MORET - A Software For Model Management

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UseR 2008
Outline

1. Model Repository
   - Managing Large Sets Of Models
   - MORET 2006 - fixed model structures

2. MORET 2008
   - Further Requirements
   - Configuring Models
   - Other Improvements
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2. **MORET 2008**
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The Task: When A Small Set Of Models grows and becomes hard to handle.

- Models can be computed quickly today
  - Lots of data pile up during this process
- Managing large sets of models by hand is cumbersome work.
  - no bit of information must be lost
  - working with the data (transformation, plots ...)
  - information should be kept at one place (desk, notes, R ...)
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MORET at UseR 2006

- collects all input from R
- stores the data, input and models in a database
- supported model types
  - lm
  - glm
  - gam
  - rpart
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- allows the comparison of global model statistics
  - on a very abstract level (complexity, quality)
  - on a model specific level (Model Explorer)
- external software can be supplied with stored information
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- There are many more model types and new types emerge regularly
  - Generic Database and Model Configuration
- Assessing model data
  - Feature Query
- External information is not accessible (papers, plots ..)
  - Attachments
- ...

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Generic Database Structure
Mapping R Model Information

- generic database structure allows storing arbitrary information
- R models come in different data types (List, Vector)
- To store meaningful information the structure from R needs to be filtered/mapped
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Full model summary example (loess)
Prerequisites For R Model Mapping

- the returned structure from R must provide
  - a global quality statistic "ResidualDeviance"
  - a global complexity statistic "DF"
- All required information
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Configurating An R Model Mapping

<table>
<thead>
<tr>
<th>R-Command</th>
<th>loess</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom Com...</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>smooth regression</td>
</tr>
<tr>
<td>Example</td>
<td>samplemodel&lt;-loess(dist~speed,data=cars)</td>
</tr>
</tbody>
</table>

**Custom Command**

Most R models provide a usable `summary` command. If still information is missing a custom command can be used to compute the full tree from.
Using generic models

- After the configuration (wizard) is finished the data will be stored according to the mapping
- The stored information can be accessed
  - via the overview table or
  - the Model Explorer
  - external software
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Feature Query

Retrieve stored models by features instead of relation
Other Improvements

- **Attachments**
  - Models or data sets relate to other files that can be linked with MORETs database

- **Model Management By Group**
  - Any model can be added or removed to an administrative group
  - This groups can be used to filter the model table
  - n:m mappings are possible and useful
  - Bootstrapping is supported, the index set is persistent
  - Database can be exported and merge-process implemented

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- By adapting (mapping) model data, MORET is able to handle all kinds of models.
- The further improvements facilitate the management process.

Outlook

- XSLT has been successfully used to map from one XML format to other target formats. Try out if XSLT is capable of mapping models instead of the tree-mapping-wizard.
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Visit and try out the most recent version of MORET at
http://www.rosuda.org