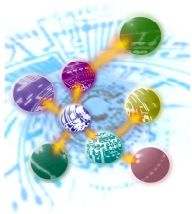
International Workshop on Wearable and Implantable Body Sensor Networks – 2005



Tuesday, April 12, 2005

Time	
09:30	Introduction
09:45	**Session 1: Technical and Clinical Challenges of Body Sensor Networks** **Chair: Prof. Joe Paradiso - MIT**
09:45	Body Sensor Networks: Technical Challenges and Clinical Opportunities *Prof. Sir Magdi Yacoub - Imperial College London*
10:15	Wireless Connectivity in Healthcare *Dr. Rob Mulder - Vice President Common Technology of Philips Medical Systems*
10:45	**Discussion**
10:50	**Tea Break**
11:20	**Session 2: Sensor Platforms and Design** **Chair: Dr Leonard Fass - GE Healthcare**
11:20	Drug-Delivering Integrated Therapeutic Systems *Prof. Adam Heller - University of Texas at Austin*
11:50	A Multi-Parameter Laboratory-in-a-Pill Device with Real-Time Data Processing *Lei Wang - Department of Electronics and Electrical Engineering, University of Glasgow*
12:00	A Sensor Node for Non-Invasive Cardio-Respiratory Monitoring of Infants *Ioannis Thanasopoulos - Electronic Sensors Laboratory, Department of Electrical & Computer Engineering, National Technical University of Athens*
12:10	Key Technical Challenges and Current Implementations of Body Sensor Networks *Benny Lo - Dept of Computing, Imperial College London*
12:20	**Discussion**
12:40	**Lunch Break**
14:00	**Session 3: Ubiquitous and Embedded Computing** **Chair: Prof. Hans Gellersen - Lancaster University**
14:00	Room to Room Location using Wearable Sensors for Tracking Social Health of Elders *Dr. Terry Dishongh - Lead Hardware Engineer, Intel Proactive Health Lab*
14:30	Remote Monitoring of Patients Suffering from Early Symptoms of Dementia *A. A. Reeves - Pervasive ICT Research Centre, BT, Ipswich*
14:40	A Distributed Bayesian Framework for Body Sensor Network *Surapa Thiemjarus - Dept of Computing, Imperial College London*
14:50	Real-time Analysis of Correlations Between On-Body Sensor Nodes (with Topological Map Architectures) *Kristof van Laerhoven - Dept of Computing, Lancaster University* *Martin Berchtold - University of Karlsruhe*
15:00	**Discussion**
15:20	**Tea Break**
15:50	**Session 4: Communications and Distributed Systems** **Chair: Prof. Morris Sloman - Imperial College London**
15:50	Counting and Colouring in Specknets *Dr. D K Arvind - Director of the Institute for Computing Systems Architecture, University of Edinburgh*
16:20	System Security for Cyborgs *Prof. Ross Anderson - Cambridge University*
16:50	**Discussion**
17:10	**Poster - Demonstration - Exhibition Session** **Chair: Mr. Guy Hirson - DTI Nextwave Interface**
18:00	**Reception and Dinner** Reception and music – 18:00 – 19:30; Buffet Dinner – 19:30 – 20:30; Music – 2030 - 2300

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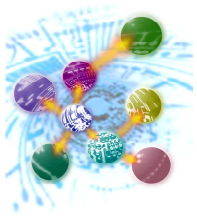

