

Wireless Health 2010 :: October 4-7, 2010 :: La Jolla, CA

FINAL AGENDA – UPDATED 9.29.2010

Monday, October 4 :: Pre-Session Workshops

Time: 9:00am – 6:00pm

Location: Offices of Johnson & Johnson

9:00am **Registration Opens**

10:00am **Wireless Health Informatics Workshop**

Co-Chairs: Dr. John Lach, U.Virginia & Dr. Roozbeh Jafari, U.T. Dallas

10:00: "Wireless Health Informatics: Challenges and Opportunities"

John Lach, Univeristy of Virginia

10:15: "Case studies on wireless health applications and data management techniques"

Roozbeh Jafari, U.T. Dallas

10:45: "WARD 2.0: Building a Comprehensive Human Activity Database for Muscular Dystrophy Patients via Body Sensors and Mobile Cameras"

Allen Yang, University of California, Berkeley

11:15: "Head IT: A Human Electrophysiology, Associated Anatomic Data and Integrated Tool Resource"

Scott Makeig, University of California, San Diego

11:45: Breakout Sessions

12:35: Breakout Reports

1:00: Workshop concludes

1:00pm
-2:00pm

Lunch @ J&J Courtyard

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Monday, October 4 :: Pre-Session Workshops

2:00pm

Human Motion Monitoring and Classification Workshop

Chair: Dr. Maxim Batalin, UCLA Wireless Health Institute

Planned Agenda:

Topic 1: Medical foundations and applications of human motion

Bruce Dobkin, UCLA Neurology

Topic 2: Human motion analysis from the perspective or practical applications of Motor Control

Robert Wagenaar, Boston University

Topic 3: Wireless health infrastructure and instrumentation for human motion analysis

John Lach, University of Virginia

Topic 4: Machine learning techniques for automated classification of human motion

Dr. Maxim Batalin, UCLA Wireless Health Institute

Tutorial/Demo: An end-to-end human motion analysis tutorial: from capturing sensor data to processing at the server

Moderator: Dr. Maxim Batalin, UCLA Wireless Health Institute

5:00pm –
6:00pm

Networking Reception

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FINAL AGENDA – UPDATED 9.29.2010

Tuesday, October 5 :: Conference Sessions

Time: 8:00am – 6:45pm

Location: Hilton La Jolla Torrey Pines, Pavilion Ballroom

- 7:00am** **Registration Opens** (*Continental Breakfast Available*)
- 8:00am** **Opening Remarks: Robert B. McCray**, President & CEO, Wireless-Life Sciences Alliance
- 8:15am** **Keynote: Dr. Chris Toumazou**, Director, Institute of Biomedical Engineering at Imperial College London; CEO, Toumaz Technology LTD; General Chair of Wireless Health 2010 Conference
“Towards Disposable Healthcare: A Paradigm Shift”
- Introduction by Don Jones, Vice President, Health & Life Sciences, Qualcomm & Chairman, Wireless-Life Sciences Alliance*
- 9:00am** **Paper Session #1: Body Sensor Networks**
Session Chair: Mehran Mehregany, West Wireless Health Institute
- 1.1 A Mining Technique Using N-grams and Motion Transcripts for Body Sensor Network Data Repository.** Vitali Loseu (*University of Texas at Dallas, US*); Hassan Ghasemzadeh (*University of Texas at Dallas, USA*) Latifur Khan (*University of Texas, US*); Roozbeh Jafari (*University of Texas at Dallas, US*)
- 1.2 Dandelion: A Framework for Transparently Programming Phone-Centered Wireless Body Sensor Applications for Health.** Felix Xiaozhu Lin (*Rice University, US*); Ahmad Rahmati (*Rice University, US*); Lin Zhong (*Rice University, US*)
- 10:00am** **Break**
- 10:15am** **Paper Session #2: Mobile Gait Analysis**
Session Chair: Nate Heintzman, UC San Diego
- 2.1 Comparative Study of Segmentation of Periodic Motion Data for Mobile Gait Analysis**
Aris Valtazanos (*University of Edinburgh, UK*), DK Arvind (*University of Edinburgh, UK*), Subramanian Ramamoorthy (*University of Edinburgh, UK*)
- 2.2 Towards Power Optimized Kalman Filter for Gait Assessment using Wearable Sensors**
Prem Santosh Udaya Shankar (*University of Texas at Dallas, US*); Nikhil Raveendranathan (*University of Texas at Dallas, US*); Nicholas Gans (*University of Texas at Dallas, US*); Roozbeh Jafari (*University of Texas at Dallas, US*)

Tuesday, October 5 :: Conference Sessions

11:15am

Paper Session #3: Energy Efficient Sensing

Session Chair: Lin Zhong, Rice University

3.1 Just-in-time Sampling and Pre-filtering for Wearable Physiological Sensors: Going from Days to Weeks of Operation on a Single Charge

