

**DFG project:**

**Multirelational Factorization Models**

Deutsche  
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A project proposal about Multirelational Factorization Models at the Information Systems and Machine Learning Lab (ISMLL) of Prof. Dr. Lars Schmidt-Thieme at University of Hildesheim has been granted by the German Research Council (DFG).

Factorization models are machine learning models that predict quantities based on historical data, i.e., customer preferences, health risks, etc. Factorization models specifically address problems where interactions between objects should be predicted about which not many data are known. They are very successfully employed in many areas, foremost in business analytics where they are used to predict customer behavior and try to recommend products to customers with so-called recommender systems. ISMLL works on factorization models for several years now. We have used them, e.g., in our paper on sequential recommender systems that won the WWW 2010 best paper award.

As applications typically can be described by not just a single relation between objects, but by multiple such relations, e.g., relations such as customer-buys-product, customer-views-product, product-has-property, etc., models that take into account multiple such relations are one of the current very active research topics. The project Multirelational Factorization Models will research different such models and learning algorithms with both the aim of using the additional information to build more accurate models than models based on a single relation and the aim of a deeper theoretical understanding why and when these models successfully can be employed.

The project will run for three years from 2011 - 2014. More information will be available on [http://www.ismll.uni-hildesheim.de/projekte/index\\_en.html](http://www.ismll.uni-hildesheim.de/projekte/index_en.html) as the project proceeds.