LIST OF PUBLICATIONS
revised on March 23, 2023

Monographs:

[M1] M. Studený "Probabilistic Conditional Independence Structures" *Springer*, London 2005. ISBN: 1-85233-891-1.

Journal papers:

[A1] M. Studený "On the differentiation theorem in metric groups" *Commentationes Mathematicae Universitatis Carolinae 24* (1983), n. 2, pp. 223-232.

[A2] M. Studený "Asymptotic behaviour of empirical multiinformation" *Kybernetika 23* (1987), n. 2, pp. 124-135.

[A3] M. Studený "Multiinformation and the problem of characterization of conditional independence relations" *Problems of Control and Information Theory 18* (1989), n. 1, pp. 3-16.

[A4] M. Studený "Attempts at axiomatic description of conditional independence" *Kybernetika 25* (1989), supplement to n. 3, pp. 72-79.

[A5] F. M. Malvestuto, M. Studený "Comment on 'A unique formal system for binary decompositions of database relations, probability distributions, and graphs' " *Information Sciences 63* (1992), n. 1-2, pp. 1-2.

[A6] M. Studený "Convex cones in finite-dimensional real vector spaces" *Kybernetika 29* (1993), n. 2, pp. 180-200.

[A7] P. Lachout, M. Studený, J. Šindelář "On set-valued measures" *Informatica 4* (1993), n. 1-2, pp. 21-44.

[A8] M. Studený "Structural semigraphoids" *International Journal of General Systems 22* (1994), n. 2, pp. 207-217.

[A9] M. Studený "Description of structures of stochastic conditional independence by means of faces and imsets. 1st part: introduction and basic concepts" *International Journal of General Systems 23* (1994), n. 2, pp. 123-137.

[A10] M. Studený "Description of structures of stochastic conditional independence by means of faces and imsets. 2nd part: basic theory" *International Journal of General Systems 23* (1995), n. 3, pp. 201-219.

[A11] M. Studený "Description of structures of stochastic conditional independence by means of faces and imsets. 3rd part: examples of use and appendices" *International Journal of General Systems 23* (1995), n. 4, pp. 323-341.

[A12] F. Matúš, M. Studený "Conditional independences among four random variables I.", *Combinatorics, Probability and Computing 4* (1995), n. 3, pp. 267-278.

[A13] M. Studený "Conditional independence and natural conditional functions" *International Journal of Approximate Reasoning 12* (1995), n. 1, pp. 43-68.

[A14] M. Studený "Semigraphoids and structures of probabilistic conditional independence" *Annals of Mathematics and Artificial Intelligence 21* (1997), n. 1, pp. 71-98.

[A15] J. Zvárová, M. Studený "Information theoretical approach to constitution and reduction of medical data" *International Journal of Medical Informatics 45* (1997), n. 1-2, pp. 65-74.

[A16] M. Studený "A recovery algorithm for chain graphs" *International Journal of Approximate Reasoning 17* (1997), n. 2-3, pp. 265-293.

[A17] M. Studený, R. R. Bouckaert "On chain graph models for description of conditional independence structures" *The Annals of Statistics 26* (1998), n. 4, pp. 1434-1495.

[A18] M. Volf, M. Studený "A graphical characterization of the largest chain graphs" *International Journal of Approximate Reasoning 20* (1999), n. 3, pp. 209-236.

[A19] A. Paz, R. Y. Geva, M. Studený "Representation of irrelevance relations by annotated graphs" *Fundamenta Informaticae 42* (2000), pp. 149-199.

[A20] M. Studený "On stochastic conditional independence: the problems of characterization and description" *Annals of Mathematics and Artificial Intelligence 35* (2002), pp. 323-341.

[A21] M. Studený "Characterization of essential graphs by means of the operation of legal merging of components" *International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems 12* (2004), pp. 43-62.

[A22] M. Studený "Characterization of inclusion neighbourhood in terms of the essential graph" *International Journal of Approximate Reasoning 38* (2005), n. 3, pp. 283-309.

[A23] A. Roverato, M. Studený "A graphical representation of equivalence classes of AMP chain graphs" *Journal of Machine Learning Research 7* (2006), pp. 1045-1078.

