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Publications

1. Books, monographs

- 1.1. P. Myllymäki, T. Roos and T. Jaakkola (eds.), Proceedings of the Fifth European Workshop on Probabilistic Graphical Models (PGM'2010), Helsinki, September 2010. To appear.
- 1.2. J. Heikkonen, I. Kontoyiannis, E. Liski, P. Myllymäki, J. Rissanen and I. Tabus (eds.), Proceedings of the Second Workshop on Information Theoretic Methods in Science and Engineering. Tampere. August 2010. To appear.
- 1.3. J. Heikkonen, I. Kontoyiannis, E. Liski, P. Myllymäki, J. Rissanen and I. Tabus (eds.), Proceedings of the Second Workshop on Information Theoretic Methods in Science and Engineering. TICSP series 49, Tampere International Center for Signal Processing, 2009.
- 1.4. D. McAllester and P. Myllymäki (eds.), *Proceedings of the 24th Conference on Uncertainty in Artificial Intelligence* (UAI 2008), July 2008, Helsinki, Finland. AUAI Press, 2008.
- 1.5. J. Heikkonen, I. Kontoyiannis, E. Liski, P. Myllymäki, J. Rissanen and I. Tabus (eds.), Proceedings of the First Workshop on Information Theoretic Methods in Science and Engineering. TICSP Series #43, Tampere International Center for Signal Processing, 2008.
- 1.6. P. Grünwald, P. Myllymäki, I. Tabus, M. Weinberger and B. Yu (eds.), *Festschrift in Honour of Jorma Rissanen*. TICSP Series #38, Tampere International Center for Signal Processing, 2008. Presented at the 2008 IEEE Information Theory Workshop.

2. Book chapters (edited and refereed)

- 2.1. P. Myllymäki, T. Roos, T. Silander, P. Kontkanen and H. Tirri, Factorized NML Models. Chapter 11 in *Festschrift in Honour of Jorma Rissanen*, edited by P. Grünwald, P. Myllymäki, I. Tabus, M. Weinberger and B. Yu.

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| 2.2. | P.Kontkanen, P.Myllymäki, W.Buntine, J.Rissanen, H.Tirri, An MDL Framework for Data Clustering. In <i>Advances in Minimum Description Length: Theory and Applications</i> , edited by P. Grünwald, I.J. Myung and M. Pitt. The MIT Press, 2005. |
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- 2.3. P.Kontkanen, P.Myllymäki, T.Roos, H.Tirri, K.Valtonen, H.Wettig, Probabilistic Methods for Location Estimation in Wireless Networks. Chapter 11 in *Emerging Location Aware Broadband Wireless Adhoc Networks*, edited by R.Ganesh, S.Kota, K.Pahlavan and R.Agustí. Kluwer Academic Publishers, 2004
- 2.4. P.Kontkanen, P.Myllymäki, T.Silander, and H.Tirri, On the Accuracy of Stochastic Complexity Approximations. Chapter 9 in *Causal Models and Intelligent Data Management*, edited by A.Gamerman. Springer-Verlag, 1999.
- 2.5. P. Myllymäki and H. Tirri, Constructing Computationally Efficient Bayesian Models via Unsupervised Clustering. Pp. 237-248 in *Probabilistic Reasoning and Bayesian Belief Networks*, edited by A.Gamerman. Alfred Waller Publishers, Suffolk 1995.
- 2.6. P. Myllymäki and H. Tirri, Massively Parallel Case-Based Reasoning with Probabilistic Similarity Metrics. Pp. 144-154 in *Topics in Case-Based Reasoning*, edited by S.Wess, K.-D.Althoff and M.Richter. Lecture Notes in Artificial Intelligence, Volume 837. Springer Verlag, 1994.

