Context-Aware Recommender Systems

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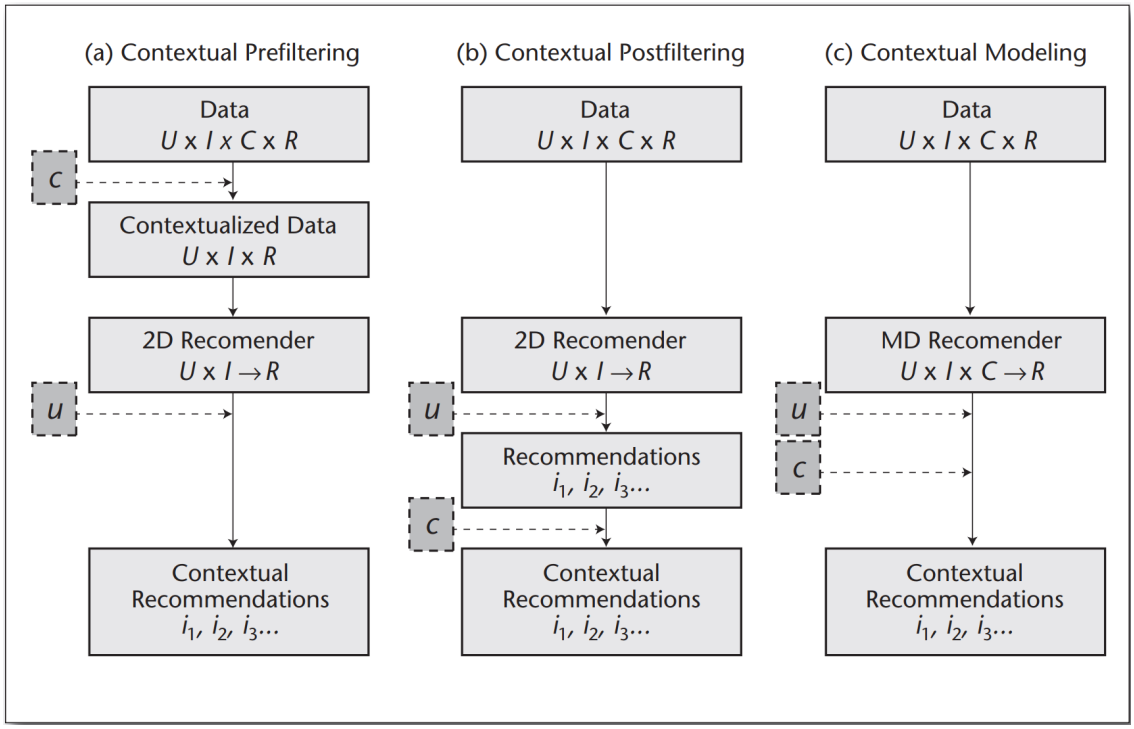
Introduction

This study by Gediminas Adomavicius, Bamshad Mobasher, Francesco Ricci, and Alex Tuzhilin analyse the role of context in recommender systems by:

1. Considering context as the existence of *contextual factors* present in recommendations. Each factor having a structure of its own.
2. Basing context classification (determination of kinds or types of contexts) on what a recommender system knows about the contextual factors and on the factors' variation over time.

How Contextual Factors Change	Knowledge of the RS about the Contextual Factors		
	Fully Observable	Partially Observable	Unobservable
Static	Everything Known about Context	Partial and Static Context Knowledge	Latent Knowledge of Context
Dynamic	Context Relevance Is Dynamic	Partial and Dynamic Context Knowledge	Nothing Is Known about Context

3. Presenting three different ways of incorporating context into a recommender system — Contextual Prefiltering, Contextual Postfiltering and Contextual Modeling.



4. Reviewing a handful of applications of context aware recommendation systems (CARS).
5. Positing challenges and future research directions in the area, focusing on the scarcity of scientific inquiry and study of five of the six types of contexts (being static and fully observable context the most studied).

Commentary

The principal aspect of the article that interested me is the definition of context the authors take. I think it is useful insofar it allows the system designer to address particularities of each context type separately. Furthermore, using the framework proposed in this study permits the identification of the type of contexts that are being dealt with, possibly making development easier, more accurate, and more likely to arrive at models tailored for the domain situation.

On another topic, while I was reading the study I wondered if context could be confused in any way with content (not on the words' similarity, obviously). I think this could be possible because I can think, for example, of an item's category as a context for the item or for the user browsing in some category. This could be problematic especially in the third paradigm of incorporation of context (Contextual Modeling), because using a content based model within this paradigm, for example, could blur the line that separates item content form context. That does not, however, necessarily mean that the model will not work well, but it would make it less understandable or harder to implement or design, in my opinion. Nonetheless, I do believe one could be careful with their definitions and effectively avoid these kinds of confounding.

Taking the confounding problem further, the mere existence of this paper signals a (good) desire for standardisation in CARS. Standards, among other things and as we should know, help unconfound concepts. The article tries to define abstract concepts that can conveniently be applied in multiple (if not all) domains in order to incorporate context in a clear, standard manner.