THE UNIVERSITY   OF HONG KONG

Department of Mathematics

Numerical Mathematics and Applied Analysis Group Seminar (NMAA)

September 29, 2010 (Wednesday)
Room 309, Run Run Shaw Building, HKU

1:30 – 2:30pm

Miss Chen Xi
Department of Mathematics, HKU

Finding Optimal Control Policy in Probabilistic Boolean Networks with Hard Constraints by Using Integer Programming and Dynamic Programming

Abstract: In this paper, we study the control problem of Boolean Networks (BNs) and Probabilistic Boolean Networks (PBNs). For BN CONTROL, by applying external control, we propose to derive the network to the desired state within a few time steps. For PBN CONTROL, we propose to find a control sequence such that the network will terminate in the desired state with a maximum probability. Also, we propose to minimize the maximum cost of the terminal state to which the network will enter. Integer linear programming and dynamic programming in conjunction with hard constraints are then employed to solve the above problems. Numerical experiments are also given to demonstrate the effectiveness of our algorithms.

2:30 - 3:10pm

Miss Estela Tang Chan

Am I taking for a rid? The formula behind the taximeter

3:10 - 3:40pm

Miss Ting Ting Yau

Will I catch flu next winter? Epidmeics and how they spread

All are welcome