IHBI welcomes visiting Fulbright scholar

A Fulbright Scholar who is an internationally recognised expert in Digital Image Processing is visiting Brisbane to undertake a number of collaborations with IHBI researchers.

Professor Geoff Dougherty, a Professor of Medical Imaging and Applied Physics at the California State University Channel Islands, was awarded a Fulbright Senior Scholarship to undertake six months of research at QUT. As part of his scholarship visit, Professor Dougherty has been working with IHBI member Professor Jim Pope and his Magnetic Resonance Imaging (MRI) Research Team on a project aimed at better understanding the structure of cartilage and the changes that occur to this cartilage in early stages of osteoarthritis. Professor Pope and his team have developed non-invasive methods of investigating the molecular structure of cartilage. This development has the potential to improve our understanding of the changes that occur within cartilage in the early stages of osteoarthritis.

Professor Dougherty will also collaborate with IHBI member Professor Chris Langton to explore the inter-relationships between bone, marrow and fat associated with osteoporosis. The project will examine whether there is a relationship between changes in trabecular bone volume, the proportion of red to yellow fatty marrow, and the bone-marrow surface area in osteoporotic patients. ‘I am excited to be in Brisbane, collaborating with such prestigious and productive research groups’ Professor Dougherty said. Professor Dougherty’s extensive expertise in digital image processing and its diverse applications has resulted in him being invited to collaborate on a number of additional IHBI research projects. These include working with Professor Nathan Effron to analyse retinal blood vessels in patients with Type 2 Diabetes; exploring novel methods for automated measurement of three-dimensional spinal curvature in idiopathic scoliosis with Associate Professor Clayton Adam; assessing the texture of osteoporotic bone with Dr Roland Stock; and working with Dr Beat Schmutz and Professor Chris Langton to reconstruct ultrasound data of bone into 3D surface models. He was also invited to give a keynote address to the Image and Vision Computing New Zealand (IVCNZ) conference in Wellington. ‘I look forward to some very productive collaborations in Brisbane, which I hope will continue and flourish beyond the timescale of this current visit’ Professor Dougherty said. It is anticipated that Professor Dougherty’s visit will result in a number of competitive grant applications for the cartilage/osteoarthritis project with Professor Pope and the bone marrow/osteoporosis project with Professor Langton.

IHBI Higher Degree Research students and researchers have also benefited from a series of medical imaging seminars undertaken by Professor Dougherty at QUT, which included an overview of medical image processing and his recent book, and his work on retinal blood vessels.

IHBI impresses at international conference

Enzymes which play a key role in the development of human diseases were the focus of an international conference held in Queensland in October 2009.

The International Proteolysis Society’s (IPS) 2009 Conference provided the forum for a meeting of minds on proteolysis research, or the study of enzymes known as proteases which play a role in human diseases such as cancer, Alzheimer’s disease, bacterial and viral infection, and cardiovascular disease.

The International Proteolysis Society is an international group of researchers who investigate proteases in order to increase knowledge and understanding of the role proteases play in human disease, with the ultimate goal of enhancing disease treatment and prevention. As proteases are involved in a wide range of human diseases, they are key targets for therapeutic drug development to combat HIV infection, cancer, malaria, heart attack and stroke.

IHBI was the major sponsor of the five-day IPS 2009 Conference which attracted national and international protease experts to Queensland from around the world to participate in these collaborative research projects.

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IHBI researchers Professor Jim Pope and Fulbright Senior Scholar Professor Geoff Dougherty

It is expected that Professor Dougherty’s visit will also foster further IHBI collaboration opportunities with the Medical Imaging and Orthopaedics Departments at the Royal Brisbane and Women’s, Mater, Princess Alexandra and The Prince Charles Hospitals, and Central Queensland University.

Vision and driving research reaps international award

Older drivers have the highest incidence of driving difficulties and crashes within the driving population, with vision deterioration likely to be a key contributing factor.

An IHBI researcher who is working to improve the safety of older drivers has received a prestigious international award for her research into vision and driving.

Professor Joanne Wood was awarded the 2009 Bartimaeus Award by the Detroit Institute of Ophthalmology at the 2009 Eye and Auto World Conference in Detroit.

Awarded every two years, the Bartimaeus Award recognises the recipient’s international contribution to vision and driving, acknowledging the international impact of Professor Wood’s work in this field.

‘My research has demonstrated how different types of visual impairment affect driving performance under day and night-time conditions’ Professor Wood said.

Her research has also identified the factors that affect pedestrian visibility at night-time, as well as the risk factors for unsafe driving performance.

In line with these research findings, Professor Wood is working to improve the safety of older drivers and that of the wider community through the identification of evidence-based driver screening procedures, adaptations to the design of road systems to accommodate older drivers, and the development of driver education strategies and programs to maximise the safety of older drivers.

Professor Wood has established an international research network, attracting visiting scholars from around the world to participate in these collaborative research projects.

IHBI researcher Professor Joanne Wood with her Bartimaeus Award