalis[1]
[1] Institute of Computer Science, FORTH, Greece
[2] Department of Computer Science and Technology, University of Bedfordshire, United Kingdom

Contactless detection of facial signs related to stress: a preliminary study
Dimitris Manousos[1], Galateia Iatraki[1], Eirini Christinaki[1], Matthew Pediaditis[1], Franco Chiarugi[1], ManolisTsiknakis[1,2], Kostas Marias[1]
[1] Institute of Computer Science, FORTH, Greece
[2] Department of Informatics Engineering, Technological Educational Institute of Crete, Greece

Comparison of blind source separation algorithms for optical heart rate monitoring
Eirini Christinaki[1], Giorgos Giannakakis[1], Franco Chiarugi[1], Matthew Pediaditis[1], Galateia Iatraki[1], Dimitris Manousos[1], Kostas Marias[1], Manolis Tsiknakis[1,2]
[1] Institute of Computer Science, FORTH, Greece
[2] Department of Informatics Engineering, Technological Educational Institute of Crete, Greece

re:Mind - A mobile application for bipolar disorder patients
Pia Lyck Festersen[1], Andrea Corradini[2]
[1] Copenhagen School of Design and Technology, Denmark
[2] Kolding School of Design, Denmark

Privacy-preserving mobile access to personal health records through Google's android
Vassiliki Koufi, Flora Malamateniou, George Vassilacopoulos
Department of Digital Systems, University of Piraeus, Greece

Tweet analysis for user health monitoring
Ranjitha Kashyap[1], Ani Nahapetian[2]
[1] Rubicon Project Inc., United States
[2] California State University Northridge, UCLA, United States

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Session Mon. 4-1: Advances in portable and wearable devices
Chairs: Thomas R. Pieber, Andreas Raptopoulos

BioGlass: Physiological parameter estimation using a head-mounted wearable device
Javier Hernandez[1], Yin Li[2], James M. Rehg[2], Rosalind W. Picard[1]
[1] Media Lab, Massachusetts Institute of Technology, United States
[2] School of Interactive Computing, Georgia Institute of Technology, United States

Remote management of left ventricular device assisted patients
Giorgos Aristomenopoulos[1], Rossella Fontana[2], Monica Vatteroni[2], Giuseppe Tortora[2]
[1] VELTI S.A., Greece
[2] The BioRobotics Institute, Scuola Superiore Sant'Anna, Italy

Wearable ECG system for health and sports monitoring
Emil Valchinov, Athanasios Antoniou, Konstantinos Rotas, Nicolas Pallikarakis
Biomedical Technology Unit, Department of Medical Physics, University of Patras, Greece

Development of a smartphone-enabled spirometer for personalised respiratory health
Charalampos Michailidis, Ioannis Smanis, Kostas Stamatis, Christos Bergeles, Antonios Kouris
Respi Inc., United States

Session Mon. 4-2: Advances in signal processing and analysis for mobile healthcare
Chairs: Ahmad Rabie, Kostas Marias

A biosensor readout circuit with 3fF resolution and broad configurable range
Konstantina Georgakopoulou[1], Christos Spathis[1], Nikos Petrellis[1,2], Alexios Birbas[1]

[1] Applied Electronics Lab, Electrical and Computer Engineering, University of Patras, Greece
[2] TEI of Thessaly, Greece

A scalar interpolator/compressor for the improvement of sensor linearity

Nikos Petrellis
Department of Computer Science and Engineering, TEI of Thessaly, Greece

Effects of non-uniform quantization on ECG acquired using compressed sensing

Darren Craven, Brian McGinley, Liam Kilmartin, Martin Glavin, Edward Jones
College of Engineering and Informatics, National University of Ireland, Ireland

A new approach to compressing ECG signals with trained overcomplete dictionary

SeungJae Lee, Jun Luan, Pai H. Chou
Center for Embedded Computer Systems, University of California, United States

Session Mon. 5-1: Satellite event on innovative systems and services
Chairs: Maria Teresa Arredondo, Vagelis Antoniadis

HPVGuard: A software platform to support management and prognosis of cervical cancer

Ioannis Tamposis[1], Panagiotis Bountris[2], Abraham Pouliakis[3], Evripidis Iordanidis[1], Leonidas Tzortzis[1], Maria Haritou[2], Petros Karakitsos[3], Dimitrios Koutsouris[2]
[1] OraSys New Technologies S.A., Greece
[2] Biomedical Engineering Laboratory, Institute of Communication and Computer Systems, National Technical University of Athens, Greece
[3] Department of Cytopathology, "ATTIKON" University Hospital, University of Athens, Greece

OraHealthX ImaginX A next generation cost effective medical imaging workflow management platform

Ioannis Tamposis, Evripidis Iordanidis, Leonidas Tzortzis, Stergios Papachatzis
OraSys New Technologies S.A., Greece

The MOBIGUIDE project – guiding patients any time everywhere

Adi Fux
Department of Information Systems, University of Haifa, Israel

The REACTION project – remote accessibility to diabetes management and therapy in operational healthcare networks

Thomas Pieber
University of Graz, Austria

Session Mon. 5-2: Decision support algorithms for data analysis
Chairs: Lei Wang, Konstantinos Perakis

Classification of epileptic and non-epileptic EEG events

Evangelia Pippa[1], Evangelia I. Zacharaki[1], Iosif Mporas[1], Vasiliki Tsirka[2], Mark Richardson[2], Michael Koutroumanidis[2], Vasileios Megalooikonomou[1]
[1] Department of Computer Engineering and Informatics, University of Patras, Greece
[2] Department of Clinical Neurophysiology and Epilepsies, Guy's & St. Thomas' & Evelina Hospital for Children, United Kingdom

Analysis of resting state and task-related fMRI data in small cell lung cancer patients before undertaking PCI

Konstantinos Bromis[1], Irene Karanasiou[1], George Matsopoulos[1], Errikos Ventouras[1], Nikolaos Uzunoglu[1], Eustratios Karavasilis[2], Vasileios Kouloulias[4], Matilda Papathanasiou[4], Andreas Foteineas[4], Theodoros Soldatos[2], Christin Iosif[2], Efstathios Efstathopoulos[4], Nikolaos Kelekis[4], Dimitrios Kelekis[2]
[1] Microwave & Fiber Optics Laboratory, School of Electrical and Computer Engineering, National Technical University of Athens, Greece
[2] Research Centre of Radiology and Imaging, "Evgenidion" General Hospital, Greece
[3] Department of Medical Instrumentation Technology, Technological Educational Institution of Athens, Greece
[4] Division of Radiology-Radiotherapy II, National and Kapodistrian University of Athens, Greece

Automated diagnosis of knee pathology using sensory data

Majid Janidarmian, Katarzyna Radecka, Zeljko Zilic

Department of Electrical and Computer Engineering, McGill University, Canada

Tract-based spatial statistics analysis of diffusion-tensor imaging data in patients with small cell lung cancer

Sofia Benezi[1,2], Eustratios Karavasilis[3], Irene Karanasiou[1], George Matsopoulos[1], Errikos Ventouras[4], Nikolaos Uzunoglu[1], Vasileios Kouloulias[5], Matilda Papathanasio[45], Andreas Foteineas[5], Theodoros Soldatos[3], Christin Iosif[3], Efstathios Efstathopoulos[5], Nikolaos Kelekis[5], Dimitrios Kelekis[3]

[1] Microwave & Fiber Optics Laboratory, School of Electrical and Computer Engineering, National Technical University of Athens, Greece
[2] School of Medicine, University of Patras, Greece
[3] Research Centre of Radiology and Imaging, "Evgenidion" General Hospital, Greece
[4] Department of Medical Instrumentation Technology, Technological Educational Institution of Athens, Greece
[5] Division of Radiology-Radiotherapy II, National and Kapodistrian University of Athens, Greece

Bayesian networks to support the management of patients with ASCUS/LSIL pap tests

Panagiotis Bountris[1], Charalampos Tsirmpas[1], Maria Haritou[2], Abraham Pouliakis[3], Petros Karakitsos[3], Dimitrios Koutsouris[1]

[1] Biomedical Engineering Laboratory, School of Electrical and Computer Engineering, National Technical University of Athens, Greece
[2] Institute of Communication and Computer Systems, National Technical University of Athens, Greece
[3] Department of Cytopathology, "ATTIKON" University Hospital, University of Athens, Athens, Greece

MARK1 - A decision support system for the early detection of malignant melanoma

Konstantinos Perakis[1], Thanassis Bouras[1], Spiros Kostopoulos[2], Konstantinos Sidiropoulos[2], Lior Wayn[3], Hagit Timor[3]

[1] UBITECH Research Department, UBITECH Ltd., Greece
[2] Medical Image and Signal Processing Laboratory, Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece
[3] Emerald Medical Applications, EMERALD, Israel

Evaluation of muscle thickness of medial gastrocnemius and ankle joint angle during walking in situ among hemiplegic patients

Qingna Zhang[1,2], Sheng Zhong[3], Tao Chen[1,2], Kamen Ivanov[1], Huihui Li[1], Wanzhang Yang[4], Yun Xiang[4], Zhongfu Ye[2], Xin Chen[3], Yongjin Zhou[3], Lei Wang[1]

[1] Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China
[2] University of Science and Technology of China, China
[3] Shenzhen University and Interdisciplinary Division of Biomedical Engineering, China
[4] Nanshan Hospital, China

Tuesday, 4 November 2014

Keynote Lecture by G. Lazzi
Advances and Challenges in Bioelectromagnetics for Implantable Devices and Neurostimulation: Current and Future Applications
Chair: Nikolaos Bourbakis

Session Tue. 1-1: Smart environments and mobile applications for healthcare
Chairs: Ilias Maglogiannis, Efthymios Kallos

Development of a smart environment for diabetes data analysis and new knowledge mining

Eleni I. Georga[1], Vasilios C. Protopappas[1], Christos V. Bellos[1], Vassiliki T. Potsika[1], Eleni Arvaniti[2], Dimitrios Makriyiannis[2], Dimitrios I. Fotiadis[1]

[1] Unit of Medical Technology and Intelligent Information Systems, Department of Materials Science and Engineering, University of Ioannina, Greece
[2] Department of Endocrinology, Hatzikosta General Hospital, Greece

Correlation of significant places with self-reported state of bipolar disorder patients

Matthia Sabatelli[1], Venet Osmani[1], Agnes Gruenerbl[2], Paul Lukowicz[2], Oscar Mayora[1]

[1] CREATE-NET, Italy
[2] Embedded Intelligence, DFKI Kaiserslautern, Germany

A novel ultrasound imaging mobile connectivity app
George Ku[1], Jared Livingston[2], Jeffrey Blankenburg[3]
[1] Siemens Medical Solutions Inc., United States
[2] IdentityMine, United States
[3] Microsoft Corporation, United States

Mobile reminder system for furthering patient adherence utilizing commodity smart watch and android devices
Ilias Maglogiannis[1], Christos Panagopoulos[2], George Spyroglou[2], Panayiotis Tsanakas[2]
[1] Department of Digital Systems, University of Piraeus, Greece
[2] School of Electrical and Computer Engineering, National Technical University of Athens, Greece

Development, integration and operation of mobile, android-based medical devices in hospitals: experiences from the GlucoTab® system
Stephan Spat[1], Kevin Theuermann[1], Bernhard Höll[1], Peter Beck[1], Thomas R. Pieber[1,2]
[1] HEALTH - Institute for Biomedicine and Health Sciences, JOANNEUM RESEARCH Forschungsgesellschaft mbH, Austria
[2] Division of Endocrinology and Metabolism, Department of Internal Medicine, Medical University of Graz, Austria

Using FHIR to develop a healthcare mobile application
Georgios C. Lamprinakos[1], Aziz S. Mousas[1], Andreas, P. Kapsalis[1], Dimitra I. Kaklamani[1], Iakovos S. Venieris[1], Anastasis D. Boufis[2], Panagiotis D. Karmiris[2], Spyros, G. Mantzouratos[2]
[1] School of Electrical and Computer Engineering, National Technical University of Athens, Greece
[2] School of Applied Mathematical and Physical Sciences, National Technical University of Athens, Greece

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Session Tue. 1-2: Remote health management and ambient assistive technologies
Chairs: Efthyvoulos Kyriacou, Lubomir Gradinarsky

Cancer support and advice (CANadvice) m-health system for home monitoring and symptom management of patients receiving oral chemotherapy treatment
Drishty Sobnath, Nada Philip, Reem Kayyali, Shereen Nabhani-Gebara
Faculty of Science, Engineering and Computing, Kingston University, United Kingdom

Real-time indoor patient movement pattern telemonitoring with one-meter precision
Po-Chou Liang, Paul Krause
Department of Computing, University of Surrey, United Kingdom

Inhalation adherence monitoring using smart electronic add-on device
Lubomir Gradinarsky, Thomas Lööf
Pharmaceutical development, AstraZeneca R&D, Sweden

EpiCare – A home care platform based on mobile cloud computing to assist epilepsy diagnosis
Daniel Callegari[1], Endrigo Conte[1], Tiago Ferreto[1], Dênis Fernandes[1], Filipe Moraes[1], Fernando Burmeister[2], Rômulo Severino[3]
[1] School of Informatics, PUCRS, Brazil
[2] Dell Computers, Brazil
[3] InsCer - Brain Institute, São Lucas Hospital, Brazil

