Appendix to the proposal for a research kitchen

Learning conditional independence models

Relevant recent publications of Paolo Giudici

My recent research has been concerned with the development of methods for learning UG models, especially in a Bayesian framework, and developing MCMC algorithms to draw the inferences of interest in such models. Here are some recent papers in the area.

(1998) (with Tobias Ryden, Lund and Pierre Vandekerkhove) Likelihood-ratio tests for hidden Markov models. To appear in *Biometrics*.

(1998) (with Elena Stanghellini) Bayesian inference for graphical factor analysis models. Submitted.

(1999) (with Steve Brooks) MCMC convergence assessment via two-way ANOVA. To appear in *Journal of Computational and Graphical Statistics*.

(1999) (with Peter Green). Decomposable graphical Gaussian model determination. *Biometrika*, vol. 86.

(1999) (with Claudia Tarantola and Peter Green) Efficient discrete graphical model determination. Submitted.

Relevant recent publications of František Matúš

My recent research is focussed on the structures of stochastic conditional independence in general and on better understanding of the minimization of Kullback-Leibler information divergence and related iterative algorithms. The intention is to apply this knowledge to fitting and parametrizing of statistical models defined by CI constraints.

(1997) Conditional independence structures examined via minors. *Annals of Mathematics and Artificial Intelligence*, vol. 21, pp. 99-128.

(1998) (with Bernhard Strohmeier) On factorizations of probability distributions over directed graphs. *Kybernetika*, vol. 34, pp. 57-68.

(1999) Conditional independences among four random variables III: final conclusion. *Combinatorics, Probability and Computing*, vol. 8, pp. 269-276.

(1999) On iterated averages of I-projections. (under revision)

(1999) On I-divergence geometry of affine and log-affine sets. (under revision)

(1999) (with Imre Csiszár) Information projections revisited. Manuscript.

Relevant recent publications of Thomas Richardson

My research has focussed on the problem of learning observed conditional independence structure in contexts where hidden variables may be present, this has lead to the development of ancestral graph Markov models. Here are some recent papers:

(1997) (with Peter Spirtes and Chris Meek) Heuristic greedy search algorithms for latent variable models. In *Proceedings of Artificial Intelligence and Statistics '97*, (D. Madigan and P. Smyth eds.), pp. 481-488.

(1998) Chain graphs and symmetric associations. In *Learning in Graphical Models*, (M.I. Jordan ed.), Kluwer, (republished, 1999, MIT Press).

(1999) (with Peter Spirtes and Chris Meek) An algorithm for causal inference in the presence of latent variables and selection bias. In *Computation, Causation and Discovery* (C. Glymour and G.F. Cooper eds.), MIT Press, pp. 211-252.

(1999) Markov properties for acyclic directed mixed graphs. University of Washington, Dept. of Statistics, Technical Report n. 353. Submitted.

(1999) (with Heiko Bailer and Moulinath Banerjee) Specification searches using MAG models. Proceedings, ISI Conference, Helsinki, 1999, 4 pages.

Relevant recent publications of Tamás Rudas

My recent research in this field is related to parameterization of discrete distributions, application of the iterated likelihood projection algorithm to graphical and general log-linear models, and to conditional independence properties of log-linear and marginal log-linear models. Relavant publications include the following.

(1998) *Odds Ratios in the Analysis of Contingency Tables.* Sage Thousand Oaks, California.

(1998) A new algorithm for the maximum likelihood estimation of graphical log-linear models. *Computational Statistics* 13, 529-538.

(1999) (with W. Bergsma) Marginal log-linear models. Submitted.

(1999) Canonical represenation of log-linear models. Manuscript.

Relevant recent publications of Milan Studený

General topic of my research are methods of description of conditional independence structures, including non-graphical methods. In recent years my attention was devoted to graphical models, in particular to chain graphs. Here are some recent papers in the area.

(1997) A recovery algorithm for chain graphs. *International Journal of Approximate Reasoning*, vol. 17, pp. 265-293.

(1997) Semigraphoids and structures of probabilistic conditional independence. *Annals of Mathematics and Artificial Intelligence*, vol. 21, pp. 71-98.

(1998) Bayesian networks from the point of view of chain graphs. In *Uncertainty in Artificial Intelligence 14* (G.F. Cooper, S. Moral eds.), Morgan Kaufmann, pp. 496-503.

(1999) (with Martin Volf) A graphical characterization of the largest chain graphs. *International Journal of Approximate Reasoning*, vol. 20, pp. 209-236

(1999) (with Phil Dawid) Conditional product: an alternative approach to conditional independence. In *Artificial Intelligence and Statistics '99* (D. Heckerman, J. Whittaker eds.), Morgan Kaufmann, pp. 32-40.

Relevant recent publications of Remco Bouckaert

My area of research is chain graphs and learning algorithms for Bayesian networks. Some relevant publications in the area are:

(1995) Bayesian Belief Networks: from Construction to Inference *Ph.D. Thesis* Utrecht University, Netherlands.

(1998) (with Milan Studený) On chain graph models for description of conditional independence structures. *Annals of Statistics*, vol. 26, pp. 1434-1495.

(1999) (with Milan Studený and Tomáš Kočka) Extreme supermodular set functions over five variables. Research report n. 1977, Institute of Information Theory and Automation, Academy of Sciences of the Czech Republic, January 2000.