3. Articles in refereed international journals

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| 3.1. | T. Silander, T. Roos, and P. Myllymäki, Learning Locally Minimax Optimal Bayesian Networks, to appear in International Journal of Approximate Reasoning. |
| 3.2. | J. Rissanen, T. Roos, and P. Myllymäki, Model Selection by Sequentially Normalized Least Squares, Journal of Multivariate Analysis 101 (2010) 4 (April), 839-849. |
| 3.3. | T. Roos, J. Rissanen and P. Myllymäki, MDL Denoising Revisited. IEEE Trans. Signal Processing 57 (2009) 9 (September), 3347-3360. |
| 3.4. | P. Kontkanen, H. Wettig and P. Myllymäki, NML Computation Algorithms for Tree-Structured Multinomial Bayesian Networks. <i>EURASIP Journal on Bioinformatics and Systems Biology</i> , Volume 2007 (2007), Article ID 90947, 11 pages. |
- 3.5. J. Rissanen, P. Grünwald, J. Heikkonen, P. Myllymäki, T. Roos, J. Rousu, Information Theoretic Methods for Bioinformatics, guest editorial for a special issue of the *EURASIP Journal on Bioinformatics and Systems Biology*, Volume 2007 (2007).
- 3.6. H. Wettig, P. Kontkanen and P. Myllymäki, Calculating the Normalized Maximum Likelihood Distribution for Bayesian Forests. *IADIS International Journal on Computer Science and Information Systems* 2 (2007) 2 (October).

- 3.7. P. Kontkanen and P. Myllymäki, A linear-time algorithm for computing the multinomial stochastic complexity. *Information Processing Letters* 103 (2007) 6 (September), 227-233.
- 3.8. T. Roos, H. Wettig, P. Grünwald, P. Myllymäki, H. Tirri, On Discriminative Bayesian Network Classifiers and Logistic Regression. *Machine Learning* 59 (2005):3, pp. 267-296.
- 3.9. P. Myllymäki, T. Silander, H. Tirri, P. Uronen, B-Course: A Web-Based Tool for Bayesian and Causal Data Analysis. *International Journal on Artificial Intelligence Tools*, Vol. 11 (2002), No. 3, 369-387.
- 3.10. T. Roos, P. Myllymäki, H. Tirri, A Statistical Modeling Approach to Location Estimation. *IEEE Transactions on Mobile Computing*, Vol. 1 (2002), No. 1, 59-69.
- 3.11. T. Roos, P. Myllymäki, H. Tirri, P. Misikangas, J. Sievänen, A Probabilistic Approach to WLAN User Location Estimation. *International Journal of Wireless Information Networks*, Vol. 9 (2002), No. 3, 155-164.
- 3.12. P. Kontkanen, J. Lahtinen, P. Myllymäki, T. Silander, and H. Tirri, Supervised Model-Based Visualization of High-Dimensional Data. *Intelligent Data Analysis* 4 (2000), 213-227.
- 3.13. P. Kontkanen, P. Myllymäki, T. Silander, H. Tirri, and P. Grünwald, On Predictive Distributions and Bayesian Networks. *Statistics and Computing* 10 (2000), 39-54.
- 3.14. P. Myllymäki, Massively Parallel Probabilistic Reasoning with Boltzmann Machines. *Applied Intelligence* 11, 31-44 (1999).
- 3.15. P. Floréen, P. Myllymäki, P. Orponen, and H. Tirri, Compiling object declarations into connectionist networks. *AI Communications* 3 (1990) 4 (December), 172-183.

4. Articles in refereed international conference proceedings

- 4.1. J. Perkiö, A. Tuominen and P. Myllymäki, Image Similarity: From Syntax to Weak Semantics using Multimodal Features with Application to Multimedia Retrieval. Pp. 213-219 in Proceedings of the 2009 International Conference on Multimedia Information Networking and Security. IEEE Computer Society, 2009.
- 4.2. J. Perkiö and P. Myllymäki, Magrathea: Building and Analyzing Ubiquitous and Social Systems. Pp. 66-75 in Proceedings of the 2009 IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technologies, edited by P. Boldi, G. Vizzari, G. Pasi and R. Baeza-Yates. IEEE Computer Society, 2009.
- 4.3. K. Kumpulainen, P. Myllymäki, R. Smeds, J. Kronqvist and P. Pöyry-Lassila, VISCI Virtual Intelligent Space for Collaborative Innovation - Project Description. Pp. 75-82 in Proceedings of the 1st International Symposium on Tangible Software Engineering Education (STANS09), edited by T. Nakamura, H. Kameda, S. Iwashita, A. Takashima and H. Maruyama.