Nan Hua (*Georgia Tech, US*); Ashwin Lall (*Georgia Tech, US*); Justin K Romberg (*Georgia Tech, US*); Jun Xu (*Georgia Tech, US*); Mustafa al'Absi (*University of Minnesota Medical School, US*); Emre Ertin (*Ohio State University, US*); Santosh Kumar (*University of Memphis, US*); Shikhar Suri (*Georgia Tech, US*)

11:45pm

Paper Session #3: Energy Efficient Sensing

3.2 Blood Oxygen Estimation from Compressively Sensed Photoplethysmograph

Pawan Baheti (*Qualcomm, US*); Harinath Garudadri (*Qualcomm, US*); Somdeb Majumdar (*Qualcomm Inc., US*)

12:15pm –
1:40pm

Lunch & Networking Session (*Pavilion Ballroom & Gardens*)

Technical Demos & Industry Demos will be open during the extended lunch period

1:40pm

Paper Session #4: Energy Efficient Networking

Session Chair: Gert Cauwenbergs, UC San Diego

4.1 Evaluation of Body Sensor Network Platforms: A Design Space and Benchmarking Analysis

Sidharth Nabar (*University of Washington, US*); Ayan Banerjee (*Arizona State University, US*); Sandeep Gupta (*Arizona State University, US*); Radha Poovendran (*University of Washington, US*)

4.2 Energy Optimization in Wireless Medical Systems Using Physiological Behavior

Hyduke Noshadi (*University of California at Los Angeles, US*); Foad Dabiri (*University of California at Los Angeles, US*); Saro Meguerdichian (*University of California at Los Angeles, US*); Miodrag Potkonjak (*University of California at Los Angeles, US*); Majid Sarrafzadeh (*University of California at Los Angeles, US*)

2:40pm

Paper Session #5: Emergency Care

Session Chair: Sandeep Gupta, Arizona State University

5.1 A Context-Management Framework for Telemedicine: An Emergency Medicine Case Study

Rita H. Wouhaybi¹; Mark D Yarvis¹; Philip Muse¹; Chieh-Yih Wan¹; Sangita Sharma¹; Sai Prasad¹; Lenitra Durham¹; Ritu Sahni²; Robert Norton²; Merlin Curry²; Holly B. Jimison²; Richard Harper²; Robert A Lowe² (1: *Intel Corporation, US*, 2: *Oregon Health & Science University, US*)

5.2 Remote Physiological Monitoring of First Responders with Intermittent Network Connectivity

Jingyuan Li (*University of Virginia, US*); Tejaswi Tamminedi (*UtopiaCompression Corporation, US*); Guy Yosiphon (*UtopiaCompression Corporation, US*); Anurag Ganguli (*UtopiaCompression Corporation, US*); Lei Zhang (*UtopiaCompression Corp., US*); John Stankovic (*University of Virginia, US*); Jacob Yadegar (*UtopiaCompression Corporation, US*)

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Tuesday, October 5 :: Conference Sessions

3:40pm **Break** (*Light refreshments served*)

4:00pm **Workshop: Wireless Health Research Challenges and Opportunities**

Challenges & Opportunities in Signal Processing:

Emil Jovanov, University of Alabama, Huntsville

Julien Penders, IMEC

Steve Baker, Welch-Allyn

Hari Garudadri, Qualcomm

Challenges & Opportunities in Computer Science:

Majid Sarrafzadeh, University of California, Los Angeles

John A Stankovic, University of Virginia

Tajana Šimunić Rosing, University of California, San Diego

Challenges & Opportunities in Medical Informatics:

John Lach, University of Virginia

Roozbeh Jafari, University of Texas at Dallas

Funding Opportunities in Wireless Health:

Wendy Nilsen, National Institutes of Health

Audie Atienza, National Institutes of Health

5:45pm **Break**

6:00pm **Keynote: Dean Kamen**, Prolific Inventor & Founder, DEKA

*Introduction by Roberto Padovani, Executive Vice President and Chief Technology Officer,
Qualcomm*

6:45pm **Close of Session**

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Wednesday, October 6 :: Conference Sessions