Prehospital health care management platform
Efthyvoulos Kyriacou[1], Synesios Christou[1], George Hadjichristofi[1], Riana Constantinou[2], Andreas Panayides[3], Constantinos Pattichis[4]
[1] Department of Computer Science and Engineering, Frederick University, Cyprus
[2] Ambulance Services Department, Ministry of Health, Cyprus,
[3] Department of Electrical and Electronics Engineering, Imperial College, United Kingdom
[4] Department of Computer Science University of Cyprus, Cyprus

JUBITO: An intuitive user interface on the jaNET framework, a open source platform for wellness based on RFid
Yiannis Ambeliotis, Kostas Giokas, Dimitris Koutsouris
Biomedical Engineering Laboratory, Institute of Communication and Computer Systems, National Technical University of Athens, Greece

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Session Tue. 2-1: Workshop on smart wearable and autonomous devices for wound monitoring and therapy

Chairs: Dimitrios Soudris, Marco Romanelli

Combining pervasive technologies and cloud computing for COPD and comorbidities management

I Chouvarda[1], V Kilintzis[1], K Haris[1], V Kaimakamis[1], E Perantoni[1], N Maglaveras[1], N Philip[2], L Mendes[3], C Lúcio[3], P de Carvalho[3], RP Paiva[3], O Chetelat[4], J Wacker[4], M Rapin[4], C Meier[4], J-A Porchet[4], S D'Arcy[5], I Frerichs[6], Andreas Raptopoulos[7]

[1] Lab of Medical Informatics, Aristotle University, Greece
[2] Medical Information and Network Technologies research Centre, Faculty of Science, Engineering and Computing, Kingston University, United Kingdom
[3] Centre for Informatics and Systems, University of Coimbra, Portugal
[4] Centre Suisse d'Electronique et de Microtechnique, Switzerland
[5] Clinical Research Centre, Royal college of Surgeons in Ireland, Ireland
[6] Dept. Anaesthesiology and Intensive Care Medicine, University Medical Centre Schleswig-Holstein, Germany
[7] EXUS, Greece

SWAN-iCare project: Towards smart wearable and autonomous negative pressure device for wound monitoring and therapy

Isabelle Texier[1], Sotirios Xydis[8], Dimitrios Soudris[8], Pierre Marcoux[1], Pascale Pham[1], Marie Muller[2],Marc Correvon[3], Gabriela Dudnik[3], Guy Voirin[3], Jan Kristenssen[4], Massimo Laurenza[5,7],Andreas Raptopoulos[6], Carl Saxby[9], Thierry Navarro[10], Fabio di Francesco[11], Pietro Salvo[11], Marco Romanelli[12], Leonidas Lymperopoulos[6]

[1] CEA Leti, MINATEC Campus, France
[2] Clinique d'Endocrinologie Diabetologie, Ple DigiDune, France
[3] Centre Suisse d'Electronique et de Microtechnique, Switzerland
[4] European Wound Management Association, Denmark
[5] Euroresearch, Italy
[6] EXUS, Greece
[7] Haemopharm Biofluids, Italy
[8] National Technical University of Athens / ICCS, School of Electrical and Computer Engineering, Greece
[9] Smith and Nephew Wound Management, United Kingdom
[10] Swissinnov, Switzerland
[11] University of Pisa, Dipartimento di Chimica e Chimica Industriale, Italy
[12] University of Pisa, Wound healing research unit, Clinica Dermatologica, Italy

Design of a RESTful middleware to enable web of medical things

Nada Philip[1], Ioanna Chouvarda[2], Andreas Raptopoulos[3], Drishty Sobnath[1], Pantelis Natsiavas[2], Nicos Maglaveras[2], Vassilis Kilintis[2], Talal Butt[1]

[1] Digital Media for Health Research group, MINT center, Faculty of Science, Engineering and Computing, Kingston University, United Kingdom
[2] Lab of Medical Informatics, Aristotle University, Greece
[3] Exus, Greece

WELCOME project: What do Stakeholders want? In depth analysis of COPD patients, carers, and healthcare professional views

Shereen Nabhani-Gebara, Reem Kayyali

School of Pharmacy and Chemistry, Digital Media for Healthcare Group, Medical Information and Network Technology (MINT) Research Centre, Kingston University, United Kingdom

A HW/SW framework emulating wearable devices for remote wound monitoring and management

Vasileios Tsoutsouras, Sotirios Xydis, Dimitrios Soudris

Institute of Communication and Computer Systems, Greece

Patient expectations "vis-`a-vis" an innovative remote therapeutic device: Case of chronic wounds in diabetic patients

Marie Muller[1], Alison M. Foote[1], P-Y Benhamou[1], Sandra David-Tchouda[1], Sotirios Xydis[2]

[1] Grenoble University Hospital, France
[2] Institute of Communication and Computer Systems, Greece

Session Tue. 2-2: Workshop on infrastructure and services for remote multi-parametric monitoring, analysis and support
Chairs: Nikolaos S. Voros, Elena Turco

Mobile monitoring of epileptic patients using a reconfigurable cyberphysical system that handles multi-parametric data acquisition and analysis

André Bideaux[1], Panagiota Anastasopoulou[1], Stefan Hey[1], Adrián Cañadas[2], Albeto Fernandez[2]
[1] Institute for Information Processing Technology, Karlsruhe Institute of Technology, Germany
[2] Sensing and Control (S&C), Spain

Personalized and adaptable mHealth architecture

Abbas Siddiqui, Oliver Koch, Ahmad Rabie, Uwe Handmann
Department of Computer Science, University of Applied Sciences Ruhr West, Germany

Human-robot interaction strategies for unobtrusively acquiring health-related data

Maria Dagioglou[1], Stasinos Konstantopoulos[1], A. Seza Dogruoz[2], Franziska Kirstein[3]
[1] Institute of Informatics and Telecommunications, NCSR 'Demokritos', Greece
[2] Netherlands Institute for Advanced Studies Wassenaar, Netherlands
[3] University of Southern Denmark Odense, Denmark

Experimental evaluation of bluetooth real time capabilities in communication intensive applications

Christos Antonopoulos, Konstantinos Antonopoulos, Christos Petropoulos, Nikolaos S. Voros
Technological Educational Institute of Western Greece, Greece

A framework for heterogeneous home monitoring WSN networks

Christos P. Antonopoulos[1], Gerasimos Touliatos[1], Christos Panagiotou[1,2], Theodoros Panagiotakopoulos[2], Stavros Koubias[1], Achilles Kameas[2], Nikolaos S. Voros[3]
[1] Applied Electronics Laboratory, University of Patras, Greece
[2] e-CoMeT Lab, Hellenic Open University, Greece
[3] Computer and Informatics Engineering Department, Technological Educational Institute of Western Greece, Greece

Supporting medical research on chronic diseases using integrated health monitoring platform

Artur Krukowski[1], Marios Charalambides[1], Michalis Chouchoulis[1], Emmanouela Vogiatzaki[2]
[1] Intracom S. A. Telecom Solutions, Greece
[2] Research and Development Unit, Research for Science Art and Technology (RFSAT) Ltd, United Kingdom