Wednesday, April 13, 2005

Time	
09:30	**Session 5: Biosensor Technology and Design** **Chair: Prof. Tony Cass - Imperial College London**
09:30	Implantable Micromachined Wireless Pressure Sensors: Approach and Clinical Demonstration *Prof. Mark Allen - Georgia Institute of Technology*
10:00	The Development of a Photo-electrochemical Sensor for the Determination of Cyanide in the Blood of Burns Victims *Alexandra Lindsay - Physiological Flow Studies Group, Department of Bioengineering, Imperial College*
10:10	Wireless Implantable Micro Sensors and Systems for Ambulatory Monitoring and Control of Therapeutic Procedures *Dr. Diana Hodgins MBE - European Technology for Business Limited (ETB)*
10:20	Electrochemical Sensors For Measurement In Neurotransmitters *Mr Bhavik A Patel - Physiological Flow Studies Group, Department of Bioengineering, Imperial College London*
10:30	**Discussion**
10:50	**Tea Break**
11:20	**Session 6: Device Design and Power Scavenging** **Chair: Dr. Diana Hodgins MBE - European Technology for Business Limited (ETB)**
11:20	Bio-Inspired Chemical Electronics: A Methodology for Ultra-Low Power Sensor Processing *Prof. Chris Toumazou – Director, Institute of Biomedical Engineering, Imperial College London*
11:50	Modelling for Optimisation of Self-Powered Wireless Sensor Nodes *Paul Mitcheson - Control and Power Research Group, Imperial College London*
12:00	An Integrated Node for Energy Scavenging, Sensing and Data Transmission: Applications in Medical Diagnostics *Dr. Paul K. Wright and Kate Hammond - College of Engineering, University of California, Berkeley*
12:10	Acoustic Power Transmission into an Implantable Device *Satu Arra - Institute of Electronics, Tampere University of Technology, Tampere, Finland*
12:20	**Discussion**
12:40	**Lunch Break**
14:00	**Session 7: Low power Wireless Communications** **Chair: Paul Garner - BT Pervasive ICT Research Centre**
14:00	Radio Frequency Technology and In-Body Communications Systems *Mr. Henry Higgins - Microelectronics Division, Zarlink Semiconductor*
14:30	Towards High-Level Wireless/Wearable Sensor and Network Design *Dr Farrukh Alavi - Computer Science, Queen Mary University of London*
14:40	Narrowband and Wideband Radio Channel Characterisation and Antennas for On-Body Communication Systems *Yuriy Nechayev - Electronic, Electrical & Computer Engineering, University of Birmingham*
14:50	An Ultra-Low Power 1v Wireless Transceiver Suitable for Body Sensor Networks *Alison Burdett - Toumaz Technology*
15:00	**Discussion**
15:20	**Tea Break**
15:50	**Session 8: Clinical Applications and Future Perspectives** **Chair: Prof. Nick Peters - Imperial College London**
15:50	Ambulatory Monitoring-Embeddable, Wearable "It's all about fashion" Studies in Wireless Electronics *Dr. Tom Blackadar - Fitsense Corp.*
16:20	Assessing Patient Case Management Services with ACHD Sensed Data *Dr. Vassilios Stamatopoulos - Royal Brompton and Harefield NHS Trust*
16:30	Wireless Body Sensors: The Ultimate Diagnostic Tool ? *Prof. Sir Ara Darzi - Imperial College London*
17:00	**Concluding Comments** **Prof. Guang-Zhong Yang - Imperial College London**

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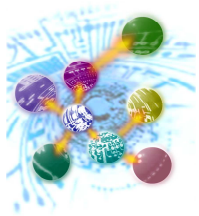

Posters/Demonstrations

Chair: Mr. Guy Hirson - DTI Nextwave Interface

1 A Microsystem for Monitoring Heart Motion
Dr Lars Hoff - Faculty of Science and Engineering, Vestfold University College

2 Low Power Ultra Wideband Wireless Transmitter Implementation for Biomedical Sensors
Charles Chun Yi Lee – Department of Bioengineering, Imperial College London

3 New Techniques for in Vivo Electrochemical Sensing
Costas Anastassiou - Department of Bioengineering, Imperial College London

4 Practical Deployment of Body Sensor Technology in a Military Context
A R Thurlow, B F Egan, T Mizutani - BT Group, Pervasive ICT Research Centre

5 Body Sensor Networks – Research into a European Application: SILC
Phillip Needham – Cardionetics Limited

6 Sensing Activities of Daily Living on a Limited Power Budget
Ian Neild - Pervasive ICT Research Centre, BT

7 Ubiquitous Sensing for Posture/Behaviour Analysis
Jeffrey L Wang - Department of Computing, Imperial College London

8 Garment-Based Body Monitoring
L E Dunne - University College Dublin, Ireland

9 Embedded Body Sensor Network for Persons with Special Communication Needs to Control and to Interact with the World
A. Lőrincz – Department of Information Systems, Eötvös University, Hungary

10 UbiMon – Ubiquitous Monitoring Environment for Wearable and Implantable Sensors
Benny Lo – Department of Computing, Imperial College London

11 UbiSense – Ubiquitous IR Sensing and Behaviour Profiling for the Care of Elderly and Chronically-ill Patients
Benny Lo – Department of Computing, Imperial College London

12 Hand Gesture Recognition with Body Sensor Networks
Rachel King - Department of Computing, Imperial College London

13 A Simulator for Distributed Ambient Intelligence Sensing
Julien Pansiot – Department of Computing, Imperial College London

14 Real-time Analysis of Correlations Between On-Body Sensor
Kristof van Laerhoven - Department of Computing, Lancaster University