Time: 8:00am – 7:00pm

Location: Hilton La Jolla Torrey Pines, Pavilion Ballroom

- 7:00am** **Registration Opens** (*Continental Breakfast Available*)
- 8:00am** **Opening Remarks & Introduction of Eric Topol – Robert B. McCray**, President & CEO, Wireless-Life Sciences Alliance
- 8:15am** **Keynote: Dr. Eric Topol**, Vice-Chairman of the Board and Chief Innovation Officer, West Wireless Health Institute; The Gary and Mary West Endowed Chair of Innovative Medicine; Director, Scripps Translational Science Institute; Chief Academic Officer, Scripps Health; General Chair of Wireless Health 2010 Conference
“Rebooting Medicine: How Wireless Empowers Consumers to Take Over their Healthcare.”
- 9:00am** **Paper Session #6: Health Awareness**
Session Chair: Kevin Patrick, UC San Diego
- 6.1 Social Sensing: Obesity, Unhealthy Eating and Exercise in Face-to-Face Networks.**
Anmol Madan (*MIT, US*); Sai Moturu (*MIT Media Lab, US*); Alex Pentland (*MIT, US*)
- 6.2 A networked system for self-management of drug therapy and wellness**
Kit Yee Au-Yeung (*Proteus Biomedical, Inc, US*); Timothy Robertson (*Proteus Biomedical, Inc, US*); Hooman Hafezi (*Proteus Biomedical, Inc, US*); Gregory Moon (*Proteus Biomedical, Inc, US*); Lorenzo DiCarlo (*Proteus Biomedical, Inc, US*); Mark Zdeblick (*Proteus Biomedical, Inc, US*); George Savage (*Proteus Biomedical, Inc, US*)
- 10:00am** **Break**
- 10:15am** **Paper Session #7: Clinical Risk Assessment**
Session Chair: Lucila Ohno-Machado, UC San Diego
- 7.1 Trapezius Muscle EMG as Predictor of Mental Stress**
Jacqueline Wijsman (*Univeristy of Twente, NL*); Bernard Grundlehner (*Holst Centre/IMEC-NL, NL*); Julien Penders (*Imec-NL, NL*); Hermie Hermens (*University of Twente, NL*)
- 7.2 Portable, Non-Invasive Fall Risk Assessment in End Stage Renal Disease Patients on Hemodialysis.** Thurmon Lockhart (*Virginia Tech, US*); Adam Barth (*University of Virginia, US*); Xiaoyue Zhang (*Virginia Tech, US*); Rahul Songra (*Virginia Tech, US*); Emaad Abdel-Rahman (*University of Virginia, US*); John Lach (*University of Virginia, US*)
- 11:15am** **Keynote: Dr. Irwin Jacobs**, Founder, Qualcomm; Chairman, Salk Institute Board of Trustees; General Chair of Wireless Health 2010 Conference
“Violating the Laws of Physics and Other Cool Things I Have Learned”
- Introduction by Stephen Burger**, Area Vice President - Business Development Emerging Devices, AT&T

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- 12:00pm** **Lunch** (*Pavilion Ballroom*)
- 12:45pm** **Luncheon Keynote: Dr. Patrick Soon-Shiong**, CEO of Abraxis Health; Executive Director, UCLA Wireless Health Institute; Professor of Microbiology, Immunology, and Molecular Genetics Professor of Bioengineering at UCLA; General Chair of Wireless Health 2010 Conference
- Introduction by Robert B. McCray, President & CEO, WLSA*
- 1:30pm** **Break**
- 1:45pm** **Paper Session #8: Cardiac and Brain Monitoring**
Session Chair: Tzyy-Ping Jung, UC San Diego
- 8.1 Miniaturized wireless ECG-monitor for real-time detection of epileptic seizures**
Fabien Massé (*Holst Centre /Imec, NL*); Aline Serteyn (*Holst Centre /Imec, NL*); Martien van Bussel (*Kempenhaeghe /Hobo Heeze, NL*); Johan Arends (*Kempenhaeghe /Hobo, NL*); Julien Penders (*Imec-NL, NL*)
- 8.2 Wireless Non-contact Cardiac and Neural Monitoring**
Yu M. Chi (*University of California, San Diego, US*); Patrick Ng (*University of California, San Diego, US*); Eric Kang (*University of California, San Diego, US*); Joseph Kang (*University of California, San Diego, US*); Jennifer Fang (*University of California, San Diego, US*); Gert Cauwenberghs (*University of California, San Diego, US*)
- 2:40pm** **Panel Discussion #1: Wireless Health in Developing Regions**
Moderator: **Dr. Hari Garudadri**, Qualcomm
Panelists: **Dr. GC Sekhar**, Director, LV Prasad Eye Institute
 Dr. Joel Robertson, CEO & President, Robertson Technologies
 Dr. Richard Garfein, UCSD Global Public Health
 Dr. Nicolas Cuttriss, Co-Founder & Chariman of the Board, American Youth Understanding Diabetes Abroad Inc (AYUDA)
- 3:25pm** **Break**

Wednesday, October 6 :: Conference Sessions

3:40pm

Panel Discussion #2: Clinical Applications of Wireless Health

Moderator: **Ashok Kaul**, VP - Healthcare Convergence, Wireless-Life Sciences Alliance

