Karlsruher Institut für Technologie

Institute of Theoretical Informatics (ITI)
Scalable Algorithms
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Spacial Indices for Weighted Space

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1 Description

Embeddings are an important tool for making symbolic data accessible to machine learning algorithms. For graphs with a heterogeneous degree distribution, weighted embeddings have proven to be particularly effective. In such embeddings, each vertex is mapped to a d-dimensional vector along with a weight. Vertices are considered neighbors if the distance between their vectors is small or if their weights are sufficiently large.

A central component in computing weighted embeddings is the use of spatial range queries to determine neighboring vertices. The aim of the project is to explore which spatial data structures are best suited to efficiently handle such queries. On the one hand, this involves examining how well existing data structures can be adapted to weighted embedding space. On the other hand, it should be investigated whether the specific point distributions that arise in graph embeddings can be leveraged to develop more efficient data structures.

2 Supervision

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