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, University 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

For additional conference information and program updates, please visit www.wirelesshealth2010.org
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
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)

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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 Durham²; 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
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

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 *(University 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.

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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Wednesday, October 6 :: Conference Sessions

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 & Chairman 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*

For additional conference information and program updates, please visit www.wirelesshealth2010.org
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

For additional conference information and program updates, please visit [www.wirelesshealth2010.org](http://www.wirelesshealth2010.org)
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

10.2 An intelligent and portable ambulatory medical toolkit for automatic detection and assessment of traumatic brain injuries

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