ViDaExpert is a computer program for visualizing multidimensional datasets.

The main purpose of the program is to represent tables of data in visual and understandable form.

The basic mathematical method of the visualization is Method of Elastic Maps that is an advanced analogue of well-known method of Self-Organizing Maps.

Besides, ViDaExpert implements many other data analysis techniques.
ViDaExpert allows to work with datatables stored in popular database formats.

ViDaExpert provides many possibilities to work with a datatable: selecting records, marking records, sorting records etc. Finally every record of table is represented as a point with definite color, size and shape.
When a datatable become a set of points, ViDaExpert can show it in different 3D linear spaces, including spaces spanned by principal components. You can rotate, shift and zoom 3D image of point distribution, understanding what does it look like.
The next step is **non-linear** visualization. For this purpose ViDaExpert constructs 2D non-linear screen in multidimensional space - **elastic map**. It is a smooth manifold along what the datapoints are situated most closely. It also can be called "approximation of the 2D principal manifold".
Then datapoints can be *projected* onto the manifold and shown in internal 2D coordinates of the manifold.

It gives visual 2D representation of the distribution of datapoints in multidimensional space.
To make the picture more informative, you can apply colorings, showing values of any function in multidimensional space. For example, values of dataspace coordinates.
Much more sophisticated functions also can be displayed. For example, values of density estimation.
Another example: visualizing results of applying linear discrimination analysis ...
VIDAEXPERT OVERVIEW

...or function of linear regression
VIDAEXPERT OVERVIEW

The coloring by values of coordinates can be made relief to evaluate how close the map approximates distribution of datapoints by this coordinate.
Or you can study the form and position of colored map in the original dataspace.
One of the unique features of ViDaExpert is the possibility of creating maps with different topology, for example, spherical maps.
Practice shows that it can be useful in practical applications.
You can even try 3D dimensional elastic maps.
There are many other things you could do with your datapoints using ViDaExpert: annotating, changing sizes according to different criteria, clustering in different ways (for example, hierarchical clustering).
But the main principle is to give you visual representation of every step you do.
As a bonus, there are some unique techniques of data analysis implemented in ViDaExpert, such as Linear Separation Machine for automatic extraction of decision rules...
... or analyzing distance diagramms.
ViDaExpert 1.0 - data visualization software.

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