

HDDVis: An Interactive Tool for High Dimensional Data Visualization

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Domain & Task

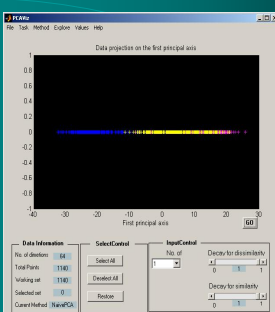
- To visualize High Dimensional LABELED Data
- Labeled Data ?
 - a collection of elements that are drawn from disjointed clusters

Challenges

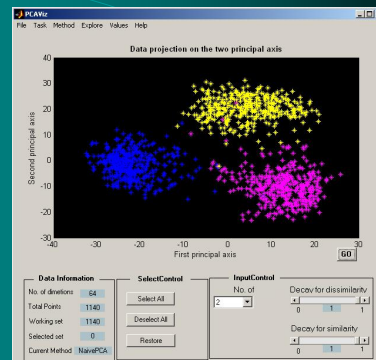
- Two demands
 - to convey the overall structure
 - to reflect the inter-cluster and intra-cluster relationships
- Current implementations
 - no interaction
 - not very accessible

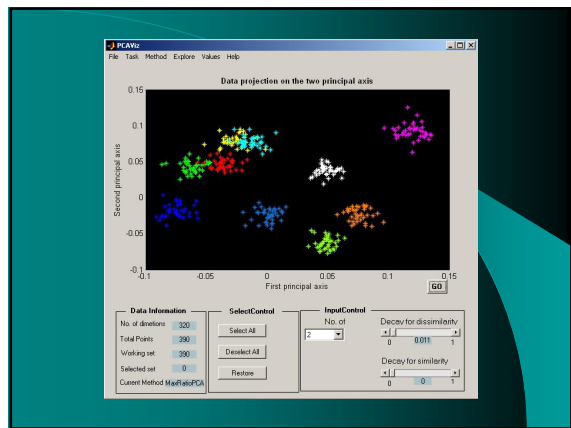
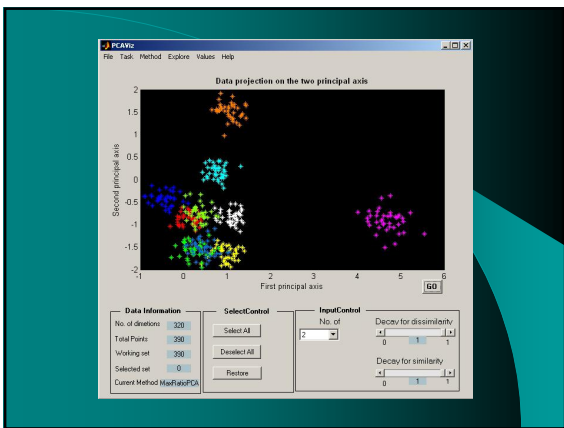
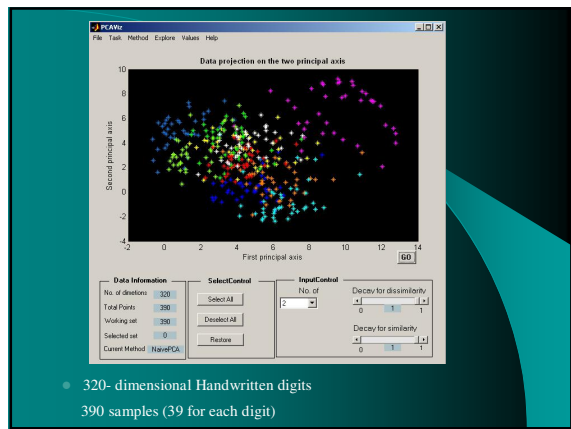
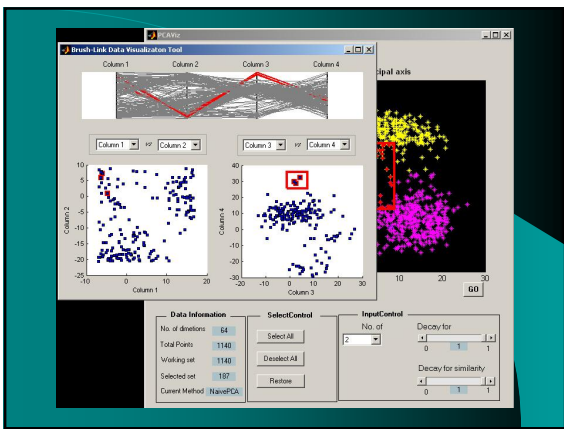
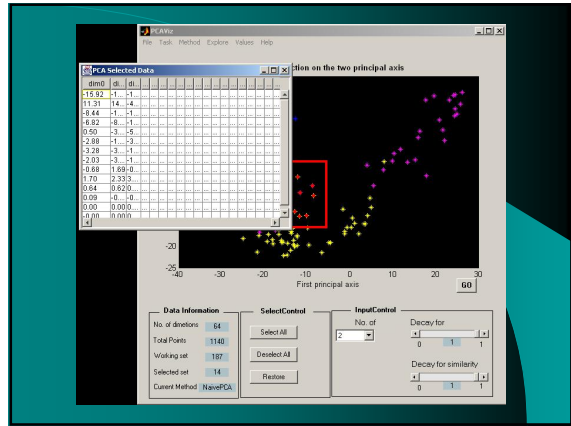
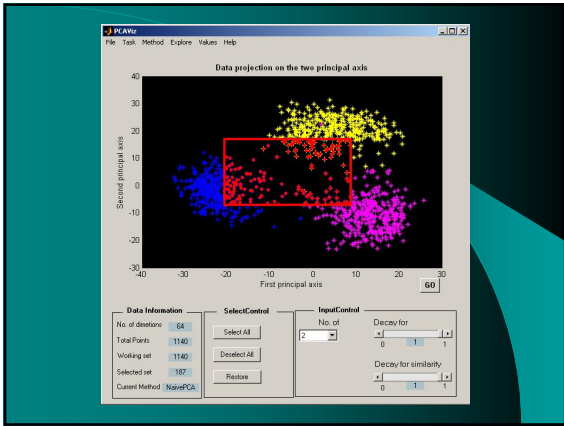
Solution-infovis techniques

- Dimensionality Reduction with linear transformations
 - selection & highlighting
- Parallel Coordinates & scatter plots
 - brush & link
- Query data values



64-dimensional Handwritten digits (0, 4, & 6)
1140 (=380 x3) samples





Evaluation & Future Work

Strong Points

- multiple graphical representations
- many interactions
- extensibility

Weakness

- Points in brush & link not shown in main window
- Interactively add & remove points
 - on graph
 - in value table

Reference

- [1] Y. Koren and L. Carmel, "Visualization of Labeled Data Using Linear Transformations", Proc. IEEE Information Visualization (InfoVis'03), IEEE, pp.121-128, 2003.
- [2] J. conti, Brush and Link Visualization Tool
<http://www.mathworks.com/matlabcentral/fileexchange/>