Alison Noble, Ph.D.

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IFMBE

IFMBE Laura Bassi Award 2015

Professor Alison Noble OBE FREng is the Technikos Professor of Biomedical Engineering in the Oxford University Department of Engineering Science, Director of the Institute for Biomedical Engineering (IBME), and a Fellow of St Hilda's College, Oxford. She is a Fellow of the UK IET, a Fellow of the MICCAI Society, and a Fellow of the Royal Academy of Engineering. She is also the current President of the MICCAI Society which is the international society in her field. She serves on numerous UK funding agency grant awarding and advisory panels, and a number of committees of the Royal Academy of Engineering and Royal Society. She was awarded an OBE for services to Science and Engineering in the Queen's Birthday Honours list in June 2013.

Professor Noble is a founding director of the Biomedical Image Analysis (BioMedIA) Laboratory based at the Oxford IBME; a multi-disciplinary research group working in the area of biomedical imaging and image analysis, an important sub-discipline of modern biomedical engineering. She heads a large research activity in cardiovascular image analysis, women's health imaging (obstetrics and perinatal care) and microscopy image analysis. She is also Chief Technology Officer of Intelligent Ultrasound Ltd, a spin-out company from her laboratory. Throughout her career she has combined research with training early career researchers, playing an influential role in setting up biomedical engineering education programmes at the undergraduate and postgraduate level at Oxford, and personally having supervised or co-supervised 48 PhD students to successful completion to-date.

Machine learning in ultrasound imaging

Machine learning approaches to biomedical image analysis are gaining popularity encouraged by successes in the sister field of computer vision and increasing availability of large clinical and biological image databases.

This talk will describe how we are applying machine learning in ultrasound image analysis, an area where quantification by traditional image analysis methods is very hard due to the wide range of data qualities met in real world applications.

A major application area of interest is "womb-to-cot" imaging – imaging in pregnancy and early life. I will describe progress towards developing machine learning based solutions for ultrasound-based biomarker estimation and quantification. These solutions are designed to be "accessible" – or easy to use – by a clinical end-user, and hence suitable for application in community care and to support healthcare delivery in the developing world.