# Graphs in Machine Learning

## Similarity Graphs Introduction

From Data to Graphs

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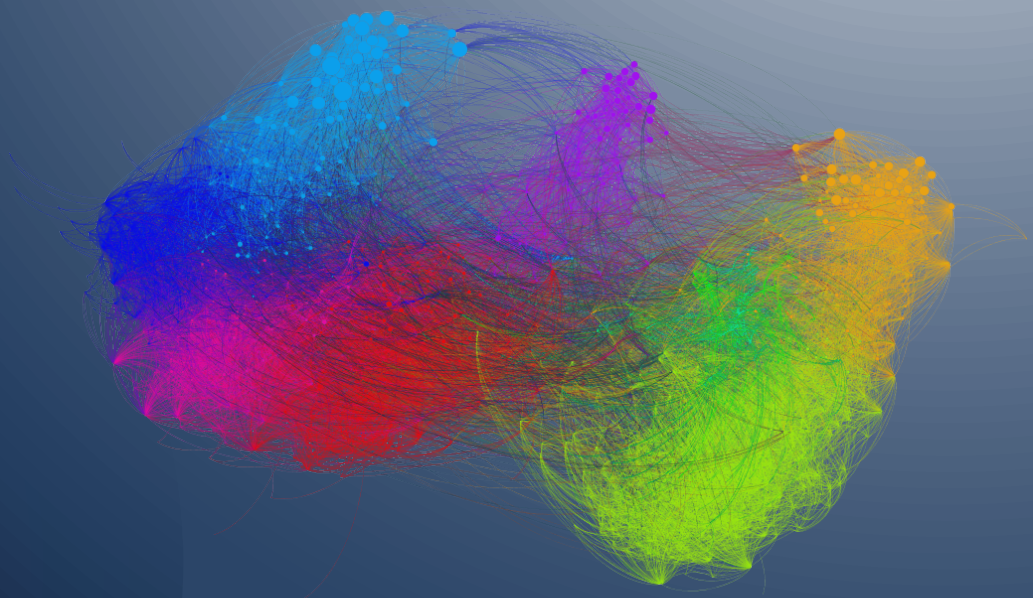
Partially based on material by: Andreas Krause, Branislav Kveton, Michael Kearns