[A24] R. R. Bouckaert, M. Studený "Racing algorithms for conditional independence inference" *International Journal of Approximate Reasoning 45* (2007), n. 2, pp. 386-401.

[A25] A. Perez, M. Studený "Comparison of two methods for approximation of probability distributions with prescribed marginals" *Kybernetika 43* (2007), n. 5, pp. 591-618.

[A26] M. Studený, J. Vomlel "A reconstruction algorithm for the essential graph" *International Journal of Approximate Reasoning 50* (2009), pp. 385-413.

[A27] M. Studený, A. Roverato, Š. Štěpánová "Two operations of merging and splitting components in a chain graph" *Kybernetika 45* (2009), n. 2, pp. 208-248.

[A28] M. Studený, J. Vomlel, R. Hemmecke "A geometric view on learning Bayesian network structures" *International Journal of Approximate Reasoning 51* (2010), n. 5, pp. 578-586.

[A29] R. Bouckaert, R. Hemmecke, S. Lindner, M. Studený "Efficient algorithms for conditional independence inference" *Journal of Machine Learning Research 11* (2010), pp. 3453-3479.

[A30] M. Studený, J. Vomlel "On open questions in the geometric approach to structural learning Bayesian nets" *International Journal of Approximate Reasoning 52* (2011) 627-640.

[A31] R. Hemmecke, S. Lindner, M. Studený "Characteristic imsets for learning Bayesian network structure" *International Journal of Approximate Reasoning 53* (2012) 1336-1349.

[A32] M. Studený, D. C. Haws "On polyhedral approximations of polytopes for learning Bayesian networks" *Journal of Algebraic Statistics 4* (2013), n. 1, pp. 59-92.

[A33] M. Studený, D. Haws "Learning Bayesian network structure: towards the essential graph by integer linear programming tools" *International Journal of Approximate Reasoning 55* (2014) 1043-1071.

[A34] K. Tanaka, M. Studený, A. Takemura, T. Sei "A linear-algebraic tool for conditional independence inference" *Journal of Algebraic Statistics 6* (2015), n. 2, pp. 150-167.

[A35] M. Studený, T. Kroupa "Core-based criterion for extreme supermodular functions" *Discrete Applied Mathematics 206* (2016), pp. 122-151.

[A36] J. Cussens, D. Haws, M. Studený "Polyhedral aspects of score equivalence in Bayesian network structure learning" *Mathematical Programming A 164* (2017), n. 1/2, pp. 285-324.

[A37] M. Studený, J. Cussens "Towards using the chordal graph polytope in learning decomposable models" *International Journal of Approximate Reasoning 88* (2017), pp. 259-281.

[A38] M. Studený, V. Kratochvíl "Linear criterion for testing the extremity of an exact game based on its finest min-representation" *International Journal of Approximate Reasoning 101* (2018), pp. 49-68.

[A39] T. Kroupa, M. Studený "Facets of the cone of totally balanced games" *Mathematical Methods of Operation Research 90* (2019), pp. 271-300.

[A40] M. Studený "Contribution of František Matúš to the research on conditional independence" *Kybernetika 56* (2020), n. 5, pp. 850-874.

[A41] M. Studený, J. Cussens, V. Kratochvíl "The dual polyhedron to the chordal graph polytope and the rebuttal of the chordal graph conjecture" *International Journal of Approximate Reasoning 138* (2021), pp. 188-203.

[A42] M. Studený "Conditional independence structures over four discrete random variables revisited: conditional Ingleton inequalities" *IEEE Transactions on Information Theory 67* (2021), n. 11, pp. 7030-7049.

[A43] M. Studený, V. Kratochvíl "Facets of the cone of exact games" *Mathematical Methods of Operations Research 95* (2022), n. 1, pp. 35-80.

Edited volume papers (reviewed like journal papers):

[B1] M. Studený "Conditional independence relations have no finite complete characterization" in *Information Theory, Statistical Decision Functions, Random Processes vol. B (S. Kubík, J. Á. Víšek eds.)*, Kluwer, Dordrecht - Boston - London (also Academia, Prague) 1992, pp. 377-396.

[B2] M. Studený "Description of conditional independence structures by means of imsets: a connection with product formula validity" in *Uncertainty in Intelligent Systems (B. Bouchon-Meunier, L. Valverde, R. R. Yager eds.)*, North-Holland, Amsterdam - London - New York - Tokyo 1993, pp. 179-194.

