

# Matrix visualization for high-dimensional data with a cartography link

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## Abstract

Matrix visualization (MV) is more efficient than conventional graphical tools such as scatterplot, boxplot, and parallel-coordinate-plot in extracting information structure embedded in high-dimensional continuous data. For non-continuous data, conventional tools cannot provide much visual information while categorical MV gives us information about interaction of subject-clusters on variable-groups for up to thousands of subjects with thousands of categorical variables in a single display. When a cartography link is attached to each subject of a high-dimensional categorical data, it is necessary to use a geographical map to illustrate the pattern of subject (region)-clusters with variable-groups embedded in the high-dimensional space. This study presents an interactive cartography system with systematic colorcoding by integrating the homogeneity analysis into matrix visualization.