THE HONG KONG POLYTECHNIC UNIVERSITY
DEPARTMENT OF MANAGEMENT AND MARKETING
Departmental Research Seminar

A Generative Model of Consumer Collections
By

Dr Yang Li
Cheung Kong Graduate School of Business

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Venue : P307

Abstract

Consumers maintain collections of different items for a variety of reasons. As the collection grows in size, they also tend to categorize their collection into different subsets or categories based on several criteria. The items in a collection reflect a consumer's preferences and the categories provide information about the different contexts in which items are consumed. We develop a novel deep generative modeling framework that represents the network structure of such consumer collections using multiple interlocked hypergraphs. Our model uses topological neural networks that leverage the hypergraph structures and covariates of the different entities to generate probabilistic deep embeddings of consumer collections as well as the items and item-categories within these collections. We then apply our framework to model the digital music collections and playlists of music consumers. We show that our model outperforms several sophisticated benchmark models in predicting the linkages in the music data. We show how our model can be used by firms to generate novel personalized playlists, recommend existing songs and song categories, and expand existing collections to include newer items. Beyond the music application, our methods are broadly applicable to other consumer collections where categorization reflects the context of product consumption.

Dr Yang Li serves as an Associate Professor of Marketing at Cheung Kong Graduate School of Business (CKGSB). He holds a Ph.D. in Marketing and a M.S. in Biomedical Engineering, both from Columbia University, as well as a B.S. in Electronics Science from Peking University. His scholarly expertise lies in statistical machine learning and Bayesian nonparametrics, which he applies to a variety of areas such as online personalization, text mining, and choice modeling. Dr Li has published on top-tier academic journals including *Management Science*, *Marketing Science*, *Journal of Marketing Research*, and *Journal of Consumer Research*. At CKGSB, he teaches marketing management to EMBA, DBA, MBA, and Executive Education. In addition to academic pursuits, Dr Li has shared his insights with leading companies, providing consultancy to Tencent, The Trade Desk (China), Haier, and Tmall, etc. Dr Li also brings his analytical acumen to the corporate governance realm, holding board positions at several publicly traded companies across mainland China and Hong Kong, where he helps steer strategy and innovation.

All interested are welcome.

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