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Satellite Event Keynote Lecture by M. D. Wang
Biomedical Big Data Analytics for Patient-Centric and Outcome-Driven Health Care
Chair: Maria-Teresa Arredondo Waldmeyer

Session Tue. 3-1: Sensing and analysis of human motion
Chairs: Costas N. Georghiades, Alessandro Tognetti

Towards an intelligent robotic walker for assisted living using multimodal sensorial data

Georgia G. Chalvatzaki, Georgios Pavlakos, Kevis Maninis, Xanthi S. Papageorgiou, Vassilis Pitsikalis, Costas S. Tzafestas, Petros Maragos
School of Electrical and Computer Engineering, National Technical University of Athens, Greece

Development of tests to evaluate the sensory abilities of children with autism spectrum disorder using touch and force sensors

Martin Riederer[1], Christian Schoenauer[1], Elisabeth Soechting[2], Hannes Kaufmann[1], Claus Lamm[2]
[1] Institute of Software Technology and Interactive Systems, Vienna University of Technology, Austria
[2] Department of Basic Psychological Research, University of Vienna, Austria

Using kinect for assessing the state of multiple sclerosis patients

Dimitris Kastaniotis[1], George Economou[1], Spiros Fotopoulos[1], Gerasimos Kartsakalis[2], Panagiotis Papathanasopoulos[2]
[1] Physics Department, University of Patras, Greece
[2] Department of Neurology, Neuropsychology Unit, University of Patras Medical School, Greece

Exploiting hand kinematic synergies and wearable under-sensing for hand functional grasp recognition

Matteo Bianchi[1,3], Nicola Carbonaro[1], Edoardo Battaglia[1], Federico Lorussi[1], Antonio Bicchi[1,3], Danilo De Rossi[1,2], Alessandro Tognetti[1,2]
[1] Research Center E. Piaggio, University of Pisa, Italy
[2] Information Engineering Department, University of Pisa, Italy

[3] Department of Advanced Robotics (ADVR), Istituto Italiano di Tecnologia, Italy

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Session Tue. 3-2: Electromagnetic issues in advanced mobile health care applications
Chairs: Christos P. Antonopoulos, Maria Christopoulou

Wireless micro current stimulation technology improves firework burn healing: clinical applications of WMCS technology

George Lagoumintzis[1], Sotirios G. Sideris[1], Manousos E. Kambouris[1], Constantinos Koutsojannis[2], Hans-Oliver Rennekampff[3], Konstantinos Poulas[1]
[1] Department of Pharmacy, University of Patras, Greece
[2] Department of Physiotherapy, T.E.I. of Western Greece, Greece
[3] Department of Plastic, Hand and Burn Surgery, University Medical Centre, Germany

Wireless therapies: staff and patient safety regarding inhomogeneity of electromagnetic radiation distribution in Physiotherapy units

Constantinos Koutsojannis[1], Andreas Andrikopoulos[1], George Panayiotakis[2]
[1] Department of Physiotherapy, TEI of Western Greece, Greece
[2] Department of Medicine, University of Patras, Greece

Closed-loop system for microwave-induced hyperthermia

María Jesús Cañavate Sánchez, Sumanth Kumar Pavuluri, Theodora Mantso, Mihalis Panagiotidis, George Goussetis
Heriot-Watt University, United Kingdom

E-Field distribution and dosimetry of an anatomical human body model, inside elevator cabin: comparison between five different structures of elevator cabins

Ioanna Karatsi, Stavros Koulouridis
School of Electrical and Computer Engineering, University of Patras, Greece

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Session Tue. 4-1: Satellite event on innovative systems and services
Chairs: Sergio Guillén, Dimitrios-Dionysios Koutsouris

Gamification – an innovative methodology to engage in fitness and health

George Veinoglou
ICON Platforms, Greece

The NEPHRON+ project – a major leap forward in renal care

Leonidas Lymberopoulos
EXUS S.A., Greece

Open data in healthcare provision and research: trends and perspectives

Evika Karamagioli
Medical School, University of Athens, Greece

Session Tue. 4-2: Special session on RF challenges and opportunities
Chairs: William G. Whittow, Erdem Topsakal

Balanced antipodal vivaldi antenna for microwave tomography

Syed Ahsan[1], Bright Yeboah-Akowuah[1], Panagiotis Kosmas[1], Helena Cano García[2], George Palikaras[2], Efthymios Kallos[2]
[1] School of Natural and Mathematical Sciences, King's College London, United Kingdom
[2] MediWise, Medical Wireless Sensing Ltd, United Kingdom

Glucose sensing in saline solutions using V-band waveguides

Helena Cano García[1], Ioannis Papadopoulos-Kelidis[1], Ioannis Sotiriou[1], George Palikaras[1], Efthymios Kallos[1], Panagiotis Kosmas[2], Clive Parini[3]
[1] Medical Wireless Sensing Ltd. London, United Kingdom
[2] King's College London, United Kingdom
[3] Queen Mary University of London, United Kingdom

Propagation along a human body surface in WBAN; remarks of desirable antenna characteristics

Markus Berg, Tommi Tuovinen

Centre for Wireless Communications, Department of Communications Engineering, University of Oulu, Finland

Flexible microwave antenna applicator for chemothermotherapy of the breast
Mustafa Asili, Erin Colebeck, Pu Chen, Utkan Demirci, Nick Younan, Erdem Topsakal

Department of Electrical and Computer, Engineering, Mississippi State University, United States

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Tue. 5: Apps4med Hackathon Awards presentation / IEEE EMB Greece Chapter Best Diploma Thesis Award
Chairs: Metin Akay, Panagiotis Bamidis

Apps4med Hackathon Awards presentation

IEEE EMB Greece Chapter Best Diploma Thesis Award

Wednesday, 5 November 2014

Session Wed. 1-1: Body-centric wireless communication technologies
Chairs: Akram Alomainy, Dirk Manteuffel

Novel wearable antenna systems for high datarate mobile communication in healthcare
Hendrik Rogier, Sam Agneessens, Thijs Castel, Sam Lemey, Frederick Declercq, Peter Vanveerdeghem, Patrick Van Torre, Luigi Vallozzi, Wout Joseph
Department of Information Technology, iMinds/Ghent University, Belgium

An energy-efficient pulse position modulation transmitter for galvanic intrabody communications
MirHojjat Seyedi[1], Zibo Cai[1], Daniel T.H. Lai[1], Francois Rivet[2]
[1] College of Engineering and Science, Victoria University, Australia
[2] University of Bordeaux, IMS Laboratory, France

PDMS-based skin-equivalent phantom for propagation studies in the 58-63 GHz range
Anda Guraliuc, Maxim Zhadobov, Ronan Sauleau
Institute of Electronics and Telecommunications of Rennes (IETR), University of Rennes 1, France

