UNIVERSITÄT BIELEFELD
Faculty of Technology
Social Cognitive Systems Group
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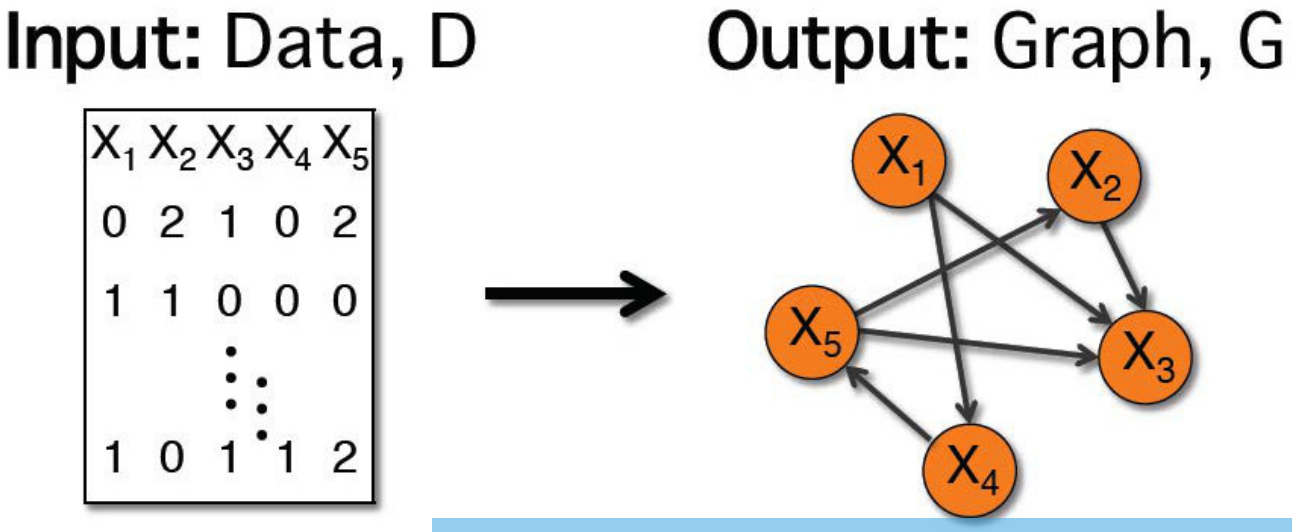
CITEC - Technische Fakultät
SOCIAL COGNITIVE SYSTEMS
AG Kognitive Systeme und soziale Interaktion
CITEC
Cognitive Interaction Technology
Center of Excellence
Bielefeld University



Student project / BA-/MA-Thesis

Implementing Bayesian Network Induction

Topic

Bayesian Networks and other graphical models for probabilistic reasoning are usually intuitive to use since their graphical nature allows easier interpretation. Probabilistic reasoning in general can be used for a wide range of scenarios and humans are argued to process information more or less in a probabilistic Bayesian way (subject to approximations of course). Our own inference implementation PRIMO (`https://gitlab.ub.uni-bielefeld.de/scs/PRIMO`) already allows the use of different kinds of networks as well as inference methods, however it does not support the induction or learning of models from data. If a structure is already known, learning the parameters from data is fairly simple and straightforward. Learning the structure however, can be tricky and there exist many different methods. Depending on the scope (BA, MA or project), students should research and select appropriate methods that could be used in the existing codebase or adapt the existing codebase accordingly.

Recommended skills

- Decent knowledge of Bayesian Networks and probabilistic inference
- Proficient knowledge in probability theory

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View online