



学术报告

ACADEMIC LECTURE

题目: **Computation, Visualization and Analysis of Vessel Wall Thickness Using 3D Ultrasound and MR Images**

时间: **2011年4月1日 上午10:00-11:30**

地点: **行政楼208**

报告人: **Dr. Bernard Chiu**

特邀专家

INTRO

专家介绍

Bernard Chiu received his Bachelor of Science degree in Electrical Engineering at the University of Calgary, Canada, in 2001, his Master of Applied Science degree in Electrical and Computer Engineering at the University of Waterloo, Canada, in 2003, and his Ph.D. degree in Biomedical Engineering at the University of Western Ontario, Canada, in 2008. He was a postdoctoral fellow in the Vascular Imaging Laboratory at the University of Washington, Seattle, until he joined the Electronic Engineering Department at City University of Hong Kong. His research centers on medical image processing, quantification and visualization.

报告内容

The build-up of atherosclerotic plaque within the arterial wall of the carotid arteries has been shown to be an important contributor to stroke. Quantitative measurements of the progression/regression of carotid plaque are essential to monitor patients and evaluate new treatment options for carotid atherosclerosis. Many researchers have investigated the use of 3D ultrasound (US) and magnetic resonance imaging (MRI) to quantify plaque and vessel wall volumes. However, few studies have quantified the spatial distribution of plaques in the carotid arteries. Specific information on the *location* where plaque changes may facilitate a deeper understanding of natural disease progression. This talk describes the development of a method for analyzing changes in vessel wall thickness. The resulting 3D vessel wall thickness maps provide rich information on the spatial distribution of plaque changes. This talk also introduces a 2D representation of 3D maps. The 2D representation allows the analysis of 3D maps in a single view, eliminating the need to study 3D maps from multiple angles, and allowing easy comparison of the locations of plaque progression/regression on 2D maps obtained for the same patient at different time points. This talk also describes how these carotid maps were utilized in two studies: (1) A study on monitoring the effect of statin therapy; (2) A study investigating the difference in vessel wall thickness measurements obtained in US and MRI.