Motion tracking of a human subject in healthcare applications using compact ultra wideband antennas
Richa Bharadwaj[1], Srijittra Swaisaenyakorn[2], Clive Parini[1], John Batchelor[2], Akram Alomainy[1]
[1] Antenna & Electromagnetics Research Group, School of Electronics and Computer Science Engineering, Queen Mary University of London, United Kingdom
[2] School of Engineering and Digital Arts, University of Kent, United Kingdom

Body worn antenna system for health care related on- and off-body communications
Markus Grimm, Dirk Manteuffel
Institute of Electrical and Information Engineering, University of Kiel, Germany

Evaluation of miniature implantable antenna and telemetry link for intracranial pressure monitoring
Konstantinos A. Psathas, Konstantina S. Nikita
Biomedical Simulations and Imaging Laboratory, National Technical University of Athens, Greece

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Session Wed. 1-2: Special session on current trends in wearable technologies, body sensor networks and Internet-of-Things enabling pervasive healthcare
Chairs: Kunal Mankodiya, Fernando Seoane

Body sensor network-based spasticity detection
Berno J.E. Misgeld, Markus Lueken, Saim Kim, Steffen Leonhardt
RWTH Aachen University, Germany

DigiAID: A wearable health platform for automated self-tagging in emergency cases
Abdelmajid Khelil[1], Faisal K. Shaikh[1,2], Adil A. Sheikh[1], Emad Felemban[1], Hattan Bojan[1]
[1] Science & Technology Unit, Umm Al-Qura University, KSA
[2] Mehran University of Engineering and Technology, Pakistan

Environment-aware system for Alzheimer's patients

Ana Barreto[1], Renato Oliveira[1], Artur Cardoso[2], Cândido Duarte[2]
[1] Associação Fraunhofer Portugal Research, Portugal
[2] Department of Electrical and Computer Engineering, University of Porto, Portugal

Wearable Internet of Things: concept, architectural components and promises for person-centered healthcare

Shivayogi Hiremath[1], Geng Yang[2], Kunal Mankodiya[3,4]
[1] Department of Physical Medicine and Rehabilitation, University of Pittsburgh, United States
[2] iPack Vinnova Excellence Center, KTH, Sweden
[3] Department of Electrical, Computer, & Biomedical Engineering, University of Rhode Island, United States
[4] Department of Electrical & Computer Engineering, Carnegie Mellon University, United States

Optimistic medium access control using Gait analysis in body sensor networks

Tiong Hoo Lim[1], Teng Weng[2], Iain Bate[2]
[1] Electrical and Electronic Engineering, Institut Teknologi Brunei, Brunei Darussalam
[2] Department of Computer Science, University of York, United Kingdom

Guideline-based decision support for the mobile patient Incorporating data streams from a body sensor network

Nick L. S. Fung, Valerie M. Jones, Richard G. A. Bults, Hermie J. Hermens
University of Twente, Netherlands

Session Wed. 2-1: Connected Health Workshop

Connected Health Workshop by Applied Research for Connected Health (ARCH)

Rapid Fire: Student Paper Competition co-sponsored by IEEE J-BHI
Chairs: Dimitrios Lymperopoulos, Benny Lo

Rapid Fire Talks by Best-Student-Paper Finalists

Session Wed. 3-1: Energy management and optimisation issues in biomedical devices and networks
Chairs: Andreas Panayides, John S. Baras

Performance analysis of medical video streaming over 4G and beyond small cells for indoor and moving vehicle (ambulance) scenarios

Ikram U. Rehman, Nada Y. Philip
Faculty of Science, Engineering and Computing, Kingston University, United Kingdom

Adaptive real-time HEVC encoding of emergency scenery video

Andreas Panayides[1], Anthony Constantinides[1], Efthyvoulos Kyriacou[2], Marios Pattichis[3], Constantinos Pattichis[4]
[1] Department of Electrical and Electronic Engineering, Imperial College, United Kingdom
[2] Department of Computer Science and Engineering, Frederick University, Cyprus
[3] Department of Electrical and Computer Engineering, University of New Mexico, United States
[4] Department of Computer Science, University of Cyprus, Cyprus

Secure-positioning-protocol-based symmetric cryptography

Qingshui Xue, Fengying Li, Zhenfu Cao
Department of Computer Science and Engineering, Shanghai Jiao Tong University, China

Maximizing output power of a CFPG micro energy-harvester for wearable medical sensors

Mehdi Dadfarnia[1], Kamran Sayrafian[2], Paul Mitcheson[3], John S. Baras[1]
[1] University of Maryland, United States
[2] Information Technology Laboratory, National Institute of Standards & Technology, United States
[3] Department of Electrical and Electronic Engineering, Imperial College, United Kingdom

Hardware accelerated rician denoise algorithm for high performance magnetic resonance imaging

Efstathios Sotiriou-Xanthopoulos, Sotirios Xydis, Kostas Siozios, George Economakos, Dimitrios Soudris
School of Electrical and Computer Engineering, National Technical University of Athens, Greece

Capacity maximization in dynamic spectrum sharing based on optimal access probabilities

Mohamed Elalem
Electrical and Computer Engineering Department, Al-Merghib University, Libya

Session Wed. 3-2: Special session on ubiquitous smart wireless communication technologies for remote healthcare
Chairs: Qammer H. Abbasi, Muhammad Zeeshan Shakir

Hybrid data management system for mHealth
Mervat Abu-Elkheir[1], Najah Abu Ali[2], Karel Heurtefeux[3], Hamid Menouar[3]
[1] Faculty of Computer and Information Sciences, Mansoura University, Egypt
[2] Faculty of Information Technology, UAE University, United Arab Emirates
[3] Qatar Mobility Innovations Center Doha, Qatar

A comparative review on the wireless implantable medical devices privacy and security
Z. Esat Ankaralı[1], Qammer H. Abbasi[2], A.Fatih Demir[1], Erchin Serpedin[3], Khalid Qaraqe[3], Huseyin Arslan[1,4]
[1] Department of Electrical Engineering, University of South Florida, United States
[2] Department of Electrical and Computer Engineering, Texas A&M University, Qatar
[3] Department of Electrical and Computer Engineering, Texas A&M University, United States
[4] Department of Electrical and Electronics Engineering, Istanbul Medipol University, Turkey

Breath and sweat analysis as a tool for medical diagnostics
Amann Anton[1,2], Agapios Agapiou[3]
[1] Breath Research Institute of the University of Innsbruck, Austria
[2] Univ.-Clinic for Anesthesia, Innsbruck Medical University, Austria
[3] School of Chemical Engineering, National Technical University of Athens, Field Analytical Chemistry and Technology Unit, Greece

Wireless transmission of vital signs of entrapped victims during search and rescue operations in collapsed buildings
George C. Pallis[1], Lars Hildebrand[2], Nuno Ferreira[3], Geert Seynaeve[4]
[1] T4i Engineering Ltd, United Kingdom
[2] Technische Universität Dortmund, Germany
[3] onCaring, Portugal
[4] ECOMED, Belgium

