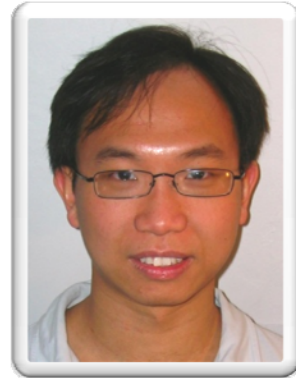


**Computation of Critical Points, and
Generic Continuity of Semi-Algebraic
Set-Valued Maps**

Mr. Jeffrey Pang
Centre for Applied Mathematics
Cornell University



Date : 18 February 2009 (Wednesday)
Time : 10 am – 11 am
Venue: SPMS-Executive Classroom 1, MAS-03-06
School of Physical and Mathematical Sciences

This talk will be on two distinct projects I am currently working on. In the first part, we describe an algorithm to compute the "mountain pass" between two given points: a connecting path along which the maximum value is minimized. We describe an algorithm that maintains lower bounds on the optimal value by keeping the two points in separate level set components. This algorithm converges, even in the nonsmooth case, and converges superlinearly locally in the smooth finite-dimensional case. Applications include computational chemistry and partial differential equations.

In the second part (independent of the first part), I will illustrate how recent methods in set-valued and variational analysis of semi-algebraic functions are helping us further our understanding in practical nonsmooth problems in optimization and control. We then present a new result on the structured discontinuity of semi-algebraic set-valued maps and its applications.

Speaker Biography

Pang Chin How Jeffrey graduated with an MS in HPCES from the Singapore-MIT Alliance in 2004, and a BSc in Mathematics (1st class honours) from the National University of Singapore in 2003. He is currently a PhD student at the Center for Applied Mathematics in Cornell University under the supervision of Adrian S. Lewis of the Operations Research department. Jeffrey was a research visitor at the CRM in Barcelona, Spain, working with Aris Daniilidis, in Fall 2008. Jeffrey's current research interests are semi-algebraic variational analysis and numerical methods for pseudospectra and critical points. He has taken up a Fields Postdoctoral Fellowship for the year 2009 to 2010, and will be at the Fields institute in Fall 2009, and at the University of Waterloo in Spring 2010.

Host: Prof. Chee Yeow Meng, Head, Division of Mathematical Sciences, School of Physical and Mathematical Sciences

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