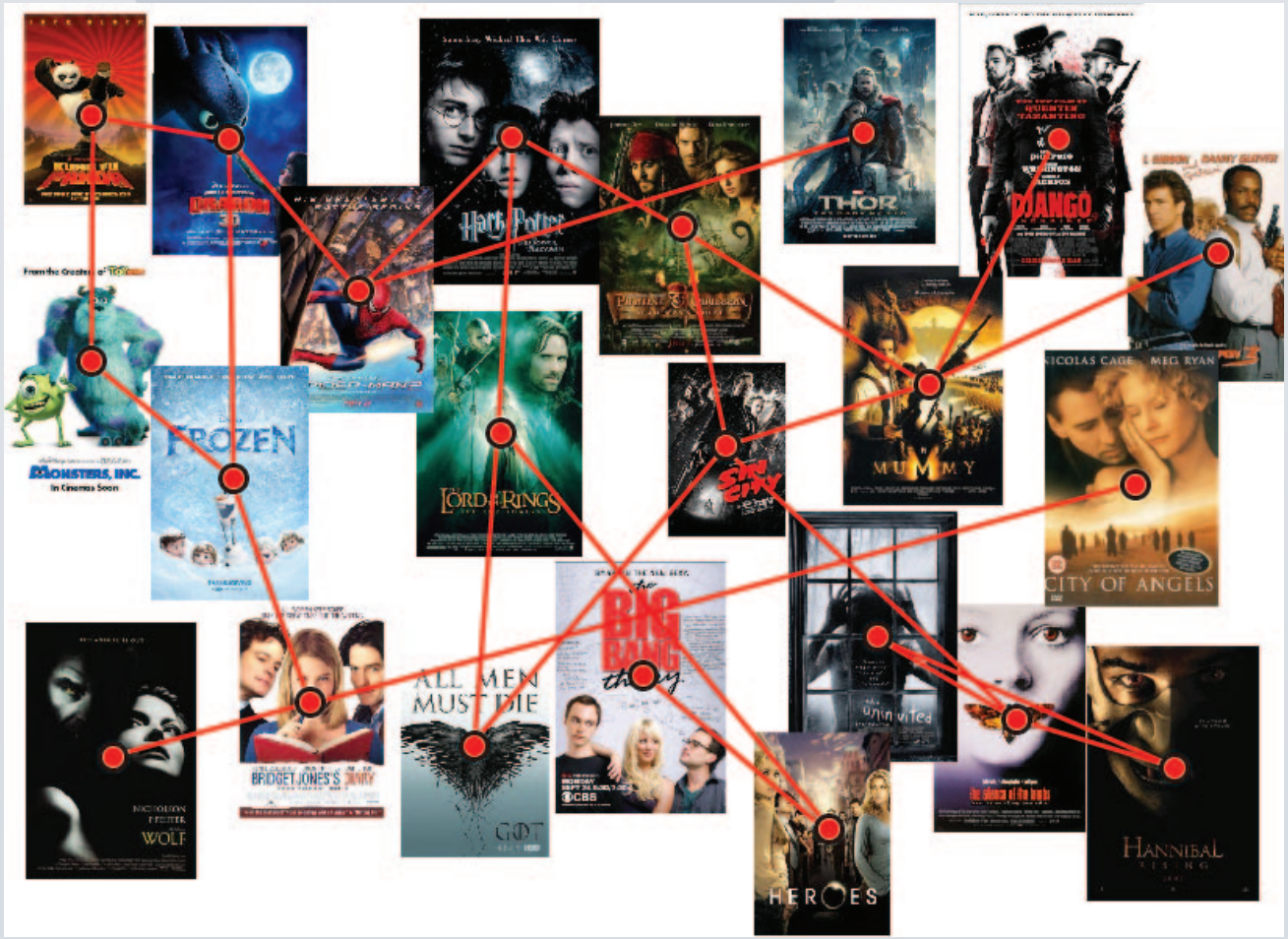


# Graphs from similarity networks

**graph is not naturally given**

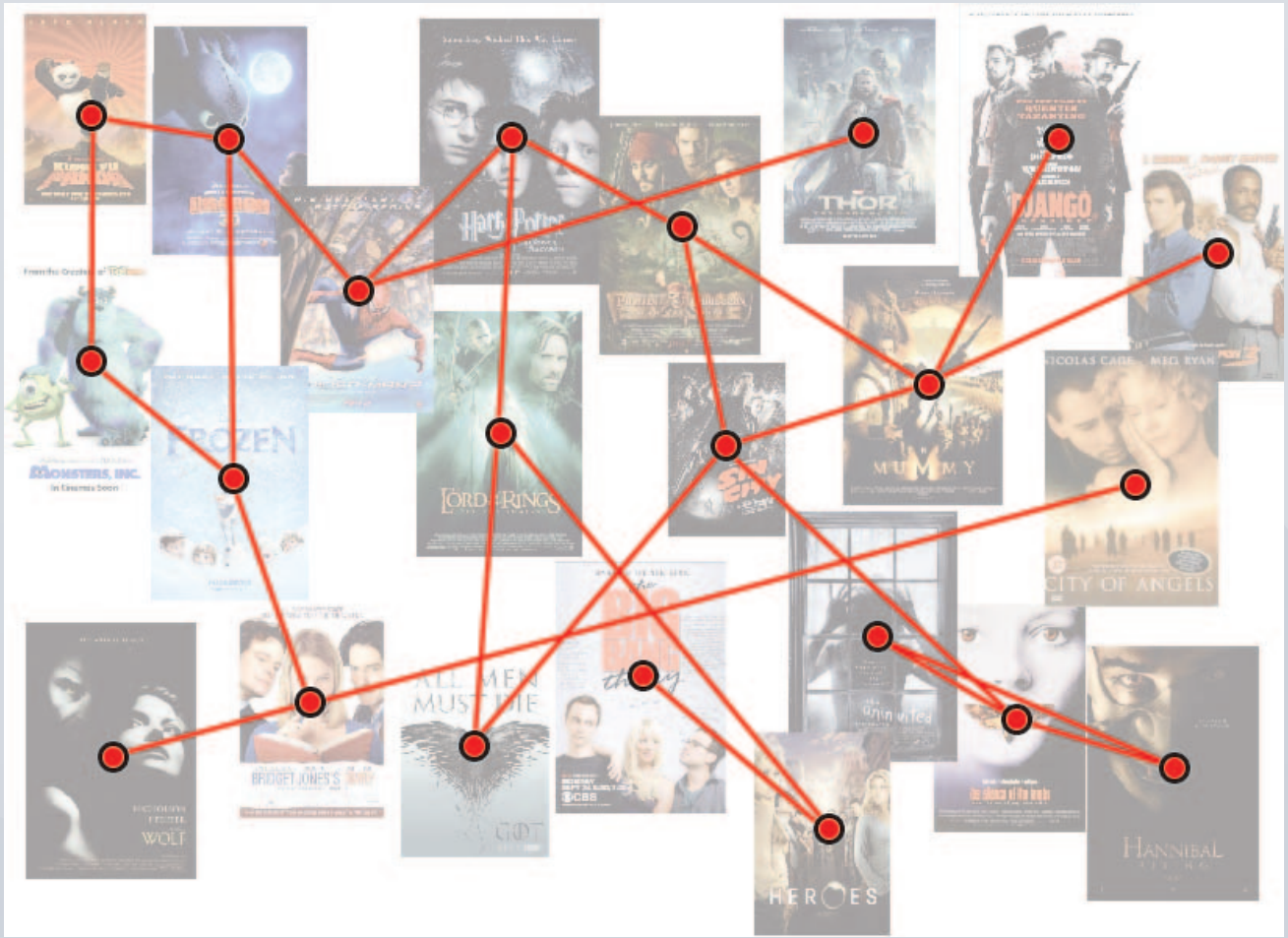
# Graphs from similarity networks

**but we can construct it**



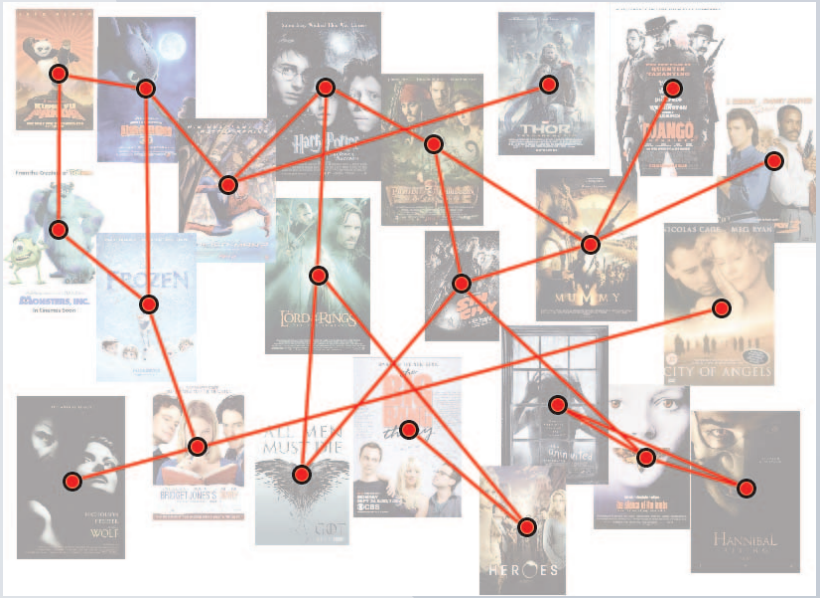
# Graphs from similarity networks

**and use it as an abstraction**



# Graphs from similarity networks

- vision
- audio
- text
- typical ML tasks
  - semi-supervised learning
  - spectral clustering




Movie similarity

# Similarity Graphs

Input: $\mathbf{x}_1, \mathbf{x}_2, \mathbf{x}_3, \ldots, \mathbf{x}_N$

- raw data
- flat data
- vectorial data

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https://misovalko.github.io/mva-ml-graphs.html