



Special feature: advanced methodologies for Bayesian networks 2017

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Over the last few decades, graphical models such as Bayesian and Markov networks have become an increasingly popular AI approach. The International Workshop on Advanced Methodologies for Bayesian Networks (AMBN) enhances the effectiveness of graphical models including modeling, reasoning, structure learning, logic–probability relations, and causality. These are complemented with discussion of practical considerations for applying graphical models in real-world settings, covering concerns such as scalability, incremental learning, parallelization, and so on.

AMBN 2017 was held during September 20–22 at Kyoto University with more than 50 participants. The workshop included presentations for six invited and 22 contributed papers.

The special issue on AMBN 2017 consists of three invited and one contributed papers that were presented in the workshop. The paper “Dirichlet Bayesian network scores and the maximum relative entropy principle” by Marco Scutari discusses what prior probabilities over parameters and structures should be assumed in Bayesian network structure learning. Wray Buntine et al.’s paper “Experiments with learning graphical models on the text” reports on experiments with a representative set of state-of-the-art models: chordal graphs, matrix factorization, and hierarchical latent tree models. In his paper “Reasoning with alternative acyclic directed mixed graphs”, Jose Peña proposes a sound algorithm that identifies causal effects from alternative acyclic directed mixed graphs following a calculus similar to Pearl’s *do*-calculus. This special issue contains only one contributed paper: Teruji Sugaya et al. “A fast compilation of graph substructures for counting and enumeration”.

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We hope this special issue contributes to further advances in probabilistic graphical models and related fields.

References

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