Social Data Science

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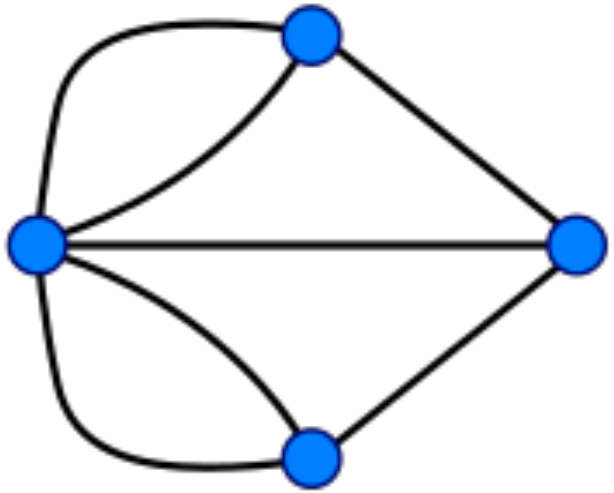
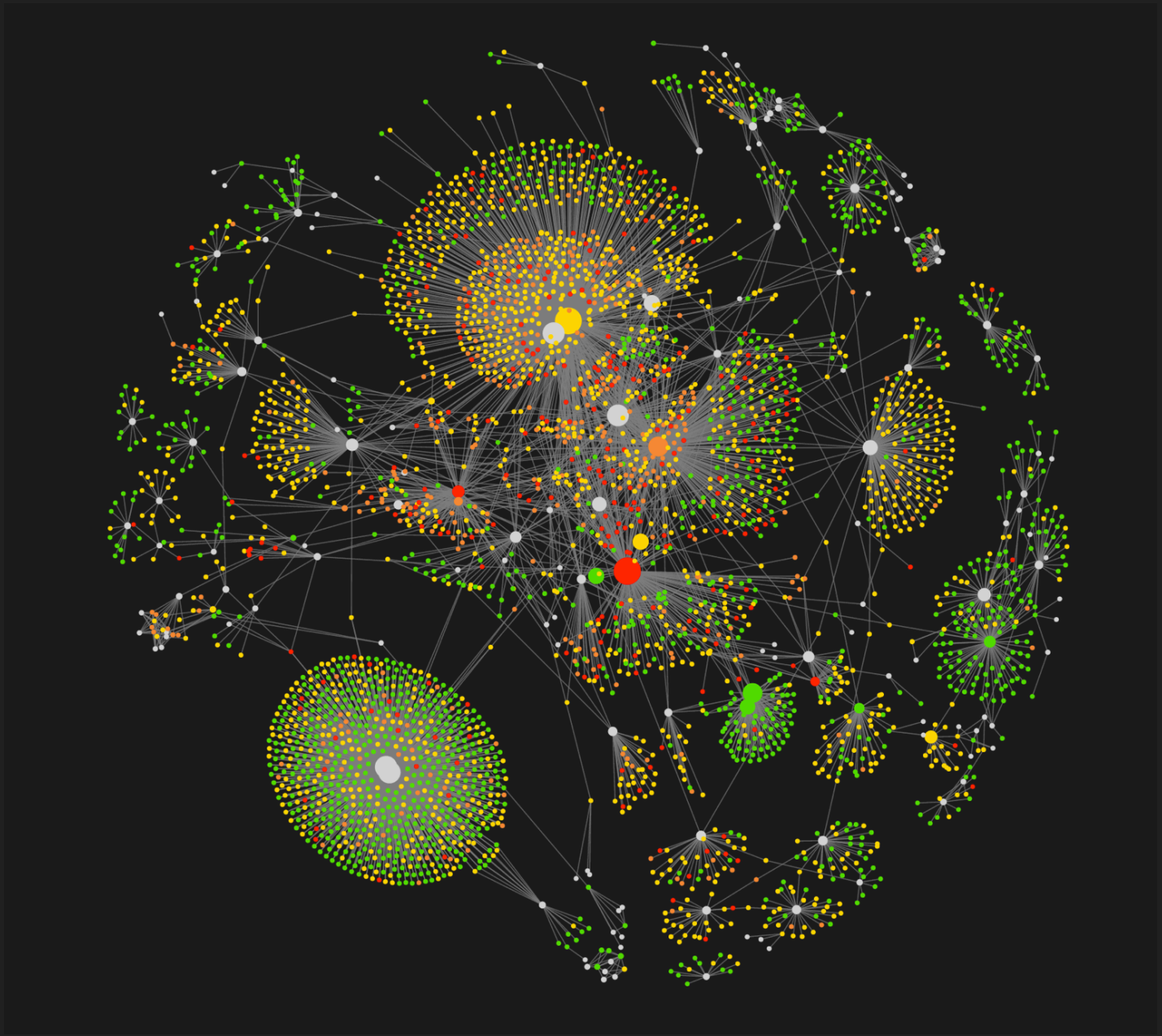
You have a good sentiment model. Now what?

- Identify influencers
- Construct audiences
- Activate advocates

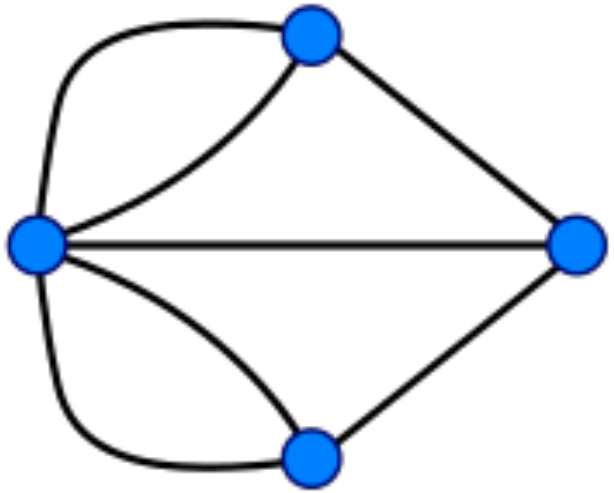
Key model: *social networks*





Social Network Analysis

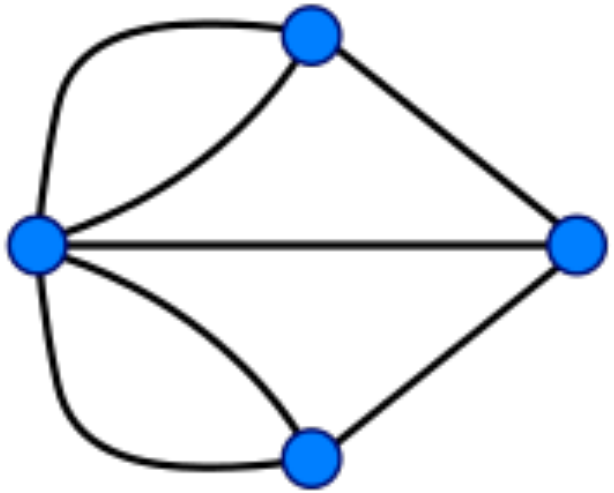
1. Build network model from data
2. Community detection
3. Influence modelling / optimization



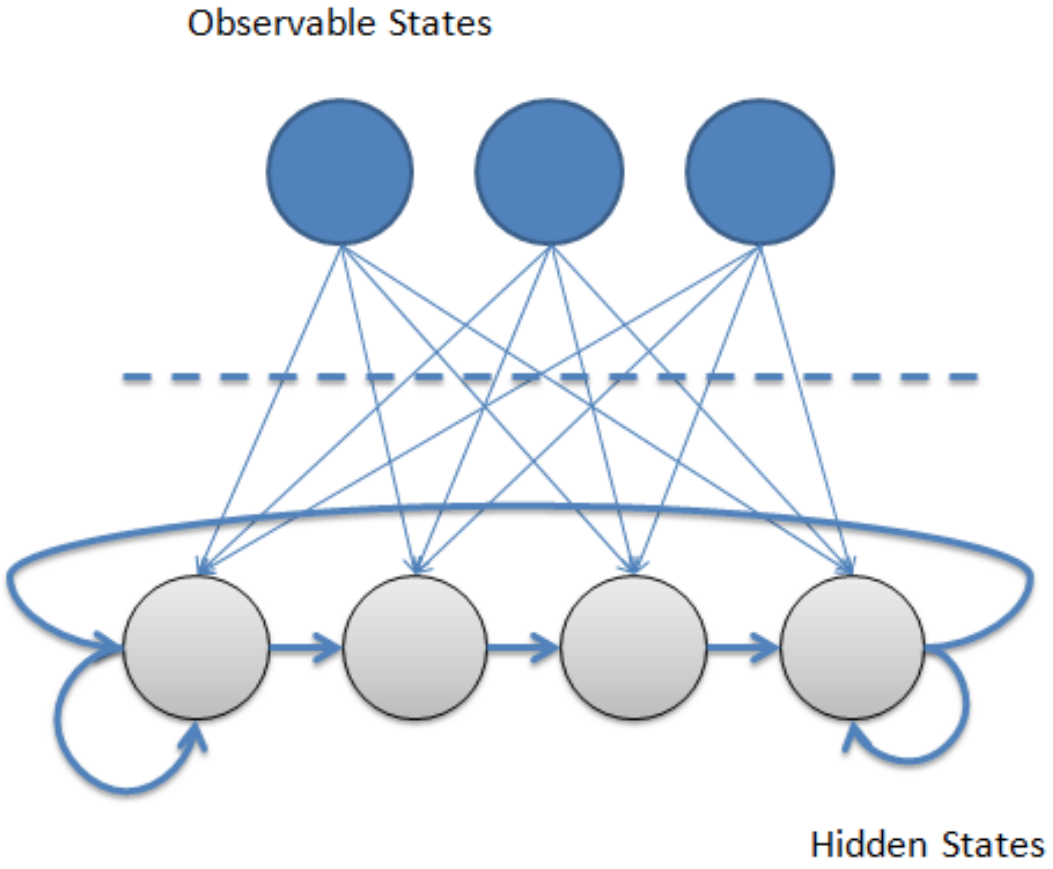
Network Models

Social graph: nodes are people, edges are:

- Interactions
- Followership
- Latent influence

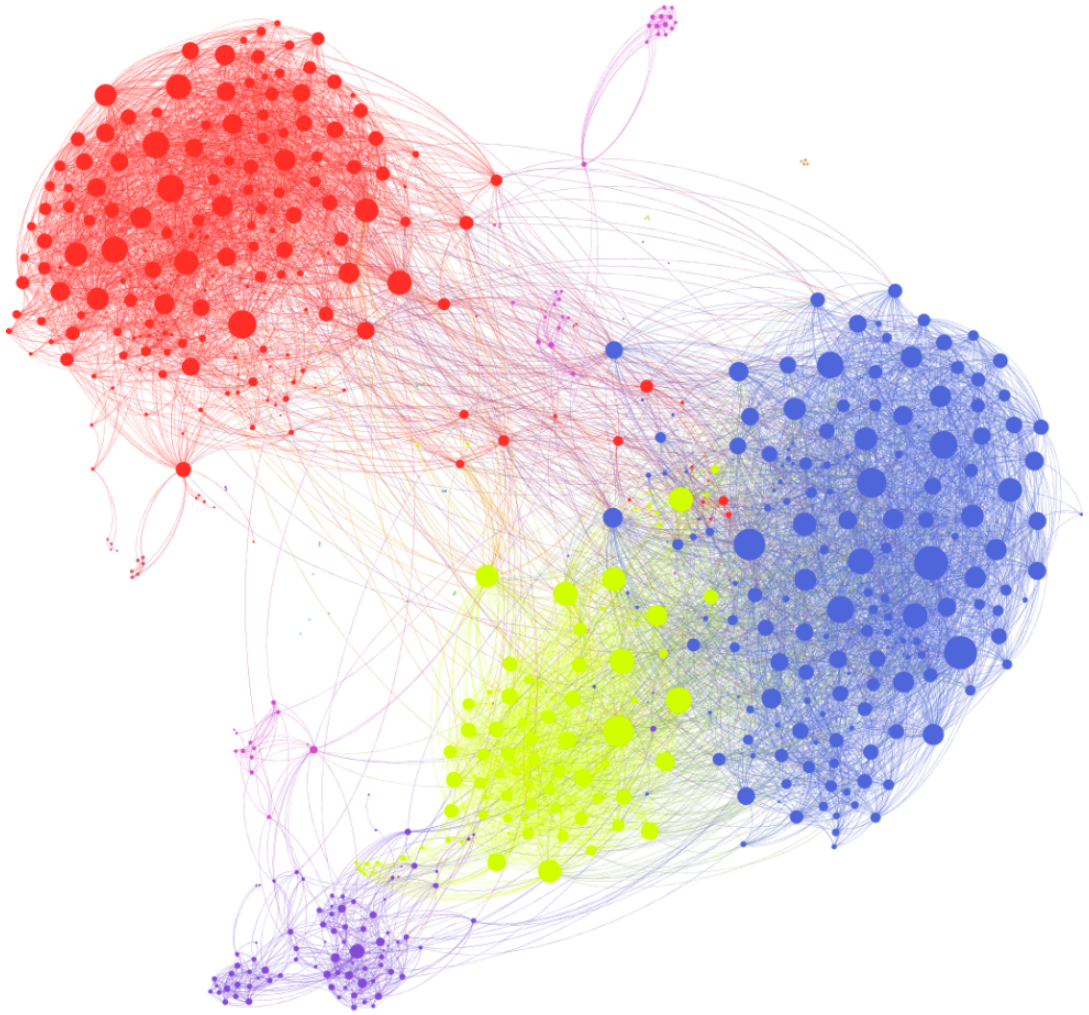


Coupled Hidden Markov Models



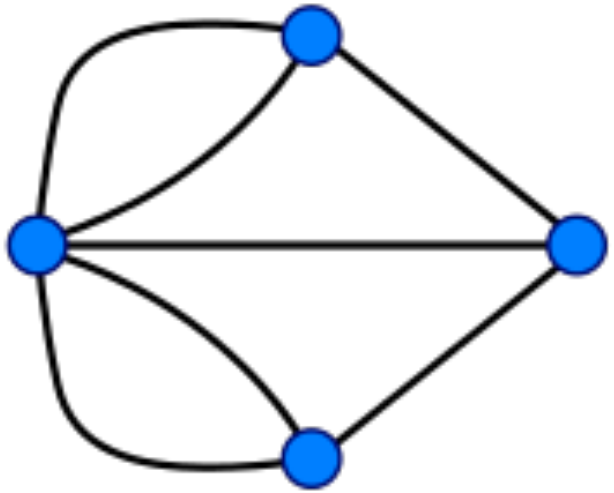

Community
Detection

Isoperimetric Problem

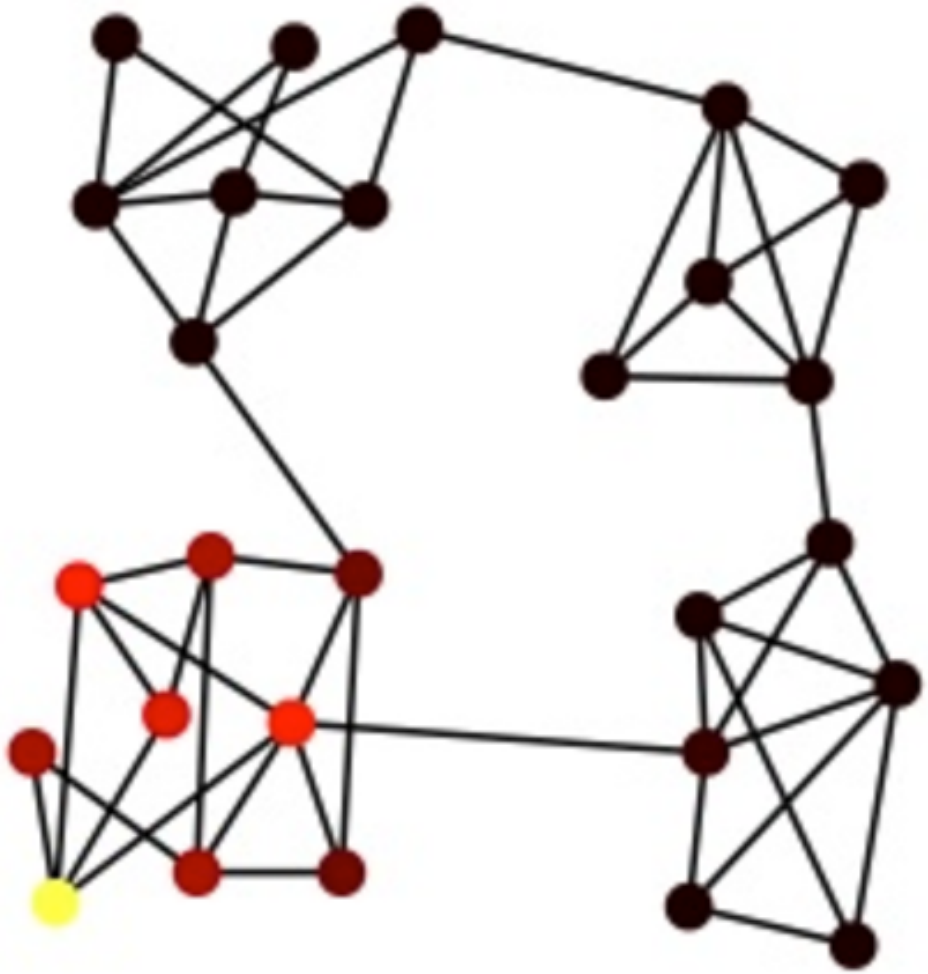


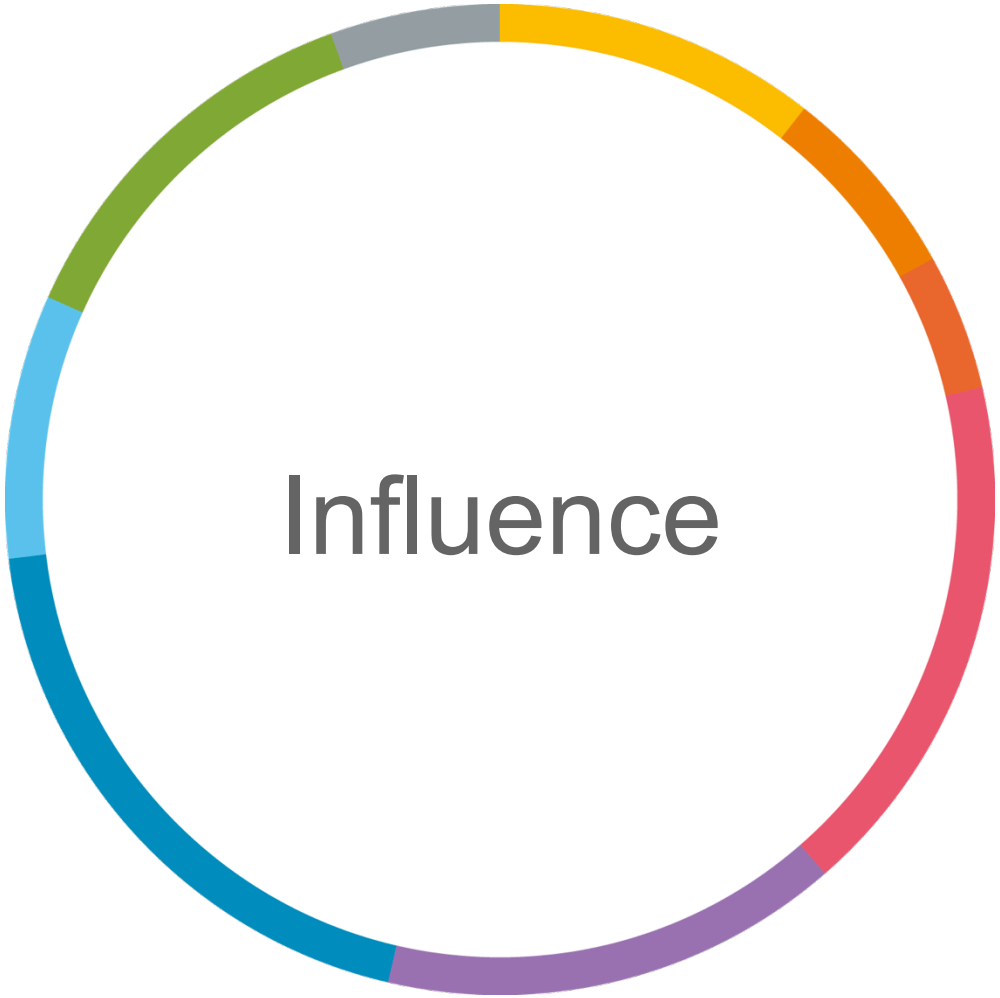
Algorithms:

- Fiedler vector
- Louvain
- Short random walks

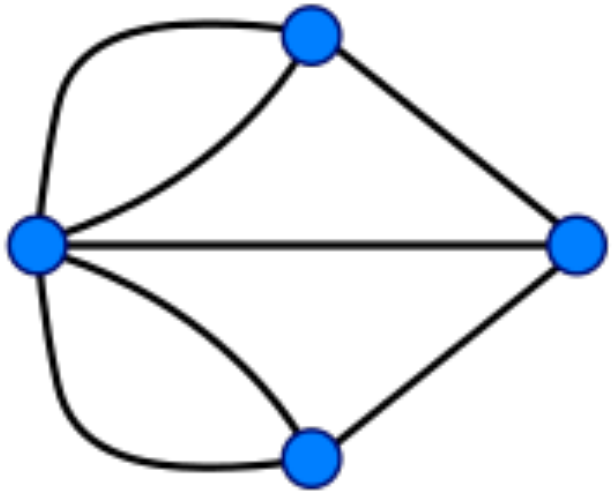


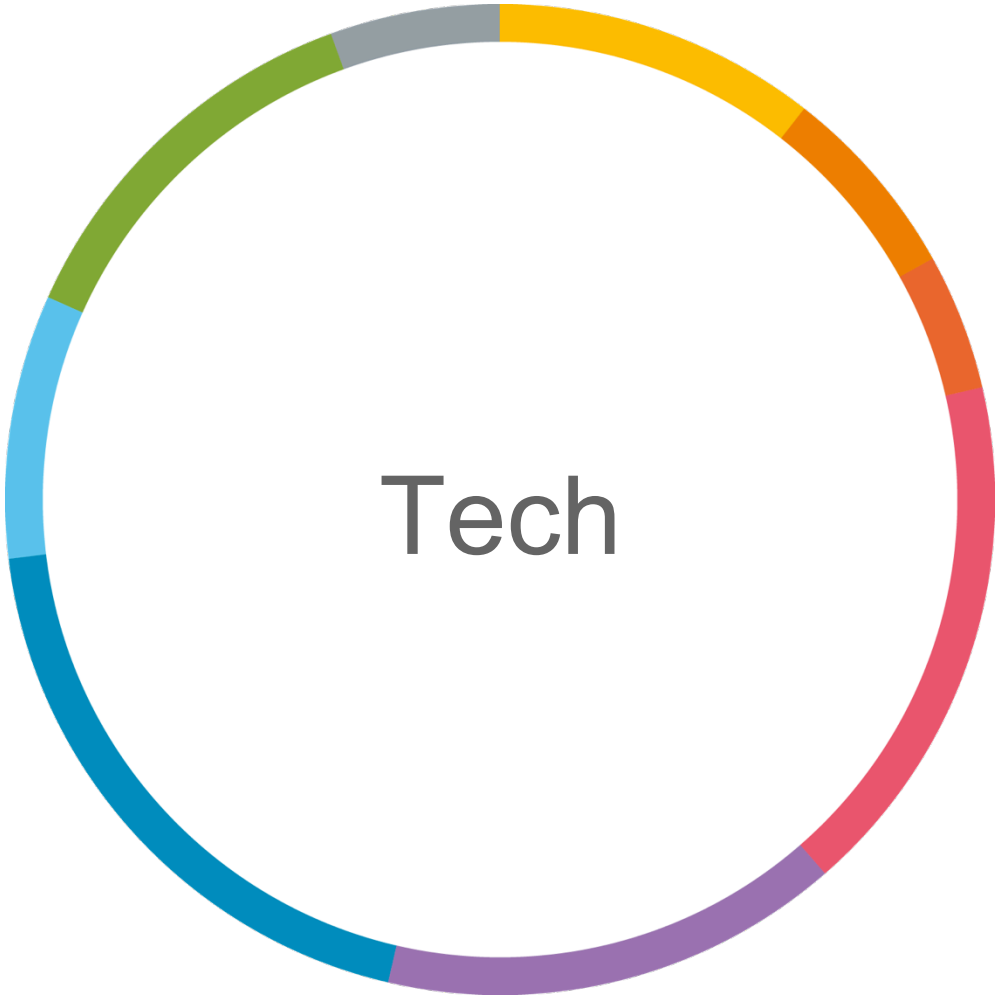
Short Random Walks



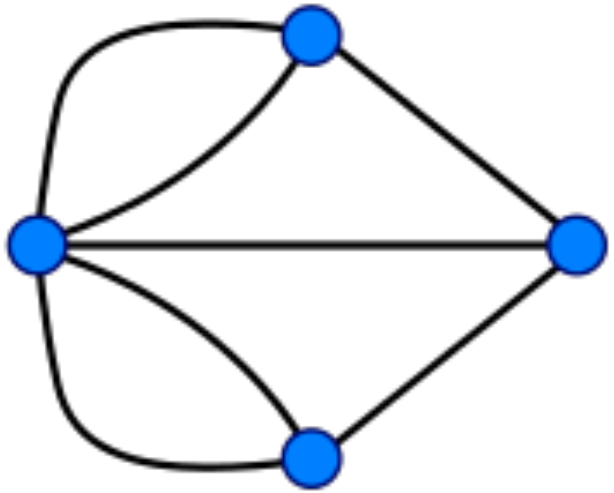

Influence

- Linear threshold model
- Independent cascade model
- Centrality heuristics (degree, eigenvector, PageRank, etc.)




Tech

- Networkx (Python)
- Graphx / GraphFrames (Spark)
- Graph databases?



References

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- Modeling Temporal Activity Patterns in Dynamic Social Networks by Vasanthan Raghavan et al
- Four proofs for the Cheeger inequality and graph partition algorithms by Chung
- Maximizing the Spread of Influence through a Social Network by Kempe et al
- networkx.github.io
- spark.apache.org/graphx