Directed Graph Embedding: an Algorithm based on Continuous Limits of Laplacian-type Operators
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Problem
- Embed directed graph in euclidean space
AND
- Capture the directionality of the graph
Model Schematic

Model -> Observed

Directed Graph

Our Algorithm

Recovered

Embedding
Sampling density
Vector field
Artificial Data

- Model
- Observed
  - 5000x5000 Asymmetric adjacency matrix
- Recovered
  - 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: