

Pervasive Sensing with Body Sensor Networks

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Over the past decade, the miniaturisation and cost reduction brought about by the semiconductor industry and advances in wireless communication, sensor design, and energy storage technologies have meant that the concept of a truly pervasive Body Sensor Network (BSN) is rapidly becoming a reality. Integrated micro-sensors no more than a few millimetres in size, with onboard processing and wireless data transfer capability are the basic components of such networks already in existence. The ultimate aim of the BSN is to provide a truly personalised monitoring platform that is pervasive, intelligent, context-aware, and invisible to the subject, thereby avoiding activity restriction or behaviour modification. With the increasing range of applications proposed for BSN, its future development is expected to change many aspects of our daily lives. The focus of this talk is to present the basic background and the latest development in BSN by

- Addressing the technical challenges related to biosensor design, power scavenging, and low power wireless communication
- Examining the need for autonomic sensing including context-aware sensing, multi-sensor fusion and data mining
- Evaluating the challenges and opportunities of BSN for general well-being monitoring and care for the elderly
- Assessing the future of pervasive sensing for healthcare, general well-being and chronic disease management

Biography

Professor Guang-Zhong Yang is research director of the Institute of Biomedical Engineering at Imperial College London, founding director of the Royal Society/Wolfson MIC Laboratory and co-founder of the Hamlyn Centre for Robotic Surgery. His research has been focussed on biomedical imaging, sensing and robotics. Throughout his career, he has received a number of major international awards including the I.I. Rabi Award from the International Society for Magnetic Resonance in Medicine (ISMRM). He is Fellow of IET, AIMBE and a holder of the Royal Society Research Merit Award in Medical Image Computing.