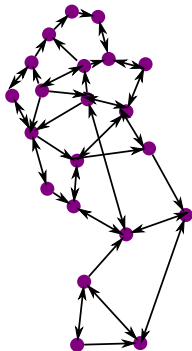# Directed Graph Embedding: an Algorithm based on Continuous Limits of Laplacian-type Operators

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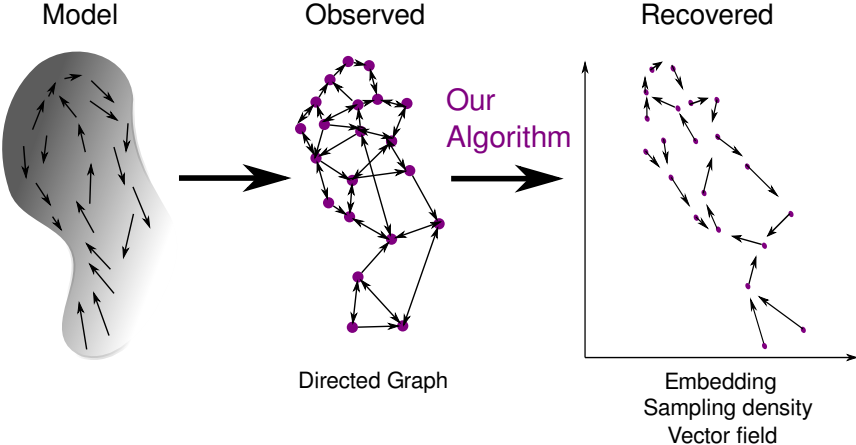
Directed Graph
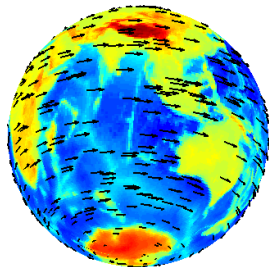

Problem

- Embed directed graph in euclidean space

AND

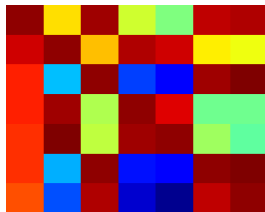- Capture the directionality of the graph

Model Schematic

Model

Observed

Recovered

Our
Algorithm

Directed Graph

Embedding
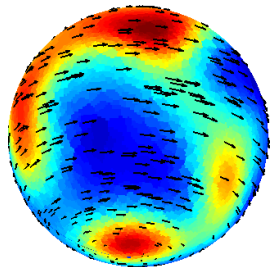Sampling density
Vector field

Artificial Data

Model

Observed

Recovered

5000x5000 Asymmetric
adjacency matrix

Embedding
Sampling density
Vector field

Main Contributions

1. Manifold-based generative model for directed graphs with weighted edges.
2. Asymptotic results for diffusion operators constructed from the directed graphs.
3. Natural algorithm for estimating the model.
4. Real Data: