ECSE Seminar on Tuesday 27th April, 2004

Title: Automatic Measurement of Human Knee Cartilage Volume

Speaker: James Cheong

Abstract:
Osteoarthritis is the most common form of arthritis and involves the gradual loss of articular (joint) cartilage. It affects about 14% of the adult population and is most prevalent in the knee and hip joints. Recent studies have shown that the quantitative measurement of knee cartilage volume is an accurate and reproducible method for the measurement of osteoarthritis progression.

Current methods of cartilage volume measurement involve some form of manual segmentation carried out by a trained clinician on magnetic imaging resonance (MRI) images of a patient’s knee. This manual process is laborious and subject to the judgment of the clinician. It takes up to 1 hour to process a single knee.

The objective of this study is to develop an improved automated method that will segment and measure the volume of articular cartilage in the human tibiofemoral joint (knee) from MRI scans. This new method should be faster and more reliable than the currently used manual methods. It should allow clinicians to accurately measure articular cartilage and mark the severity of osteoarthritis in the patient knee. This presentation will discuss the initial results of using image processing to segment the tibial and femoral cartilage, as well as the future work to be carried out for this study.

About the speaker
Name: James Cheong Beng Yeong
Course: Masters of Engineering Science (Research)
Status: Applying for a PhD Conversion
Date of Enrolment: 3rd March 2003
Scholarship: MGS
Supervisor: A/Prof David Suter
Associate Supervisor: Prof. David Morgan
Previous Degree: Bachelor of Engineering (Information Engineering), 1st Class Honors
Massey University, New Zealand.