CORS · SCRO

Canadian Operational Research Society
Société canadienne de recherche opérationnelle

Thursday, February 6th, 2025

4:00 – 5:00 p.m. EST

Online Micro Event:

The Role of Physical Understanding in Matrix-Analytic Method

By: Professor Peter Taylor, The University of Melbourne

Professor Peter Taylor is the Director of Australian Research Council Centre of Excellence for Mathematical and Statistical Frontiers and Chief Investigator at the University of Melbourne.

Professor Taylor's research interests lie in the fields of stochastic modelling and applied probability. Recently he has become interested in the interaction of stochastic modelling with optimisation and optimal control under conditions of uncertainty. He is regularly invited to present plenary papers at international conferences. He has also acted on organising and program committees for many conferences.

Professor Taylor is the editor-in-chief of the Applied Probability Trust journals *Journal of Applied Probability* and *Advances in Applied Probability* and was the Editor-in-Chief of *Stochastic Models* between 2002 and 2018. He is also a member of the editorial board of *Queueing Systems*. He served on the Awards Committee of the Applied Probability Section of the Institute for Operations Research and Management Science (INFORMS) from 2005-2007 and in 2016 was Co-Chair of the Committee for the Nicholson Prize, awarded for the best student paper in operations research.

Abstract

Since Marcel Neuts first showed that Markov chains of GI/M/1 type have a matrix-geometric stationary distribution in the 1970s and 1980s, the interplay between analytic properties and physical interpretation has played a major part in the development of matrix-analytic methods for stochastic models.

Most performance measures of interest in such models can be expressed in terms of the solutions of equations involving matrix power series, which have to be solved numerically. Over the years, various iterative algorithms have been proposed for doing this. In order to establish convergence, and gain information about the speed of convergence, it is often helpful to think about the physical interpretation of the iterates.

I shall discuss the physical interpretation of matrix-analytic algorithms that have been proposed for analysing block-structured Markov additive models.

Registration: https://forms.gle/34VBQeXCmi3m79299

Questions? Email: amir.rastpour@ontariotechu.ca

Organized by: The CORS Queueing and Applied Probability (QAP) Special Interest Group