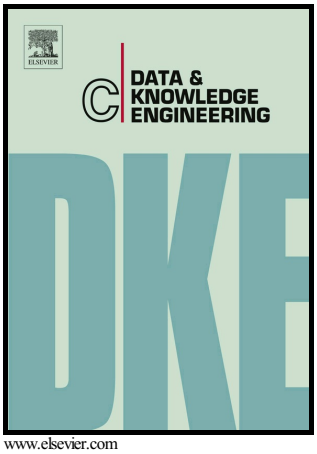

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Abstract

With the evolution of location-sensing devices and associated technologies, mobility data driven scientific discovery approaches became an important paradigm for advanced computing performed in various central areas i.e., Internet of things and social networks. Under this paradigm, trajectory data is considered as a core revealing details of instantaneous behaviors piloted by mobile entities. This forms the need of modeling of such behaviors and the understanding of them, and actually, gave rise to different modeling approaches using either conceptual modeling or ontologies. Modeling and querying of trajectory data are still challenging because of their structural and semantic heterogeneities, and due to the complexity of establishing choices about the domain' consensual knowledge. Ontologies are promising solutions for the above two problems seeing that they are intended to reduce structural heterogeneity among sources and to specify the semantics of concepts in an unambiguous way. In this paper, we propose a framework for a semantics oriented modeling and querying of trajectory data. We present an ontology-based trajectory pivot model that covers common structures encountered in trajectories associated with links to application and geographic modules. We validate our proposal through a case study dealing with human movement activity.

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