Channel selection and feature enhancement for improved epileptic seizure onset detector
Marwa Qaraqe[1], Muhammad Ismail[2], Erchin Serpedin[1]
[1] Department of Electrical and Computer Engineering, Texas A&M University, United States
[2] Department of Electrical and Computer Engineering, Texas A&M University, Qatar

Opportunities and challenges of the Internet of Things for healthcare
Felipe Fernandez[1], George C. Pallis[2]
[1] Department TFB-ATSI FI-ETSIINF, Polytechnical University of Madrid (UPM), Spain
[2] T4i Engineering Ltd, United Kingdom

Energy model for light-weight block ciphers for WBAN applications
Bassam J. Mohd[1], Thaier Hayajneh[2], Muhammad Z. Shakir[3], Khalid A. Qaraqe[3], Athanasios V. Vasilakos[4]
[1] Computer Engineering Department, Hashemite University, Jordan
[2] School of Engineering and Computing Sciences, New York Institute of Technology, USA
[3] Department of Electrical and Computer Engineering, Texas A&M University, Qatar
[4] Computer Science Department, Kuwait University, Kuwait

Closing remarks
Closing by Conference Chairs

Satellite Event on Innovative Systems and Services: EU Funded Research and Industry Forum

"Transforming healthcare through mobile and wireless technologies: Innovative Systems and Services"

The Satellite Event that will take place within the framework of the 4th International Conference on Wireless Mobile Communication and Healthcare (Mobihealth 2014) is particularly focused in bringing together the research community and the industry. To this end, it consists of several different events that aim to facilitate communication and collaboration between these two diverse fields:

- Keynote Lecture by May D. Wang.
- Oral presentations and demos on innovative services and products, placing particular emphasis on their practical and commercial use.
- Exhibition where successful EC funded research projects, enterprises and start-ups will present their products and results.
- The "Connected Health Workshop" aiming at discussing key challenges in the adoption of Connected Health and building networks of academics, industry, policy makers and clinicians.
- The Apps4med Hackathon Awards presentation.
- IEEE EMB Greece Chapter Best Diploma Thesis Award.
- The whole event will be covered by Tech Talks Central.

Sponsors

Keynote Lecture by May D. Wang (Session Tue. 14:15 - 15:00)

Biomedical Big Data Analytics for Patient-Centric and Outcome-Driven Health Care

Rapid advancements in biotechnologies such as –omic (genomics, proteomics, metabolomics, lipidomics etc.), next generation sequencing, bio-nanotechnologies, molecular imaging, and mobile sensors etc. accelerate the data explosion in biomedicine and health wellness. Multiple nations around the world have been seeking novel effective ways to make sense of "big data" for evidence-based, outcome-driven, and affordable 5P (Patient-centric, Predictive, Preventive, Personalized, and Precise) healthcare. I conduct multi-modal and multi-scale (i.e. molecular, cellular, whole body, individual, and population) biomedical data analytics research for discovery, development, and delivery, including translational bioinformatics in biomarker discovery for personalized care; imaging informatics in histopathology for clinical diagnosis decision support; bionanoinformatics for minimally-invasive image-guided surgery; critical care informatics in ICU for real-time evidence-based decision making; and chronic care informatics for patient-centric health.

In this talk, first, I will highlight major challenges in biomedical and health informatics pipeline consisting of data quality control, information feature extraction, advanced knowledge modeling, decision making, and proper action taking through feedback. Second, I will present the methodology research in (i) data integrity and integration; (ii) case-based reasoning for individualized care; and (iii) streaming data analytics for real-time decision support using a few mobile health case studies (e.g. Sickle Cell Disease, asthma, pain management, rehabilitation, diabetes etc.). Last, there is big shortage of data scientists and engineers who are capable of handling Big Data. In addition, there is an urgent need to educate healthcare stakeholders (i.e. patients, physicians, payers, and hospitals) how to tackle the grant challenge together. I will discuss efforts such as patient-centric educational intervention, community-based crowd sourcing, and Biomedical Data Analytics MOOC development.

Our research has been supported by NIH, NSF, Georgia Research Alliance, Georgia Cancer Coalition, Emory-Georgia Tech Cancer Nanotechnology Center, Children's Health Care of Atlanta, Atlanta Clinical and Translational Science Institute, Microsoft Research and HP.
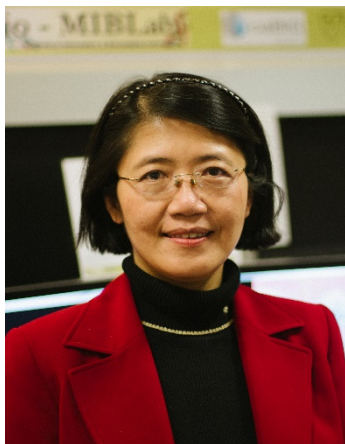
Short Bio:

May D. Wang, Ph.D. is an Associate Professor in the Joint Department of Biomedical Engineering, School of Electrical and Computer Engineering, Winship Institute, Institute for Bioengineering and Biosciences, and Institute for People and Technology at Georgia Institute of Technology and Emory University, USA. She is a Kavli Fellow, a Georgia Research Alliance Distinguished Cancer Scholar, Biocomputing and Bioinformatics Core Director in Emory-Georgia-Tech Cancer Nanotechnology Center, and Co-Director of Georgia-Tech Center of Bio-Imaging Mass Spectrometry.

Prof. Wang's research is in Biomedical Big Data analytics with a focus on Biomedical and Health Informatics (BHI) for Personalized and Predictive Health. Her research includes high throughput NGS and -omic data mining to identify clinical biomarkers, bionanoinformatics, pathological imaging informatics to assist clinical diagnosis, critical and chronic care health informatics for evidence-based decision making, and predictive systems modeling to improve health outcome. Prof. Wang published 160+ peer-reviewed articles in BHI. She is the corresponding/co-corresponding author for articles published in Journal of American Medical Informatics Association, Journal of Biomedical and Health Informatics, Briefings in Bioinformatics, BMC Bioinformatics, Journal of Pathology Informatics, IEEE/ACM Transactions on Computational Biology and Bioinformatics, Proceedings of The IEEE, IEEE Transactions on Information Technology in Biomedicine, BMC Medical Imaging, Annals of BME, Trends in Biotechnology, Nature Protocols, Proceedings of National Academy of Sciences, Annual Review of Medicine, Circulation Genetics, and Nanomedicine etc. She has led RNA-data analysis investigation within FDA-led Sequencing Consortium (SEQC). Her past bioinformatics systems were certified by NIH/National Cancer Informatics Program as silver-level compatible (e.g. omniBiomarker). Dr. Wang has devoted to training young generation of data scientists and engineers, and she received Georgia-Tech's Outstanding Faculty Mentor for Undergraduate Research Award in 2005.

