Simulacra and Selection

Clothing Set Recommendation at Stitch Fix

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ABSTRACT

Choosing a set of items from an inventory is a common problem faced by customers of nearly any retailer. Modern retailers aid and influence customer decisions, using techniques like recommender systems and market basket analysis to deliver personalized and contextual item suggestions. While such methods typically just augment a traditional browsing experience, Stitch Fix goes a step further by exclusively delivering curated selections of items, via algorithmically-assisted stylist recommendations. Our understanding of the human-in-the-loop element in this selection process is crucial to building effective tools to assist stylists in delivering personalized items.

When stylists at Stitch Fix select an assortment of clothing for a client, they consider many nuanced relationships between the items, as well as with the client. For example, a stylist may fill a client's request for a work outfit by choosing pants and a blouse that pair well together, as well as fitting the client's stated preferences and her inferred sense of style. This can be described as a contextual subset selection problem, where the goal is to assemble a conditionally optimal set of items, given inventory constraints and context. I will discuss our nonlinear factorization approach to contextual subset selection, the application to a human-in-the-loop recommendation system, and connections to related problems.

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CCS CONCEPTS

• **Information systems~Recommender systems** • **Computing methodologies~Factorization methods** • Information systems~Probabilistic retrieval models

KEYWORDS: Recommendation Systems; Factorization Models; Set Selection

BIOGRAPHY

Kevin Zielnicki leads a team of Data Scientists focused on optimizing Stitch Fix's human-in-the-loop styling process with contextual recommendations. Expert stylists leverage Stitch Fix's rich and unique fashion data to power tools and algorithms that help millions of clients find clothing they love. Kevin is particularly interested in the impact algorithms can have when used as an amplifier for human creativity. He holds a Physics Ph.D. in Optical Quantum Information, and now appreciates working work with data that can be observed without changing its value.