[B3] M. Studený, J. Vejnarová "The multiinformation function as a tool for measuring stochastic dependence" in *Learning in Graphical Models (M. I. Jordan ed.)*, Kluwer, Dordrecht 1998, pp. 261-298.

[B4] J. Vomlel, M. Studený "Graphical and algebraic representatives of conditional independence models" in *Advances in Probabilistic Graphical Models (P. Lucas, J. Gamez, A. Salmeron eds.)*, Studies in Fuzziness and Soft Computing 213, Springer-Verlag, Berlin - Heidelberg 2007, pp. 55-80.

[B5] M. Studený, D. Haws, R. Hemmecke, S. Lindner "Polyhedral approach to statistical learning graphical model" in *Harmony of Gröbner Bases and the Modern Industrial Society: the 2nd CREST–SBM International Conference (T. Hibi ed.)*, World Scientific, Singapore 2012, pp. 346-372.

[B6] D. Haws, J. Cussens, M. Studený "Polyhedral approaches to learning Bayesian networks" in *Algebraic and Geometric Methods in Discrete Mathematics* (H. A. Harrington, M. Omar, M. Wright eds.), series Contemporary Mathematics, volume 685, American Mathematical Society 2017, pp. 155-188.

[B7] M. Studený "Conditional independence and Markov properties for basic graphs" in *Handbook of Graphical Models* (M. Maathuis, M. Drton, S. Lauritzen, M. Wainwright eds.), Chapman and Hall/CRC 2019, pp. 3-38.

Conference papers (quickly reviewed and published after the conference):

[C1] M. Studený "Formal properties of conditional independence in different calculi of AI" in *Symbolic and Quantitative Approaches to Reasoning and Uncertainty (M. Clarke, R. Kruse, S. Moral eds.)*, Lecture Notes in Computer Science 747, Springer-Verlag, Berlin - Heidelberg 1993, pp. 341-348.

[C2] M. Studený "Semigraphoids are two-antecedental approximations of stochastic conditional independence models" in *Uncertainty in Artificial Intelligence. Proceedings of the 10th conference (R. L. de Mantaras, D. Poole eds.)*, Morgan Kaufmann, San Francisco 1994, pp. 546-552.

[C3] M. Studený "Marginal problem in different calculi of AI" in *Advances in Intelligent Computing - IPMU'94 (B. Bouchon-Meunier, R. R. Yager, L. A. Zadeh eds.)*, Lecture Notes in Computer Science 945, Springer-Verlag, Berlin - Heidelberg 1995, pp. 348-359. (an earlier version published as [D4]).

[C4] R. R. Bouckaert, M. Studený "Chain graphs: semantics and expressiveness" in *Symbolic and Quantitative Approaches to Reasoning and Uncertainty (Ch. Froidevaux, J. Kohlas eds.)*, Lecture Notes in Artificial Intelligence 946 (subseries of Lecture Notes in Computer Science), Springer-Verlag, Berlin - Heidelberg 1995, pp. 69-76.

[C5] M. Studený "On separation criterion and recovery algorithm for chain graphs" in *Uncertainty in Artificial Intelligence. Proceedings of the 12th Conference (E. Horvitz, F. Jensen eds.)*, Morgan Kaufmann, San Francisco 1996, pp. 509-516.

[C6] M. Studený "On marginalization, collapsibility and precollapsibility" in *Distributions with Given Marginals and Moment Problems (V. Beneš, J. Štěpán eds.)*, Kluwer, Dordrecht 1997, pp. 191-198.

[C7] M. Studený "Bayesian networks from the point of view of chain graphs" in *Uncertainty in Artificial Intelligence. Proceedings of the 14th Conference (G. F. Cooper, S. Moral eds.)*, Morgan Kaufmann, San Francisco 1998, pp. 496-503.

[C8] A. P. Dawid, M. Studený "Conditional products: an alternative approach to conditional independence" in *Artificial Intelligence and Statistics 99. Proceedings of the 7th Workshop (D. Heckerman, J. Whittaker eds.)*, Morgan Kaufmann, San Francisco 1999, pp. 32-40.