- 4.4. P. Myllymäki, A framework for MDL clustering. In Proceedings of the Second Workshop on Information Theoretic Methods in Science and Engineering, edited by J. Heikkonen, I. Kontoyiannis, E. Liski, P. Myllymäki, J. Rissanen and I. Tabus. TICSP series 49, Tampere International Center for Signal Processing, 2009.
- 4.5. E. Elovaara and P. Myllymäki, MDL-based attribute models in naive Bayes classification. In Proceedings of the Second Workshop on Information Theoretic Methods in Science and Engineering, edited by J. Heikkonen, I. Kontoyiannis, E. Liski, P. Myllymäki, J. Rissanen and I. Tabus. TICSP series 49, Tampere International Center for Signal Processing, 2009.
- 4.6. T. Silander, T. Roos, and P. Myllymäki, Locally Minimax Optimal Predictive Modeling with Bayesian Networks. Pp. 504-511 in Proceedings of the 12th International Conference on Artificial Intelligence and Statistics, edited by D. van Dyk and M. Welling. JMLR Workshop and Conference Proceedings, Volume 5: AISTATS 2009.
- 4.7. T. Mononen and P. Myllymäki, On Recurrence Formulas for Computing the Stochastic Complexity. Pp. 281-286 in Proceedings of the 2008 International Symposium on Information Theory and its Applications (ISITA2008), 7th-10th December 2008, Auckland, New Zealand.
- 4.8. A. Pernestål, H. Wettig, T. Silander, M. Nyberg and P. Myllymäki, A Bayesian Approach to Learning in Fault Isolation. Pp. 143-150 in Proceedings of The 19th International Workshop on Principles of Diagnosis (DX-08), edited by A. Grastien, W. Mayer, and M. Stumptner. September 22-24, 2008, Blue Mountains, NSW, Australia.
- 4.9. P. Myllymäki, Recent advances in computing the NML for discrete Bayesian networks. In Proceedings of the First Workshop on Information Theoretic Methods in Science and Engineering, edited by J. Heikkonen, I. Kontoyiannis, E. Liski, P. Myllymäki, J. Rissanen and I. Tabus. TICSP Series #43, Tampere International Center for Signal Processing, 2008.
- 4.10. T. Silander, T. Roos, P. Kontkanen, and P. Myllymäki, Factorized NML Criterion for Learning Bayesian Network Structures. Pp. 257-264 in Proceedings of the 4th European Workshop on Probabilistic Graphical Models (PGM-08), edited by M. Jaeger and T. Nielsen. September 17–19, Hirtshals, Denmark.
- 4.11. T. Mononen and P. Myllymäki, Computing the Multinomial Stochastic Complexity in Sub-Linear Time. Pp. 209-216 in Proceedings of the 4th European Workshop on Probabilistic Graphical Models (PGM-08), edited by M. Jaeger and T. Nielsen. September 17–19, Hirtshals, Denmark.
- 4.12. P. Kontkanen and P. Myllymäki, An Empirical Comparison of NML Clustering Algorithms. In *Proceedings of the 2008 International Conference on Information Theory and Statistical Learning (ITSL 2008)*.
- 4.13. T. Mononen and P. Myllymäki, On the Multinomial Stochastic Complexity and its Connection to the Birthday Problem. In *Proceedings of the 2008 International Conference on Information Theory and Statistical Learning (ITSL 2008)*.