Currently, Prof. Wang serves as Senior Editor for IEEE Journal of Biomedical and Health Informatics (J-BHI), Associate Editor for IEEE Transactions on Biomedical Engineering (TBME), and Emerging Area Editor for Proceedings of National Academy of Science (PNAS). She also serves as IEEE EMBS Biomedical and Health Informatics Technical Committee Chair, and IEEE EMBS Special Topic Conference on Biomedical and Health Informatics Steering Committee Chair. She is an IEEE-EMBS 2014-2015 Distinguished Lecturer, and has recently been elected as an EMBS Administrative Committee Officer representing North America.

Oral Presentations (Sessions Mon. 5.1 & Tue. 4.1)

Presentations are highly targeted to give a clear picture about a product or project that both industry and research community can cooperate on, in order to improve or commercially exploit it.

HPVGuard: A software platform to support management and prognosis of cervical cancer
Ioannis Tamposis, OraSys New Technologies S.A., Greece

Data from countries with well-organized screening programs and cancer registries indicate that the vast majority among participants that developed Cervical Cancer (CxCa) are due to underestimation of cases that had at least one abnormal Pap test. In addition, women that receive an abnormal result often get discouraged and do not comply with subsequent invitations for additional examinations. The proposed project aims to develop an intelligent decision making system in order to identify women at true risk of cervical cancer development. In order to develop the proposed system a combinatorial approach of high throughput technologies will be used; a) Molecular biology techniques: DNA micro-arrays,

mRNA detection, multiparameteric Flow Cytometry (FC), Cytomics and Methylomics, and b) Bioinformatics, Computational Modelling and Artificial Intelligence methods. Cumulative risk scenarios that are expected to be produced as outputs of the proposed system will be accessed and further processed with financial feasibility methods. Combination of these results, processed with semantic & ontology methods, will lead to the final product (HPVGuard) that consists of a knowledge-intensive service that will allow the design of screening programs with personalized parameters (Personalized Based Screening, PBS) for every participating woman.

OraHealthX ImaginX A next generation cost effective medical imaging workflow management platform
Ioannis Tamposis, OraSys New Technologies S.A., Greece

Currently, several traditional IT systems exist for supporting workflows of medical imaging departments. However, there is the recognized need for the next step; an integrated and low cost open architecture platform which can manage various kinds of healthcare workflows. The implementation of such solutions can be achieved by intelligent integration of existing systems, the use of web technologies, the utilization of available web services and web semantic ontologies. Based on this approach, this project presents an advanced, integrated web platform that is generic, agnostic, knowledge based, mobile oriented and supports all medical imaging workflows, complying at the same time with international standards and initiatives. Furthermore, the utilization of knowledge management techniques and semantic web ontologies facilitate prognosis and diagnosis procedures, increase productivity and improve the accuracy and reliability of medical diagnosis.

The MOBIGUIDE project – guiding patients any time everywhere
Adi Fux, Department of Information Systems, University of Haifa, Israel

The aim of the MobiGuide project is to develop a patient guidance system for patients with chronic illnesses, such as cardiac arrhythmias, diabetes, and high blood pressure. The system accompanies the patients wherever they go and helps them and their care providers in managing their illness, whether they are at home, at work, out and about or travelling abroad on holiday or for business.

The patients wear sensors that can monitor biosignals (e.g., heart rate, blood pressure); the signals are transmitted to their Smartphone and from there to a powerful "backend" computer. The MobiGuide decision-support tools, which have access also to the patient's' historical clinical data, such as their hospital records, analyze the data, alert the patient about actions that should be taken, ask the patient questions, in the case that additional information is needed, and make recommendations regarding lifestyle changes or contacting care providers. All recommendations regarding therapy are transmitted to the patients' care providers. The recommendations are based on evidence- based, state-of-the-art clinical guidelines. During the project we focus on the clinical conditions: atrial fibrillation, gestational diabetes and gestational hypertension and implement the MobiGuide system for these conditions in

hospitals in Italy and Spain.The aim of the MobiGuide project is to develop a patient guidance system for patients with chronic illnesses, such as cardiac arrhythmias, diabetes, and high blood pressure. The system accompanies the patients wherever they go and helps them and their care providers in managing their illness, whether they are at home, at work, out and about or travelling abroad on holiday or for business.

The system presents several novelties: (a) delivery of decision-support to patients (via Smartphones) and not only to care providers, (b) personalization of guidelines to the patients' preferences and their personal context as well as the technological state of the MobiGuide system, (c) distribution of decision-support between a backend DSS Server and a mobile DSS operating on a Smartphone, (d) semantically-integrated Personal Health Record (PHR) that integrates data from hospital EMRs, wearable monitoring devices, DSS events, and temporal data abstractions, and (e) intelligent data and process mining algorithms that learn from past care process execution and suggests ways in which clinical guidelines could be improved.

The REACTION project – remote accessibility to diabetes management and therapy in operational healthcare networks
Thomas Pieber, University of Graz, Austria

The aim of the REACTION project was to develop an integrated ICT platform that supports improved long term management of diabetes based on wearable, continuous blood glucose monitoring sensors and automated closed-loop delivery of insulin.

The REACTION platform presents an interoperable peer-to-peer communication platform based on Service Oriented Architecture (SoA) using cloud-enabling midddleware. It will feature a Model Driven Application Development environment based on extensive use of dynamic ontologies.

The REACTION platform provides integrated, professional, management and therapy services to diabetes patients in different healthcare regimes across Europe, including 1) professional decision support for in-hospital environments, 2) safety monitoring for dosage and compliance, 3) long term management of outpatients in clinical schemes, 4) care of acute diabetic conditions and 5) support for self-management and life-style changes for diabetic patients.

Gamification – an innovative methodology to engage in fitness and health
George Veinoglou, Commercial Director of ICON Platforms, Greece

Loyalty to medical issues for treatment and patient care can be achieved with the new methodology called "gamification". Using game mechanics and behavior psychology, people using apps are able to upload their information about health and fitness activities and in instances where users grant them permission, download this information and manipulate it to gather a better picture of the person currently signed into the app. Users can see all their

information at a glance, as it tracks their fitness activities such as running, walking and cycling from apps and associated wearable technology. Additionally, adapters such as glucometers, ECG devices, blood pressure monitors and even ultrasound have been created to give greater knowledge to users about their overall health, all of which can be stored and accessed by users through the simple interface. Gamification offers the incentives to patients to be engaged and loyal to their treatment and care obligations

The NEPHRON+ project – a major leap forward in renal care
Leonidas Lymberopoulos, EXUS S.A., Greece

NEPHRON+ will provide a major leap forward in Renal Care. It aims at a next generation, integrated solution for personalized treatment and management of patients with chronic renal failure. It presents an ideal solution for continuous dialysis outside the hospital offering better blood clearance, while patients can stay mobile and active in social and economic life. It relies on an ICT-enabled wearable artificial kidney for on-body blood purification. The project's website is at http://www.nephronplus.eu

Open data in healthcare provision and research: trends and perspectives
Evika Karamagioli , Scientific Associate, Medical School, University of Athens, Greece

Open data are defined as "publicly available data that can be universally and readily accessed, used, and redistributed free of charge". Clinical care provider quality information, nationwide health service provider directories, databases of the latest medical and scientific knowledge, consumer product data, community health performance information, and government spending data are indicative examples of open data in the health care sector.

