

# Exploring Large Data Sets by Visual Means

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The amounts of data in public and corporate databases increases from day to day. Databases containing terabytes of data are no longer uncommon. While collecting this data seems to be easy, finding valuable and relevant information hidden in these huge databases is extremely difficult. Approaches in this field are commonly subsumed under the term *Data Mining*.

Today, data mining is often been connected to analytical and statistical methods. However, visualization always played a major role in the analysis of unknown data. In this approach, digital data is mapped to visual elements and presented as an image for visual exploration, exploiting the phenomenal abilities of the human eye to detect structures. Well designed visualizations have proven to be valuable and indispensable for exploring large amounts of data interactively to get insight and to draw conclusions.

*Visual Data Mining* denotes a novel approach to data mining. Here, traditional data mining techniques are directly coupled with information visualization methods, exploiting the advantages of both strategies.

In this talk, we will present the background and main ideas of Visual Data Mining. We introduce the main steps to generate effective visualizations from abstract data. Moreover, we present a selection of innovative visualization methods, specifically designed to depict large amounts of data. Special focus will be put on new interaction techniques, which allow to interact with the data as well as with the corresponding visual representations to navigate in the data and to steer the visualization process. We conclude with some remarks on combining visual and automated methods to get deeper insight into data.