- 4.14. J. Perkiö, P. Myllymäki and P. Boda, Magrathea: A Mobile Agent- and Sensing Platform. In *Proceedings of the 2008 International Conference on Wireless Networks (ICWN 2008)*.
- 4.15. T. Mononen and P. Myllymäki, Computing the NML for Bayesian Forests via Matrices and Generating Polynomials. Pp. 276-280 in *Proceedings of the IEEE Information Theory Workshop 2008 (ITW-08)*.
- 4.16. T. Roos, T. Silander, P. Kontkanen, and P. Myllymäki, Bayesian Network Structure Learning using Factorized NML Universal Models. Invited talk at the *Information Theory and Applications Workshop*, San Diego, CA, January-February 2008.
- 4.17. T. Mononen and P. Myllymäki, Fast NML Computation for Naive Bayes Models. Pp. 151-160 in the *Proceedings of the 10th International Conference on Discovery Science*, edited by V. Corruble, M. Takeda and E. Suzuki. Lecture Notes in Artificial Intelligence 4755, Springer 2007.
- 4.18. T. Silander and P. Kontkanen and P. Myllymäki, On Sensitivity of the MAP Bayesian Network Structure to the Equivalent Sample Size Parameter. Pp. 360-367 in the *Proceedings of the The 23rd Conference on Uncertainty in Artificial Intelligence (UAI-2007)*, edited by R. Parr and L. van der Gaag. AUAI Press, 2007.
- 4.19. P. Kontkanen and P. Myllymäki, MDL Histogram Density Estimation. In *Proceedings of the Eleventh International Conference on Artificial Intelligence and Statistics (AISTATS 2007)*, Puerto Rico, March 2007.
- 4.20. E. Soini, J. Martikainen, J. Lahtinen, P. Myllymäki, P. Kontkanen, K. Valtonen and O.-P. Rynnänen, Efficient Data Mining and Probabilistic Inference with P-Course: A Bayesian Method With Multilevel Priors For Medical Applications. In *Proceedings of the 9th Annual European Congress on Pharmacoeconomics and Outcomes Research (ISPOR)*.
- 4.21. T. Roos, T. Heikkilä and P. Myllymäki, A Compression-Based Method for Stemmatic Analysis. Pp. 805-806 in *Proceedings of the 17th European Conference on Artificial Intelligence (ECAI 2006)*, edited by G. Brewka, S. Coradeschi, A. Perini and P. Traverso. IOS Press, 2006.
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- 4.23. T. Silander and P. Myllymäki, A Simple Approach for Finding the Globally Optimal Bayesian Network Structure. Pp. 445-452 in *Proceedings of the 22nd Conference on Uncertainty in Artificial Intelligence (UAI-2006)*, edited by R. Dechter and T. Richardson. AUAI Press, 2006.
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- 4.25. P. Kontkanen, P. Myllymäki, A Fast Normalized Maximum Likelihood Algorithm for Multinomial Data. Pp. 1613-1616 in *Proceedings of the 19th International Joint Conference on Artificial Intelligence (IJCAI-05)*.
- 4.26. S. Kaski, P. Myllymäki, and I. Kojo: User models from implicit feedback for proactive information retrieval. In C. de la Higuera and T. Artieres, editors, *Proceedings of Workshop 4 of the 10th International Conference on User Modeling; Machine Learning for User Modeling: Challenges*, pages 25-26, 2005.
- 4.27. M. Miettinen, V. Tuulos, P. Myllymäki, A Testbed for Proactive Information Retrieval. Pp. 137-146 in *Proceedings of the Workshop on Context Awareness for Proactive Systems (CAPS 2005)*, edited by P. Floreen, G. Linden, T. Niklander and K. Raatikainen. Helsinki Institute for Information Technology HIIT, Helsinki 2005 (HIIT Publications 2005-1).
- 4.28. T. Roos, P. Myllymäki, H. Tirri, On the Behavior of MDL Denoising. Pp. 309-316 in *Proceedings of the 10th International Workshop on Artificial Intelligence and Statistics*, edited by R. Cowell and Z. Ghahramani. Society for Artificial Intelligence and Statistics, 2005.
- 4.29. P. Kontkanen, P. Myllymäki, T. Roos, H. Tirri, K. Valtonen, H. Wettig, Topics in Probabilistic Location Estimation in Wireless Networks. In *Proceedings of the 15th IEEE Symposium on Personal, Indoor and Mobile Radio Communications*, Barcelona, Spain. IEEE Press, 2004
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- 4.33. P. Kontkanen, W. Buntine, P. Myllymäki, J. Rissanen, H. Tirri, Efficient Computation of Stochastic Complexity. Pp. 181-188 in *Proceedings of the Ninth International Workshop on Artificial Intelligence and Statistics*, edited by Christopher M. Bishop and Brendan J. Frey. Society for Artificial Intelligence and Statistics, 2003.
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- 4.46. P.Kontkanen, P.Myllymäki, T.Silander, and H.Tirri, Density Estimation by Minimum Encoding Mixtures of Histograms. Pp. 162-164 in *Book of Abstracts, Second European Conference on Highly Structured Stochastic Systems (HSSS'99)*, Pavia, Italy, September 1999.
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