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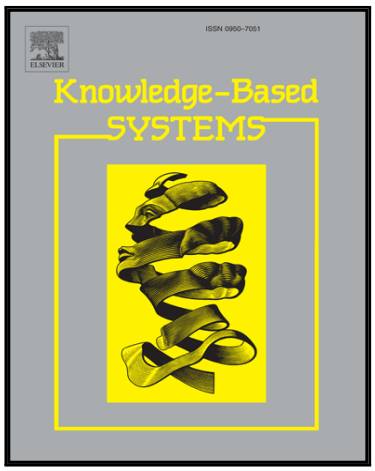

Characterizing Context-Aware Recommender Systems: A Systematic Literature Review

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Characterizing Context-Aware Recommender Systems: A Systematic Literature Review

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Abstract

Context-aware recommender systems leverage the value of recommendations by exploiting context information that affects user preferences and situations, with the goal of recommending items that are really relevant to changing user needs. Despite the importance of context-awareness in the recommender systems realm, researchers and practitioners lack guides that help them understand the state of the art and how to exploit context information to smarten up recommender systems. This paper presents the results of a comprehensive systematic literature review we conducted to survey context-aware recommenders and their mechanisms to exploit context information. The main contribution of this paper is a framework that characterizes context-aware recommendation processes in terms of: i) the recommendation techniques used at every stage of the process, ii) the techniques used to incorporate context, and iii) the stages of the process where context is integrated into the system. This systematic literature review provides a clear understanding about the integration of context into recommender systems, including context types more frequently used in the different application domains and validation mechanisms—explained in terms of the used datasets, properties, metrics, and evaluation protocols. The paper concludes with a set of research opportunities in this field.

Keywords: Recommender systems, Context-aware recommender systems, Pre-filtering, Post-filtering, Context modeling, Recommender systems evaluation

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