Context v. Content:
The role of semantic and social knowledge in context-aware recommendation

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Abstract

Context aware recommender systems go beyond the traditional personalized recommendation models by incorporating a form of situational awareness. They provide recommendations that not only correspond to a user's preference profile, but that are also tailored to a given situation or context.

In many domains, explicit contextual factors and their values may not be known to the system a priori, but may need to be learned or inferred in the course of user's interaction with the system. Moreover, the contextual state of a user can be dynamic and change during that interaction. In such systems, semantic knowledge about the domain, content features extracted from items, and social annotations representing user attitudes and interests can be a source of additional contextual information that can be used to effectively for inferring contexts and adapting to contextual changes.

In this talk we focus on the role of this type of semantic and social knowledge as part of the design of hybrid context-aware recommender systems. We will explore several case studies that demonstrate the interaction between context and semantic or social knowledge. In particular, we will look at an approach where user profiles are represented as mixtures of the latent topics allowing for a unified model of users, items, and the meta-data associated with contexts; an approach where contextual information in obtained by mining social annotations or other textual features associated with a user's current situation and used in combination with user preference histories to compute a utility function over the set of items; and an approach that emphasizes the role of a domain ontology in the form of a concept hierarchy as an integral part of a user's evolving contextual profile.