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The Visualization Method Pipeline for the Application to Dynamic Data Analysis

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The new era of scientific research brings an enormous amount of data for scientists. These complex and multidimensional data structures are used for the verification of scientific hypothesis. Exploring such data by researchers requires the development of new technologies for its efficient processing, investigation and interpretation. Intellectual data analysis and statistical methods are rapidly developing, and this is where visualization methods are getting their place. This work describes mathematical basis of the developed visualization tool for the analysis of multidimensional dynamic data. This tool provides the pipeline of methods, which combined, allow to cope with a set of practical tasks (anomalies detection, cluster, trends and variation analysis) using visualization method. Authors provided mathematical models of geometrical operations under the data domain, algorithms for solving the mentioned classes of tasks and several use-cases with technological and economical data based on visualization method.

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