

THE UNIVERSITY



OF HONG KONG

Department of Mathematics

Numerical Mathematics and Applied Analysis Group Seminar (NMAA)

Interactive Higher-Order Hidden Markov Model and Its Applications

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Abstract

Hidden Markov Models (HMM) have been widely used in diverse fields, such as bio-informatics, signal processing, management science and risk management. In this talk, an Interactive Higher-Order Hidden Markov Model (IHHMM) will be introduced. In the proposed IHHMM, the hidden states depend on the observable states, and vice versa, so that the feedback effect of the observable states is taken into account in the process. Efficient procedures are given to estimate the model parameters. The model is then used in credit risk management and the detection of machine failure. These examples demonstrate the effectiveness of the proposed model and show the proposed IHHMM significantly outperforms the traditional HMM.

All are welcome
