NYU Stern School of Business
Department of Information, Operations & Management Sciences
OPERATIONS MANAGEMENT RESEARCH SEMINAR

TOPIC: Online Revenue Management
SPEAKER: David Simchi-Levi (MIT)
DATE: Wednesday, December 10, 2014
TIME: 9:30 AM - 10:30 AM
PLACE: KMC 4-80

ABSTRACT

In a dynamic pricing problem where the demand function is unknown a priori, price experimentation can be used for demand learning. In practice, however, online sellers are faced with a few business constraints, the first of which is the inability to conduct extensive experimentation. To model this constraint, we consider a dynamic pricing model where the seller can only change price for a limited number of times during the sales season, and show that simple policies can achieve asymptotically optimal regret bounds. Another business constraint faced by retailers is limited inventory. In this case we apply Thompson sampling, a randomized strategy that balances exploration to learn demand and exploitation to maximize revenue, to develop a dynamic pricing strategy and compare the algorithm's revenue to the optimal revenue given known demand. We report the impact of our algorithms in a live implementation.

BIO

David Simchi-Levi is a Professor of Engineering Systems at MIT and Chairman of OPS Rules Management Consultants, an operations strategy consulting company. He is considered one of the premier thought leaders in supply chain management.

His research focuses on developing and implementing robust and efficient techniques for logistics and manufacturing systems. He has published widely in professional journals on both practical and theoretical aspects of logistics and supply chain management.

Professor Simchi-Levi coauthored the books Managing the Supply Chain (McGraw-Hill, 2004), The Logic of Logistics (Springer 2005), as well as the award winning Designing and Managing the Supply Chain (McGraw-Hill, 2007). His new book Operations Rules: Delivering Customer Value through Flexible Operations was published by MIT Press in 2011.

Professor Simchi-Levi has consulted and collaborated extensively with private and public organizations. He is the founder of LogicTools which provides software solutions and professional services for supply chain planning. LogicTools is now part of IBM.