Sparse Principal Component Analysis for Frequency Data

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Sparse Principal Component Analysis

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ntroduction

PCA

Fundamentals

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Titel

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Die einzelnen Frames sollte einen Titel haben

Aufzählung

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Idea

Mathematical Formulation

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References

► Einführungskurs in LATEX

- ► Kurs 2
- ► Seminararbeiten und Präsentationen mit LATEX
- ▶ Die Beamerclass

A ← V[, 1: k], the loadings of the first k ordinary principal components
 while not converged do Definiere Abbruchkriterium

4: Given a fixed $\mathbf{A} = [\alpha_1, \dots, \alpha_k]$, solve the elastic net problem

$$\beta_{j} = \operatorname*{arg\,min}_{\beta} \left\| \mathbf{X} \alpha_{j} - \mathbf{X} \beta \right\|^{2} + \lambda \left\| \beta \right\|^{2} + \lambda_{1,j} \left\| \beta \right\|_{1}$$

5: For a fixed $\mathbf{B} = [\beta_1, \dots, \beta_k]$, compute the SVD of

$$\mathbf{X}^T \mathbf{X} \mathbf{B} = \mathbf{U} \mathbf{D} \mathbf{V}^T$$

6: $\mathbf{A} \leftarrow \mathbf{U}\mathbf{V}^T$

7: end while

8: $\hat{V}_j = \frac{\beta_j}{||\beta_i||}$ for $j = 1, \dots, k$

9: end procedure

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Mathematical Formulation

Numerical Solution

Adjusted Variances

p ¿¿ n case

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- References

- Beamer Paket http://latex-beamer.sourceforge.net/
- Juser's Guide to the Beamer
- DANTE e.V. http://www.dante.de