Title: Data-Driven Pricing

Abstract: Pricing is central to many industries and academic disciplines ranging from Operations Research to Economics and Computer Science. At the heart of pricing lies a fundamental informational dimension regarding the level of knowledge about customers' values. In practice, the latter comes from historical data. In this talk, I will discuss the fundamental problem of data-driven pricing: how should a decision-maker optimally construct a mapping from collected data to pricing decisions. I will discuss different types of historical data structures, their key characteristics, and some of the associated challenges. I will delve in more detail on different types of common "small data" environments: conversion rates at a limited number of past prices, or samples of values through market research, for which I will present some recent results that characterize optimal performance and near-optimal mechanisms, laying some initial foundation for a (non-asymptotic) theory of data-driven pricing. (based on joint work with Amine Allouah and Achraf Bahamou).

The talk will be based on the following paper:


and a more recent version of the following paper:


Bio:

Omar Besbes is the Vikram S. Pandit Professor of Business at Columbia University, where he is a member of the Decision, Risk & Operations division in the Graduate School of Business. He is also a member of the Data Science Institute, and the research director of the Deming Center.

His primary research interests are in the area of data-driven decision-making with a focus on applications in e-commerce, pricing and revenue management, online advertising, operations management and general service systems. His research has been recognized by multiple prizes including the 2019 Frederick W. Lanchester Prize, the 2017 M&SOM society Young Scholar Prize, the 2013 M&SOM best paper award and the 2012 INFORMS Revenue Management and Pricing Section prize. He serves on the editorial boards of Management Science and Operations Research.

He has taught over the years core MBA courses in Operations Management and Business Analytics, an MBA elective on advanced Business Analytics, as well as various Ph.D. seminars on stochastic models, revenue management and data-driven decision-making. He is a recipient of the Dean's award for teaching excellence in the core at Columbia Business School.

Omar is a graduate of Ecole Polytechnique (France) and received a M.Sc. from Stanford University in 2000 and a Ph.D. from Columbia University in 2008. Before joining Columbia, he was on the faculty at the Wharton School, University of Pennsylvania.