

Unsupervised machine learning projects

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3 projects involving all methods seen in UML

First project: PCA and FA

Second project: Whitening and ICA

Third project: Clustering and Nonlinear dimensional reduction

Submissions consist in:

- 1) Codes with implementations
- 2) Executable script with calculations and figures
- 3) Written report

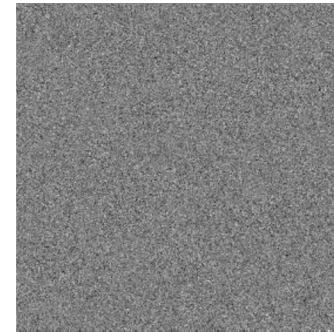
Pass => >50 points in each project. Progress counts!

Delay => Penalty of 10 points per day.

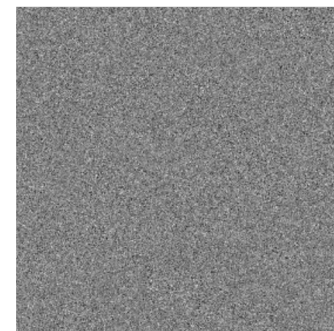
First project: Principal component analysis and factor analysis

- 1) Basics of PCA
- 2) Basics of FA
- 3) Application to compression and denoising

2626999019
1632116072
7085876332
3111455680
1318557935
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Second project: Whitening and ICA

- 1) Basics of ICA
- 2) ICA using Kurtosis
- 3) ICA using Maximum Likelihood
- 4) Application to natural image separation



Third project: Clustering and Nonlinear dimensional reduction

- 1) K means and Gaussian mixtures
- 2) Self-organizing maps
- 3) Isomap, Kernel-PCA, Laplacian eigenmaps, neighbourhoods