[C9] T. Kočka, R. R. Bouckaert, M. Studený "On characterizing inclusion of Bayesian networks" in *Uncertainty in Artificial Intelligence. Proceedings of the 17th Conference (J. Breese, D. Koller eds.)*, Morgan Kaufmann, San Francisco 2001, pp. 261-268.

[C10] M. Studený "Characterization of inclusion neighbourhood in terms of the essential graph: upper neighbours" in *Symbolic and Quantitative Approaches to Reasoning with Uncertainty (T. D. Nielsen, L. N. Zhang eds.)*, Lecture Notes in Artificial Intelligence 2711, Springer-Verlag, Berlin - Heidelberg 2003, pp. 161-172.

[C11] R. R. Bouckaert, M. Studený "Racing for conditional independence inference" in *Symbolic and Quantitative Approaches to Reasoning with Uncertainty (L. Godo ed.)*, Lecture Notes in Artificial Intelligence 3571, Springer-Verlag, Berlin - Heidelberg 2005, pp. 221-232.

[C12] M. Studený "How matroids occur in the context of learning Bayesian network structure" in *Uncertainty in Artificial Intelligence. Proceedings of the 31th Conference (M. Meila, T. Heskes eds.)*, AUAI Press, Corvallis 2015, pp. 832-841.

[C13] M. Studený, J. Cussens "The chordal graph polytope for learning decomposable models" in *JMLR Workshops and Conference Proceedings* 52 (2016), pp. 499-510.

[C14] M. Studený, V. Kratochvíl "Linear core-based criterion for testing extreme exact games" in *JMLR Workshops and Conference Proceedings* 62 (2017), pp. 313-324.

[C15] M. Studený, V. Kratochvíl, J. Vomlel "On irreducible min-balanced set systems" in *Symbolic and Quantitative Approaches to Reasoning with Uncertainty (G. Kern-Isberner, Z. Ognjanović eds.)*, Lecture Notes in Artificial Intelligence 11726, Springer, Cham 2019, pp. 444-454.

[C16] M. Studený, J. Cussens, V. Kratochvíl "Dual formulation of the chordal graph conjecture" in *Proceedings of Machine Learning Research* 138 (2020), pp. 449-460.

Conference contributions (published during the conference):

[D1] M. Studený "Convex semigraphoids" in *Proceedings of WUPES'91, September 9-12, 1991, Alšovice, Czechoslovakia*, 9 pages.

[D2] M. Studený "Popis struktur podmíněné stochastické nezávislosti pomocí formulí součinového typu" (in Czech, translation: Description of conditional stochastic independence structures by means of product-type formulas), in *ROBUST'92, Herbertov 1992, Czechoslovakia*, pp. 146-155.

[D3] M. Studený, F. Matúš, J. Vejnarová "Decomposition of large systems and independence structures" in *Proceedings of the 2nd European Congress on System Science, October 5-8, 1993, Prague, Czech Republic*, pp. 891-898.

[D4] M. Studený "Marginal problem in different calculi of AI" in *Proceedings of the 5th international conference IPMU, July 4-8, 1994, Paris, France*, pp. 597-604. (later published as [C3]).

[D5] M. Studený, P. Boček "CI-models arising among 4 random variables" in *Proceedings of WUPES'94, September 11-15, 1994, Třešť, Czech Republic*, pp. 268-282.

[D6] M. Studený "Comparison of graphical approaches to description of conditional independence structures" in *Proceedings of WUPES'97, January 22-25, 1997, Prague, Czech Republic*, pp. 156-172.

[D7] M. Studený "Complexity of structural models" in *Prague Stochastics'98. Proceedings of the Joint Session of 6th Prague Symposium on Asymptotic Statistics and 13th Prague Conference on Information Theory, Statistical Decision Functions and Random Processes (M. Hušková, P. Lachout, J. Á. Víšek eds.) vol. II.*, Union of Czech Mathematicians and Physicists 1998, pp. 523-528.

[D8] R. Jiroušek, M. Studený, J. Vejnarová "Open problems inspired by Albert Perez" in *Proceedings of the workshop Conditional, Information and Inference, May 13-15, 2002, Hagen, Germany*, pp. 117- 128.

