

Report on Stochastic 2004

In July 2004, within the framed work of its general program the CRM hosted a workshop on Stochastic Networks with three different activities. The Madison style Stochastic Network Conference (SNC) included two satellite workshops. The two-day workshop on Economics of Communication Networks preceded the SNC, while the three-day Call Centre Workshop (CCW), partially funded by the Wharton Financial Institutions Center, was at the tail end of the SNC. Here are some comments from each of the three organizers relating to their associated event.

Workshop on Economics of Communication Networks

Org.: George Kesidis

This workshop attracted some of the major figures who are working on increasingly important economic issues related to the theory of communication networking. In particular, two very interesting talks on the role of economic incentives for emerging peer-to-peer networks drew a great deal of discussion during the breaks. Lively discussions also broke out during several talks and participants expressed the value of the clarification of issues that was achieved in this sometimes confusing area where a diversity of issues need to be considered simultaneously. For example,

- the roles and mathematical definitions of « fairness » and how they might be interpreted as regulation in a communication network that is run more according to free market dynamics than in current practice.
- how security, pricing & billing, and quality-of-service may be interrelated.

Stochastic Networks Conference

Org.: Peter Glynn

This meeting attracted the major figures who are contributing to the development of a mathematical theory for stochastic networks. A large portion of the talks related to various challenges that are arising in the wireless networks setting, where key issues include the spatial variation, bandwidth limitations, and the need to generate distributed control policies. The format of the conference, in which only four one hour talks were scheduled over each of the six days (with the exception of the Wednesday session, in which only three talks were scheduled), lent itself to an environment in which participants were able to pursue significant technical interactions. In spite of the lack of opportunity to give full contributed talks, the meeting attracted a significant number of attendees, in large part because the meeting provided an opportunity for unhurried technical exchange amongst all participants.

It should be noted that Alcatel provided financial support to the meeting, in recognition of the relevance of the research agenda to its core mission. A number of industrial participants attended the meeting. In addition, one of the major journals in the area, Queueing Systems: Theory and Applications, contacted the Organizer subsequent to the meeting to request that a special invited issue, consisting of papers based on the talks given at the meeting, be put together. This special issue is being pursued, and publication is expected late in 2005. This journal's interest in pursuing such a special issue is a clear testimony to the quality of the talks offered as part of the Stochastic Networks Conference.

According to one of the participants:

“A new feature for the stochastic networks conference was the inclusion of a couple of talks related to stochastic models in biology (I am thinking of the Kurtz and Hajek talks). I heard others also say that they found these talks very interesting for the fact that there was interesting mathematics related to models of interest to biologists”.

Call Center Workshop Report

Org.: Raj Srinivasan

To recognize the recent flurry of research activities in the call center area, the last day of the SNC was designated as the joint activity with the CCW. There were four talks on the last day of the SNC. Most of them concentrated on staffing large call centres using fluid models. This joint activity was very well received by the eighty two people in attendance. The CCW continued for another two days with twelve talks. There were twenty eight to forty two people in attendance for the two-day activity. The talks covered a wide range of topics including queueing network with time varying rates, statistical analysis of call centres, workforce planning and profit maximization, revenue management through cross-selling and managing learning and turnover in employee staffing. The workshop also included a tutorial on call centers.

One of the highlight of the talks was the presentation from Chantal Gagné, the General Manager of Bell Canada Holdings who discussed several challenges involved in the management of call centers at Bell Canada. In particular, she emphasized the difficulties facing the industry in forecasting call volume over the eighteen months planning horizon and training work force during that period. Active participation from the audience resulted in lively and productive discussions. Other than the annual two-day Call Center Forum run by the Wharton Financial Institutions Centre for their industrial participants, the CCW hosted by CRM is the first major workshop on call centres. Based on the feedback we have received from the participants, this workshop was a very successful one.