Mixed Order Hyper Networks Interface

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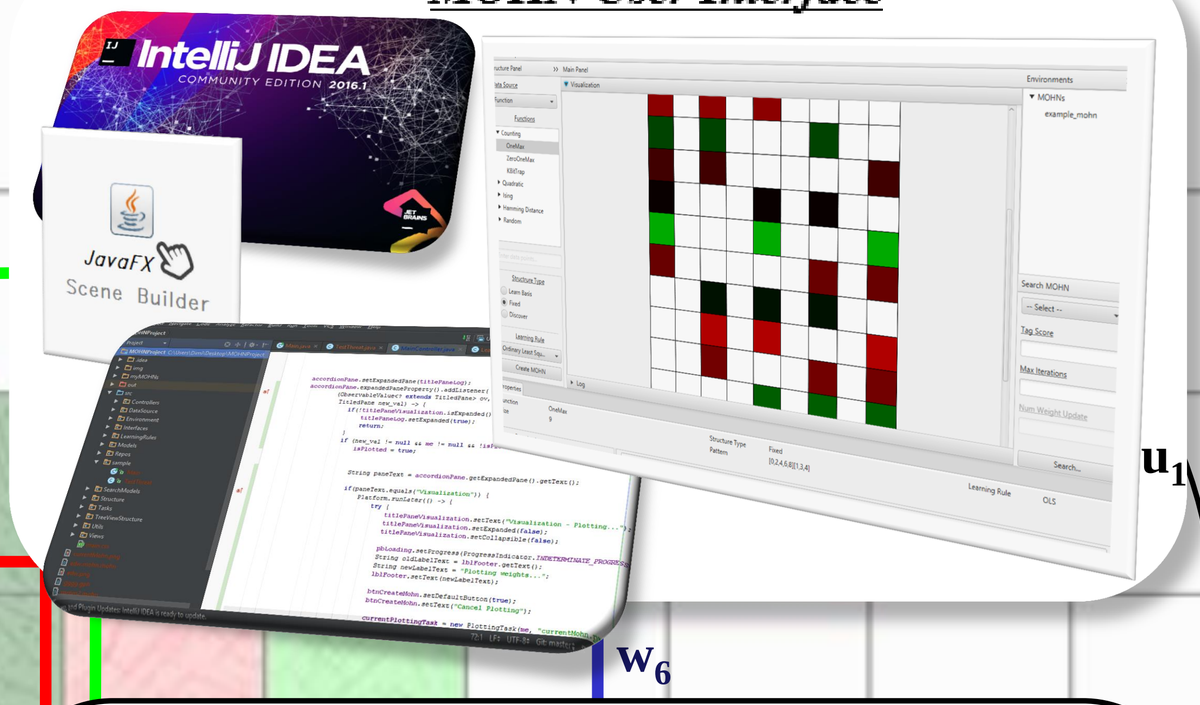
Data Mining

It's overall goal is to extract information from a data set and transform it into an **understandable structure** for further use. More specifically it concerns the extraction of **patterns** and knowledge from large amounts of data, not the extraction (*mining*) of data itself.

The continuous development & application of data mining **algorithms** requires the use of **powerful software tools**. As the number of available tools continues to grow, the choice of the most suitable tool becomes increasingly difficult.

Finance & Banking (create accurate risk models for loans and mortgages), **Marketing** and **Retail Stores** (use customer shopping habits) are fields that benefit most from data mining!

MOHN User Interface



MOHNs

- ✓Can be trained from data or programmed with rules
- ✓Store patterns for later recall via near or degraded patterns
- ✓Learn a fitness function as part of an optimization metaheuristic algorithm
- ✓Learn a function of a binary vector to a real output.
- ✓Offer a number of algorithms for exploiting the MOHN structure to aid a search (iteratedLocalSearch, LOSS, etc.)
- ✓Human interpretable weights presentation, hence human understanding of the data/ fitness function being learned
- ✓Provide insights and control of model complexity
- ✓Allow models across an ensemble to be compared

- The user can choose between a file and a function as a MOHN's data source.
- Several ready-programmed fitness functions are already provided by the software, whereas the user can implement his own one
- Structure types available to the user are: Fixed Structure, Structure Discovery and Learn Basis with available learning rules: OLS, LASSO, SGD
- Save and Load functions of a created model are provided plus its weights in the form of an image is extracted, helping the user to understand the model structure
- Search methods are available for finding the input pattern that maximizes the output giving a MOHN model. All of them make use of the structure of the MOHN to speed up the search process