[D9] M. Studený "Characterization of essential graphs by means of an operation of legal component merging" in *Proceedings of the 1st European Workshop on Probabilistic Graphical Models* (J. A. Gamez, A. Salmeron eds.), University Castilla la Mancha 2002, pp. 161-168.

[D10] M. Studený "O použití řetězcových grafů pro popis struktur podmíněné nezávislosti" (in Czech, translation: On the use of chain graphs for the description of conditional independence structures), in *ROBUST 2002*, Hejnice 2002, Czech Republic, pp. 292-314.

[D11] M. Studený "Characterization of inclusion neighbourhood in terms of the essential graph: lower neighbours" *Proceedings of WUPES 2003* (J. Vejnarová ed.), University of Economics Prague 2003, pp. 243-264.

[D12] M. Studený "Structural imsets: an algebraic method for describing conditional independence structures" in *Proceedings of the 10th International Conference IPMU 2004* (B. Bouchon-Meunier, G. Colleti, R. R. Yager eds.), Editrice Universita La Sapienza, Perugia, Italy, 2004 , vol. 2, pp. 1323-1330.

[D13] M. Studený, J. Vomlel "Transition between graphical and algebraic representatives of Bayesian network models" in *Proceedings of the 2nd European Workshop on Probabilistic Graphical Models* (P. Lucas ed.), University of Nijmegen 2004, pp. 193-200.

[D14] P. Šimeček, M. Studený "Využití pojmu Hilbertovy báze pro ověřování hypotézy o shodnosti strukturálních a kombinatorických imsetů " (in Czech, translation: The use of the concept of a Hilbert basis to verify a hypothesis about the coincidence of structural and combinatorial imsets), in *ROBUST 2004* (J. Antoch, G. Dohnal eds.), Třešť, Czech Republic, JČMF 2004, pp. 395-401.

[D15] M. Studený "An algebraic approach to structural learning Bayesian networks" in *Proceedings of 11th International Conference IPMU 2006* (B. Bouchon-Meunier, R. R. Yager eds.), Éditions EDK, Paris, France 2006, pp. 2284-2291.

[D16] J. Vomlel, M. Studený "Using imsets for learning Bayesian networks" in *Proceedings of Czech-Japan Seminar on Data Analysis and Decision Making under Uncertainty* (K. Kroupa, J. Vejnarová eds.), Liblice, Czech Republic, 15.-18. September 2007, pp. 178-189.

[D17] M. Studený, J. Vomlel "A geometric approach to learning BN structures" in *Proceedings of the 4th European Workshop on Probabilistic Graphical Models* (M. Jaeger and T. D. Nielsen eds.), University of Aalborg 2008, pp. 281-288.

[D18] M. Studený, J. Vomlel "On open questions in the geometric approach to learning BN structures" in *Proceedings of the 8th Workshop on Uncertainty processing* (T. Kroupa and J. Vejnarová eds.), University of Economics Prague 2009, pp. 226-236.

[D19] M. Studený, R. Hemmecke, S. Lindner "Characteristic imset: a simple algebraic representative of a Bayesian network structure" in *Proceedings of the 5th European Workshop on Probabilistic Graphical Models* (P. Myllymäki, T. Roos and T. Jaakkola eds.), HIIT Publications 2010-2, pp. 257-264.

[D20] M. Studený "Integer linear programming approach to learning Bayesian network structure: towards the essential graph" in *Proceedings of the 6th European Workshop on Probabilistic Graphical Models* (A. Cano, M. Gómez-Olmedo, and T. D. Nielsen eds.), University of Granada 2012, pp. 307-314.

[D21] M. Studený, T. Kroupa, V. Kratochvíl "On attempts to characterize facet-defining inequalities of the cone of exact games" in *Proceedings of the 11th Workshop on Uncertainty Processing* (V. Kratochvíl and J. Vejnarová eds.), MatfyzPress 2018, pp. 177-187.

Thesis and lecture notes:

[E1] M. Studený "Derivování měr v metrických prostorech"(in Czech, translation: The differentiation of measures in metric spaces), graduate diploma thesis, Faculty of Mathematics and Physics, Charles University, Prague 1981, Czechoslovakia, 115 pages.

