

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. Using MRI technology, 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 Efron 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 Steck; 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 way 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 benefitted 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 researcher 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.