Positive impact from developing public policies based on the opening up of data in machine-readable, downloadable and accessible via application programming interfaces ranges from the enhancement of patient care to transparency and accountability in health care decision making, acceleration of scientific research, strengthening of medical innovation and economic growth.

Yet the benefits and costs of open data as a cost-effective and efficient mean for the upgrade of public healthcare systems must be weighed. Based on the international experience (i.e. USA, UK, Sweden, Spain) and relative literature, the presentation will showcase challenges to be addressed, risks to overcome (e.g. privacy, security) and choices to be made so as to ensure a positive impact of open data introduction in public health care systems.

Exhibition Area (Open during the course of the Satellite Event)

Representatives of the following enterprises, start-ups and successful EC funded research projects will exhibit posters and demos on innovative services and products in the field of mobile and wireless healthcare.

Implantable and ingestible medical devices (IIMDs): optimal-performance-oriented design and evaluation methodology

Dementia Ambient Care: Multi-Sensing Monitoring for Intelligent Remote Management and Decision Support

UroEDU and UROSwords: Continuing Education for Urology

Multilevel assessment on biological effects of radioFrequency electromagnetic waves

FitForAll and VideoGrade: ExerGaming Platforms/Services for Elderly – Active and Healthy Ageing

Responsive and hybrid apps for monitoring and training ADHD (Attention Deficit Hyperactivity Disorder) children

European network for innovative uses of EMFs in biomedical applications (EMF-MED)

Connected Health Workshop (Session Wed. 2-1)

ARCH is at the center of an unparalleled connected health education and research infrastructure that spans a range of activities from gathering, analyzing and interpreting data, through the development of new knowledge and care models to implementing and evaluating change. An industry driven technology center funded by Enterprise Ireland and IDA Ireland, ARCH provides access to world class clinicians, academics and patient cohorts to explore and evaluate potential connected health solutions for the global market.

ARCH provides a platform for industry working in connected health to build revenue and R&D networks. We conduct collaborative and bespoke research with industry whilst also conducting a core body of research to build the scientific and economic case for connected health. Recently ARCH has established a global connected health research network, ENJECT, with industry, clinical, policy and academic members across 13 countries (www.arch.ie).

Society faces a major health and social care challenge: demographic changes will raise dramatically the proportion of those over 60 years of age. We will face unmanageable costs associated with chronic diseases such as cardiovascular, respiratory and metabolic disorders, and a global shortage of qualified healthcare professionals. We need new ways of managing health and social care throughout our lifespan.

Through this workshop ARCH aims to develop a network of academics, industry, policy makers and clinicians across Europe with a view to designing fit for purpose Connected Health research projects that can be submitted to Horizon2020 funding calls. The network will include life scientists, health and sports scientists, business and revenue modelers, economists, computer scientists, engineers and social scientists from across Europe and beyond. It is only by creating such end to end networks of expertise that we can carry out the range of research activities that are required to drive real change in the way we manage the health and social care for our population.

The forum is hosted as a workshop style event where participants are split into groups to discuss key challenges in the adoption of Connected Health i.e. Data Management, Organisation Change, Revenue Models etc. These groups will be given a case study and asked to suggest possible solutions to these challenges. The end result from the forum is to build networks for Horizon 20/20 application submissions around the challenges and possible solutions as discussed at the workshop on the day.

Apps4Med Hackathon Awards Presentation (Session Tue. 5)

"Apps4Med" is an event organized for the first time by the Engineering in Medicine and Biology Society (EMBS) and Computer Society (CS) of the IEEE National Technical University of Athens Student Branch (IEEE NTUA SB). "Apps4Med" will feature workshops on Android and Windows Phone mobile applications development, a series of talks regarding mobile applications with a focus on mobile health (mHealth) delivered by researchers and company representatives as well as a 24-hour hackathon, where students and young developers will develop their own mHealth apps. This event aims at educating, motivating and familiarizing students with mobile app development and encouraging innovation and entrepreneurship. The best teams, as they will be selected by a panel of experts, will have the opportunity to present their apps and the winning team will be announced within the framework of the Satellite Event. The award will be sponsored by EkinisiLab (http://ekinisilab-sev.gr).

IEEE EMB Greece Chapter Best Diploma Thesis Award (Session Tue. 5)

The IEEE EMBS Greece Chapter will award the three best student thesis that were carried out for the academic year 2012-2013 in the area of Biomedical Engineering – Biomedical Informatics.

Program details of the ceremony can be found online:
http://mobihealth.name/2014/media/uploads/program.pdf

Tech Talks Central (TTC)

TTC is a web radio show that covers all hot topics and trends in the connected world and features interactive interviews with thought leaders, as well as movers and shakers of the tech industry. It has broadcasted through major events like the Mobile World Congress 2014 in Barcelona and the European Commission's eHealth Forum 2014 in Athens, interviewing significant key stake holders. Amongst them they are people from companies like PayPal, Intel, Nokia, Sony, Keynote, Firefox, W3 Consortium, booking.com, Canonical, Opera, ECHAlliance, HL7, Alere, IBM, HiMSS and big organisations like officials from the European Commission, MIT University, Surrey University, FORTH, Demokritos and many more. More information available at techtalkscentral.com.

Registration

Registration desk of the conference will be open from November 3rd at 08:00 until the end of the conference. On-site registration is also available.

Social Events

Welcome Cocktail

Date: Monday, November 3rd
Time: 20:30
Location: Margi Hotel

Visit to Acropolis Museum

Date: Tuesday, November 4th
Departure: 17:30
Location: Margi Hotel Reception
http://www.theacropolismuseum.gr/en

Gala Dinner

Date: Tuesday, November 4th
Time: 20.30
Location: Aegli Zappeiou
http://www.aeglizappiou.gr/index_uk.html

Conference Venue

Situated in the most exclusive area of the Athens Riviera, Vouliagmeni, The Margi luxury hotel is a luminous haven away from home. Perfectly balancing discreet luxury with a cosy Mediterranean ambience, and exceptionally nestled between the sea and pine forest, this fresh and charming boutique hotel in Vouliagmeni, just a few steps from Athens' most elegant sandy beach, boasting a yacht marina and an array of water sports, allows guests to beat the heat of the city and enjoy both luxuriant days along the coast and cool nights in the most popular clubs and restaurants of Athens. More: http://www.themargi.gr/.