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Abstract

Spatial co-location patterns represents the subset of Boolean spatial features (e.g. Frontage roads, freeways) whose instances are often located in close geographic proximity. For instance, stagnant water founts and west Nile ailments are often co-located. The co-location pattern can be defined as an undirected connected graph in which every node represents a feature and every single edge denotes relationship (neighbourhood) between connecting features. Literature provides different approaches (including transaction based, join and join-less approaches) to discover co-location patterns. This paper proposes, implements and tests an image processing based algorithm to discover these patterns. The algorithm inputs minimum confidence measure (for statistical significance), neighbourhood distance threshold and set of Boolean spatial features, whose instances are represented as an image. It converts the image into binary image and then uses the concept of neighbourhood relationship (materialized using distance threshold) and confidence measure to mine the patterns. Furthermore, this paper provides implementation and testing of proposed algorithm in terms of time and space complexity.

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Index Terms

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Keywords

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