Panelists: **Dr. Leslie Saxon**, Chief – Division of Cardiovascular Medicine, USC Keck School of Medicine; Professor of Clinical Medicine, University of Southern California
Dr. Ravi Mehta, Professor of Medicine in the Division of Nephrology; Director of Clinical Nephrology and Dialysis Programs UCSD Medical Center; Associate Director of the GCRC
Dr. Mark Carlson, Chief Medical Officer and Senior Vice President, Research and Clinical Affairs, Cardiac Rhythm Management Division, St. Jude Medical
Dr. David Price, Executive Director, Clinical Research at DexCom

4:25pm

Paper Session #9: Activity Monitoring

Session Chair: Emil Jovanov, University of Alabama, Huntsville

9.1 Monitoring Body Positions and Movements During Sleep using WISPs

Enamul Hoque (*University of Virginia, US*); Robert F Dickerson (*University of Virginia, US*); John Stankovic (*University of Virginia, US*)

9.2 AndWellness: An Open Mobile System for Activity and Experience Sampling

John Hicks (*University of California Los Angeles, US*); Nithya Ramanathan (*University of California Los Angeles, US*); Deborah Estrin (*University of California Los Angeles, US*)

5:20pm

Reception Welcome Remarks

Stephen Burger, Area Vice President - Business Development Emerging Devices, AT&T

5:30pm

Reception

Technical Demos & Industry Demos will be open during the Reception

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Thursday, October 7 :: Conference Sessions

Time: 8:00am – 2:00pm

Location: Hilton La Jolla Torrey Pines, Pavilion Ballroom

- 7:00am** **Registration Opens** (*Continental Breakfast Available*)
- 8:00am** **Opening Remarks & Introduction of Dr. Pettigrew by Shu Chien**, Director, Institute for Engineering in Medicine at UCSD
- 8:05am** **Keynote: Dr. Rod Pettigrew**, Director, National Institute of Biomedical Imaging and Bioengineering at the National Institutes of Health
- 8:50am** **Panel Discussion #3: “Protecting the Protectors: Ensuring Health and Safety of First Responders Through Wireless Localization and Physiological Monitoring”**

Introductions by Dr. Shu Chien, Director, Institute for Engineering in Medicine at UCSD

Organizer: **Dr. Jalal Mapar**, Department of Homeland Security, Science and Technology Directorate: National Program

Panelists: **Dr. Jalal Mapar**
Dr. John Orr, Electrical & Computer Engineering, Worcester Polytechnic Institute
Dr. Denise Smith, Exercise Science Department, Skidmore College
John Ames, Technology Group Senior Staff, QinetiQ North America
Dr. Maxim Batalin, Wireless Health Institute, UCLA

- 9:35am** **Panel Discussion #4: The Telemedicine & Advanced Technology Research Center (TATRC): Mobile Healthcare in the U.S. Army**

Introductions by Dr. Shu Chien, Director, Institute for Engineering in Medicine at UCSD

Panelists: **Members of TATRC, including:**
COL Ron Poropatich
Holly Pavliscsak
Jeanette Rasche
Cynthia Barrigan
COL Robert Vigersky

- 10:30am** **Break**

Thursday, October 7 :: Conference Sessions

- 10:45am** **Speaker: Dr. Helen Gill**, Program Manager, Cyber-Physical Systems at the National Sciences Foundation, Directorate for Computer & Information Science & Engineering
- Introduction by Roozbeh Jafari, University of Texas, Dallas*
- 11:30am** **Paper Session #10: Embedded Intelligence**
Session Chair: Mehmet Yavuz, Qualcomm
- 10.1 Hierarchical Multiple Sensor Fusion using Structurally Learned Bayesian Network**
Lei Zhang (*UtopiaCompression Corp., US*); Tejaswi Tamminedi (*UtopiaCompression Corporation, US*); Anurag Ganguli (*UtopiaCompression Corporation, US*); Guy Yosiphon (*UtopiaCompression Corporation, US*); Jacob Yadegar(*UtopiaCompression Corporation, US*)
- 10.2 An intelligent and portable ambulatory medical toolkit for automatic detection and assessment of traumatic brain injuries**
Priya Ganapathy (*UtopiaCompression Corporation, US*); Shantanu Joshi (*UtopiaCompression Corporation, US*); Jacob Yadegar (*UtopiaCompression Corporation, US*); Niranjn Kamat (*UtopiaCompression Corporation, US*); Calin Caluser (*Metritrack LLC, US*)
- 12:25pm** **Keynote: Dr. Jonathan Sackner Bernstein**, Associate Director, Center for Devices & Radiological Health at the Food and Drug Administration
- Introduction by Hari Garudari, Qualcomm*
- 1:10pm** **Presentation of Awards – Members of the WH2010 Steering Committee**
Best Paper
Best Student Paper
Best Demo
- Closing Remarks by Members of the WH2010 Steering Committee**