Movie Recommendations Using Low-dimensional Codes and User Specified Feature Relevance

Chris Curro, David Katz, Harrison Zhao

May 2015

Goal

- Rich low-dimensional latent space
- High quality movie recomendations based on nearest neighbors
- User input on the reocomendation

Dataset

Tag Genome dataset provied by grouplens

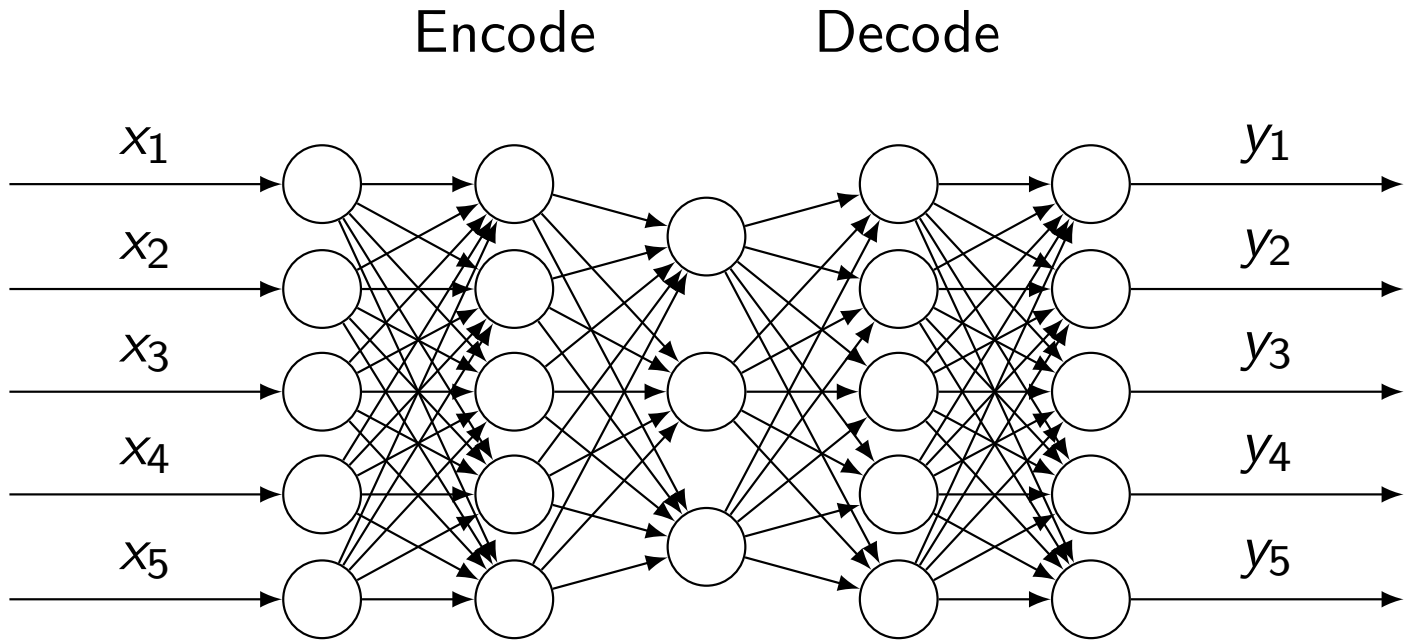
- 10,000 movies
- 1,000 tags

Approach

- Autoencoders for nonlinear PCA
- Nearest neighbors with weighted features

Autoencoders

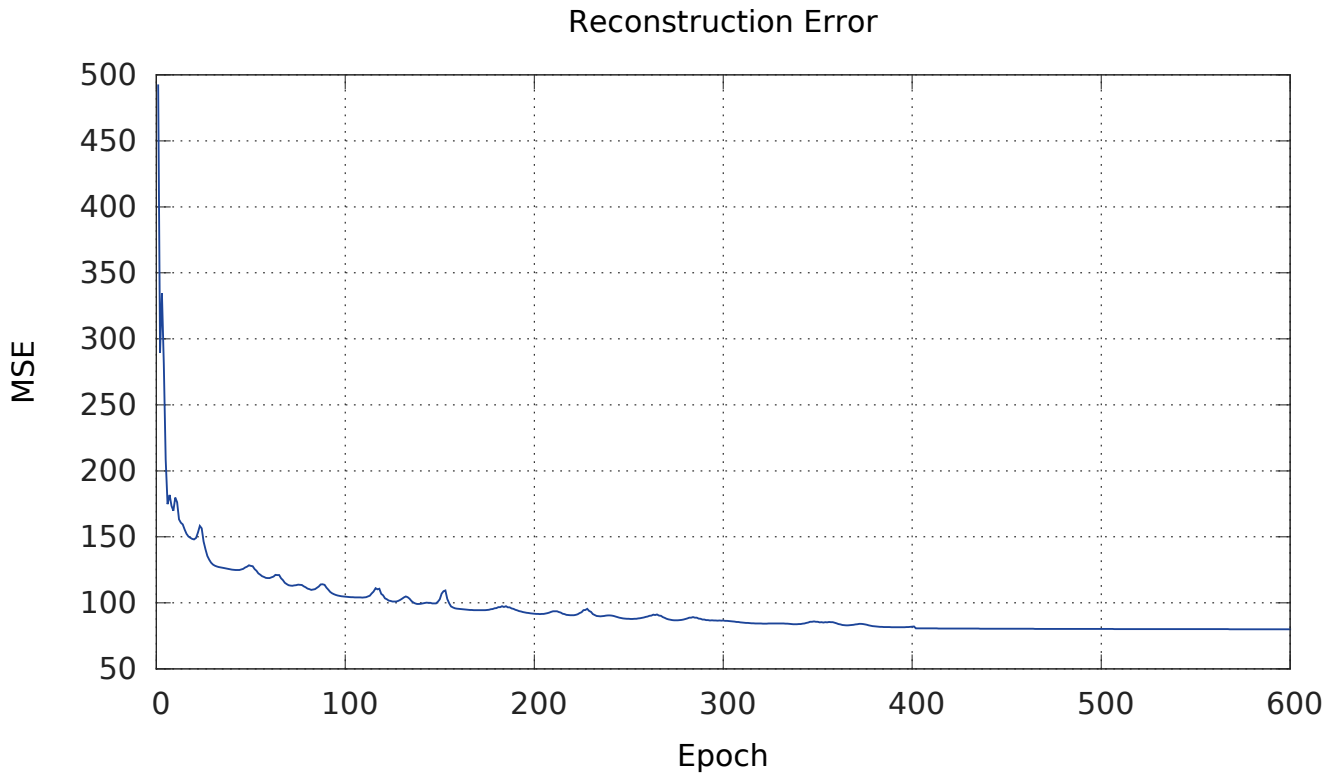
$$\mathbf{y} = f\left(W\mathbf{x} + \mathbf{b}\right) \tag{1}$$



Autoencoders

- Map 1128 feature space onto a 10 dimensional space
- Single hidden layer encoder and decoder
- Hyperbolic tangent neurons

Autoencoders



Nearest Neighbors

Performance

Difficult to evaluate without explicit user feedback

Demo

Link or something

Movie Recommendations Using Low-dimensional Codes and User Specified Feature Relevance

Chris Curro, David Katz, Harrison Zhao

May 2015