

# Laplacian Eigenmaps for Dimensionality Reduction and Data Representation

Neural Computation, June 2003; 15 (6):1373-1396  
Presentation for CSE291 sp07

M. Belkin<sup>1</sup> P. Niyogi<sup>2</sup>

<sup>1</sup>University of Chicago, Department of Mathematics

<sup>2</sup>University of Chicago, Departments of Computer Science and Statistics

5/10/07

# Outline

- 1 Introduction
  - Motivation
  - The Algorithm
- 2 Explaining The Algorithm
  - The optimization
  - Continuous Manifolds - The Heat Kernel
- 3 Results
  - The Swiss roll
  - Syntactic structure of words

# Outline

- 1 Introduction
  - Motivation
  - The Algorithm
- 2 Explaining The Algorithm
  - The optimization
  - Continuous Manifolds - The Heat Kernel
- 3 Results
  - The Swiss roll
  - Syntactic structure of words