[E2] M. Studený "Pojem multiinformace v pravděpodobnostním rozhodování" (in Czech, translation: The notion of multiinformation in probabilistic decision making), thesis for CSc degree (PhD), Czechoslovak Academy of Sciences, Institute of Information Theory and Automation, Prague 1987, Czechoslovakia, 121 pages.

[E3] M. Studený "On mathematical description of probabilistic conditional independence structures", thesis for DrSc degree, Institute of Information Theory and Automation, Academy of Sciences of the Czech Republic, Prague May 2001, 192 pages.

[E4] M. Studený "Struktury podmíněné nezávislosti" (in Czech, translation: Conditional independence structures), lecture notes, MatfyzPress (publishing house of the Faculty of Mathematics and Physics of Charles University), Prague May 2014, 235 pages. ISBN:978-80-7378-259-7.

Research reports:

[F1] M. Studený "Redukce parametrického prostoru v Bayesovském rozhodování" (in Czech, translation: The reduction of parameter space in Bayesian decision making), technical report, Institute of Information Theory and Automation, Prague, February 1985.

[F2] M. Studený "Otázka existence simultánní pravděpodobnostní míry se zadanými marginálními mírami" (in Czech, translation: The question of existence of a simultaneous probability measure with given marginals), research report n. 1395, Institute of Information Theory and Automation, Prague, August 1986.

[F3] M. Studený "Multiinformation and conditional independence I." research report n. 1619, Institute of Information Theory and Automation, Prague, October 1989.

[F4] M. Studený "Convex cones in $\mathbf{R}^n$" research report n. 1724, Institute of Information Theory and Automation, Prague, July 1991.

[F5] M. Studený "Convex set functions I." research report n. 1733, Institute of Information Theory and Automation, Prague, November 1991.

[F6] M. Studený "Convex set functions II." research report n. 1734, Institute of Information Theory and Automation, Prague, November 1991.

[F7] P. Lachout, M. Studený, J. Šindelář "On set-valued measures" research reportn. 1741, Institute of Information Theory and Automation, Prague, January 1992. (an earlier version of [A7]).

[F8] M. Studený "Multiinformation and conditional independence II." research report n. 1751, Institute of Information Theory and Automation, Prague, September 1992.

[F9] M. Studený "Formal properties of conditional independence in different calculi of AI" SFB series, preprint 94-003, University of Bielefeld, Germany, January 1994. (published earlier as [C1]).

[F10] R. R. Bouckaert, M. Studený "Chain graphs: semantics and expressiveness - extended version" research report n. 1836, Institute of Information Theory and Automation, Prague, May 1995. (an extended version of [C4]).

[F11] M. Studený "On recovery algorithm for chain graphs" research report n. 1874, Institute of Information Theory and Automation, Prague, July 1996. (an earlier version of [A16]).

[F12] M. Studený, R. R. Bouckaert "On chain graph models for description of conditional independence structures" reprint NI 97037-NNM, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom, October 1997. (an earlier version of [A17]).

[F13] O. García Mata, M. Studený "About the closure operation for relational models induced by syntactic inference rules" research report n. 1959, Institute of Information Theory and Automation, Prague, August 1999.

[F14] M. Studený, R. R. Bouckaert, T. Kočka "Extreme supermodular set functions over five variables" research report n. 1977, Institute of Information Theory and Automation, Prague, January 2000.

[F15] T. Kočka, R. R. Bouckaert, M. Studený "On the inclusion problem" research report n. 2010, Institute of Information Theory and Automation, Prague, February 2001.

[F16] M. Studený "Mathematical aspects of learning Bayesian networks: Bayesian quality criteria" research report n. 2234, Institute of Information Theory and Automation, Prague, December 2008.

[F17] M. Studený, D. Haws "On polyhedral approximations of polytopes for learning Bayes nets" research report n. 2303, Institute of Information Theory and Automation, Prague, July 2011, also available on `http://arxiv.org/abs/1107.4708`.

[F18] M. Studený "LP relaxations and pruning for characteristic imsets" research report n. 2323, Institute of Information Theory and Automation, Prague, June 2012.

[F19] M. Studený "Basic facts concerning extreme supermodular functions" research report n. 2359, Institute of Information Theory and Automation, Prague, December 2016, also available on `http://arxiv.org/abs/1612.06599`.