

Graphs in Machine Learning

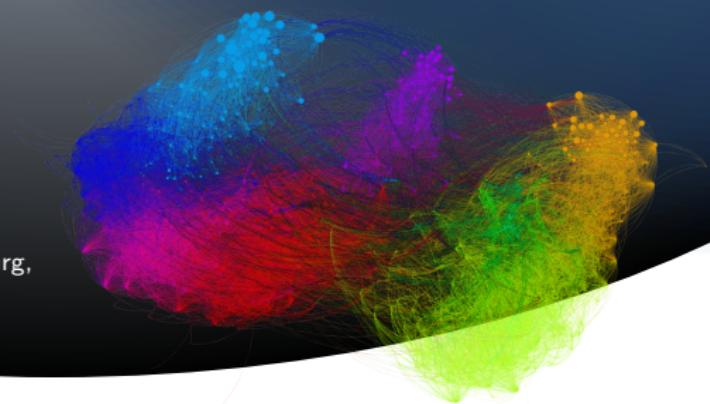
Laplacian and Random Walks

Stationary Distribution

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Partially based on material by: Ulrike von Luxburg,
Miller, Doyle & Schnell, Daniel Spielman



Normalized Laplacians

\mathbf{L}_{sym} and \mathbf{L}_{rw} are PSD with non-negative real eigenvalues

$$0 = \lambda_1 \leq \lambda_2 \leq \lambda_3 \leq \cdots \leq \lambda_N.$$

(λ, \mathbf{u}) is an eigenpair for \mathbf{L}_{rw} iff (λ, \mathbf{u}) solve the generalized eigenproblem $\mathbf{L}\mathbf{u} = \lambda\mathbf{D}\mathbf{u}$.

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