



# CCDC Seminars Presents

## TCP: Systems Analysis and Design

with

### Christopher Kellett

Hamilton Institute



**Wednesday, June 15th, 2005 4:00 - 5:00 PM Engineering II Pavilion**

### **Abstract:**

The Transmission Control Protocol (or TCP) has become ubiquitous in modern computer communications from web page downloads to FTP transfers to one of the operating modes of the popular Voice Over IP application, Skype. In spite of the popularity of TCP, analysis of network behaviour is sorely lacking, particularly in regards to the dynamic behaviour of flows in the network that make use of TCP. In this talk I will present a new model for TCP analysis. This model allows us to characterise the network equilibria in terms of TCP parameters and allows us to propose modifications to the basic TCP algorithm to improve performance for various network configurations while maintaining backward compatibility with current TCP deployments.

### **About the Speaker:**

Christopher Kellett was born in San Bernardino, California (USA) and grew up in nearby Riverside where he attended the University of California, Riverside as an undergraduate, obtaining a double Bachelor's Degree in Electrical Engineering and Mathematics. His decision to pursue graduate studies in control theory was largely influenced by Jie Chen and Jay Farrell.

Christopher Kellett earned his Master's and PhD in Electrical and Computer Engineering from the University of California, Santa Barbara under the direction of Andy Teel in the Center for Control Engineering and Computation.

Following completion of his PhD in May 2002, he joined the Centre Automatique et Systemes located in Fontainebleau, France. CAS is part of Ecole des Mines de Paris. After a year in France, he joined the Department of Electrical and Electronic Engineering at the University of Melbourne. In December 2004, he joined the Hamilton Institute.

My research interests are generally in nonlinear systems analysis and design, with a particular focus on robustness and discrete-time systems. I find the mathematics itself fascinating, but am also interested in applications to biology and communications systems.