

CURRICULUM VITAE

VLADIMÍRA SEČKÁROVÁ

CONTACT

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ACADEMIC QUALIFICATIONS

10/2010–09/2015 Ph.D. at the Department of Probability and Mathematical Statistics (Charles University, Prague) and the Department of Adaptive Systems (Institute of Information Theory and Automation of the Czech Academy of Sciences, Prague)

Thesis: *Cross-entropy based combination of discrete probability distributions for distributed decision making*

Supervisor: Ing. Miroslav Kárný, DrSc.

Specialization: Probability and Mathematical Statistics

In this work we propose and derive an approach to combine information in distributed decision making (DM) within cooperative scenario in the group of sources. We focused on the case when sources provided their opinions about a stochastic phenomenon. Such situation commonly occurs when sources can not directly observe the process of interest, such as evaluation of the contracts for decision making in companies, elections, etc. Opinions are represented by discrete probability distributions and their mixture is based on decision making theory and theory of information. The discussion regarding proposed combining and sequential processing of available data, duplicate data, influence of the results by preferences among sources of information and application on real data are also included. Computations were done in Matlab.

10/2008–06/2010 Master's degree in Mathematical Statistics, Charles University, Prague

Specialization: Mathematical Statistics

Thesis: *Supra-Bayesian combination of probability distributions*

Supervisor: Ing. Miroslav Kárný, DrSc.

10/2005–06/2008 Bachelor's degree in General Mathematics, Charles University, Prague

Thesis: *Uniformly most powerful test. Uniformly most powerful unbiased test*

EMPLOYMENT

Since 10/2015 Postdoc at the Institute of Information Theory and Automation of the CAS (UTIA). Since 06/2017 I am on maternity leave.

<http://www.utia.cz/people/se-k-rov>

10/2010–09/2015 Ph.D. student at UTIA.

EXPERIENCE

- 03/2013–04/2013 Internship at Department of Applied Statistics, Johannes Kepler University Linz (program AKTION CZ - AUSTRIA).
- 09/2011 Short research visit at Systems Analysis Department, Institute of Mathematics and Informatics, Vilnius University.
- 2010-2011 Active cooperation on research projects:
“Data, algorithms, decision making”, MŠMT ČR 1M0572 (2005-2011)
“Fully probabilistic design of dynamic decision strategies”, GAČR 102/08/0567 (2008-2011)

GRANTS

- Since 2016 Member of research team for project “Rationality and Deliberation”, GAČR GA16-09848S (2016-2018) <http://www.utia.cz/projects/2498>
- Since 02/2013 Member of research team for project “Fully Probabilistic Design of Dynamic Decision Strategies for Imperfect Participants in Market Scenarios”, GAČR 13-13502S (2013-2016).

AWARDS

- 2013 2nd place for young authors in competition Best publication of UTIA 2013 for contribution [4].

INVITED TALKS

- 2016 Invited talk at the 6th Monash-Ritsumeikan Symposium on Probability and Related Fields, Kusatsu, Japan

TALKS PRESENTED AT CONFERENCES AND WORKSHOPS

- 2015 22nd International Conference on Neural Information Processing (ICONIP2015), Istanbul, TR
- 2015 10th Workshop on Uncertainty Processing (WUPES-2015), Moníec, CZ
- 2014 XVI-th International Summer Conference on Probability and Statistics (ISCPS-2014), Pomorie, BG
- 2014 18th winter school of JČMF ROBUST 2014, Jetřichovice, CZ
- 2013 Workshop STOCHASTIKA 2013, Kohútka, CZ
- 2012 XV-th International Summer Conference on Probability and Statistics (ISCPS-2012), Pomorie, BG
- 2011 20th Annual Conference of Doctoral Students (WDS 2011), Prague, CZ

SKILLS

Mathematical packages and programming languages: Matlab, Mathematica, R, SQL

- I am most proficient in Matlab, but I am experienced also in R, Mathematica, SQL.

Publications

JOURNAL ARTICLES

- [1] Dedecius, K., Sečkářová, V.: Factorized Estimation of Partially Shared Parameters in Diffusion Networks. *IEEE Transactions on Signal Processing* vol. 65, 19 (2017), p. 5153-5163 [2017]
 - [2] Sabolová, R., Sečkářová, V., Dušek, J., Stehlík, M.: Entropy based statistical inference for methane emissions released from wetland. *Chemometrics and Intelligent Laboratory Systems* vol. 141, (2015), p. 125-133 [2015]
 - [3] Sečkářová, V.: Dynamic Parameter Estimation Based on Minimum Cross-Entropy Method For Combining Information Sources. *Pliska Studia Mathematica Bulgarica* vol.23, 1 (2015), p. 181-188 [2015]
 - [4] Dedecius, K., Sečkářová, V.: Dynamic Diffusion Estimation in Exponential Family Models. *IEEE Signal Processing Letters* vol.20, 11 (2013), p. 1114-1117 [2013]
 - [5] Sečkářová, V.: On Supra-Bayesian weighted combination of available data determined by Kerridge inaccuracy and entropy. *Pliska Studia Mathematica Bulgarica* vol.22, 1 (2013), p. 159-168 [2013]
 - [6] Dedecius, K., Sečkářová, V.: Centralized Bayesian reliability modelling with sensor networks. *Mathematical and Computer Modelling of Dynamical Systems* vol.19, 5 (2013), p. 471-482 [2013]
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PUBLICATIONS IN CONFERENCE/WORKSHOP PROCEEDINGS

- Sečkářová, V.: Performance of Kullback-Leibler Based Expert Opinion Pooling for Unlikely Events. *Proceedings of Machine Learning Research*, Volume 58: Imperfect Decision Makers: Admitting Real-World Rationality, Workshop in conjunction with NIPS 2016, p. 41-50 (Barcelona, ES) [2017]
- Sečkářová V., Hrabák P.: Optimizing Movement of Cooperating Pedestrians by Exploiting Floor-Field Model and Markov Decision Process, *Bayesian Statistics in Action*, p. 241-251, Eds: Argiento R., Lanzarone E., Villalobos I. A., Mattei A., Bayesian Young Statisticians Meeting, BAYSM 2016, (Florence, IT) [2017]
- Hrabák P., Ticháček O., Sečkářová V.: Estimation of Discretized Motion of Pedestrians by the Decision-Making Model, *Traffic and Granular Flow '15*, p. 313-320, Eds: Knoop Victor L., Daamen Winnie, Conference on Traffic and Granular Flow '15, (Nootdorp, NL) [2016]
- Dedecius, K., Sečkářová, V.: Diffusion estimation of mixture models with local and global parameters. *Proceedings of 2016 Statistical Signal Processing Workshop*, p. 362-365 [2016]
- Sečkářová, V.: Weighted Probabilistic Opinion Pooling Based on Cross-Entropy. *Neural Information Processing, 22nd International Conference, ICONIP 2015, Istanbul, Turkey, November 9-12, 2015, Proceedings, Part II*, p. 623-629, Eds: Sabri, A., Tingwen, H., Weng, K. L., Qingshan, L., 22nd International Conference on Neural Information Processing (ICONIP2015), (Istanbul, TR, 09.11.2015-12.11.2015) [2015] (ICONIP 2015, 9.11.-12.11.2015)
- Dedecius, K., Sečkářová, V.: Distributed Modelling of Big Dynamic Data with Generalized Linear Models. *Proceedings of the 17th International Conference on Information Fusion (Fusion 2014), 17th International Conference on Information Fusion (Fusion 2014)*, (Salamanca, ES, 07.07.2014-10.07.2014) [2014]
- Sečkářová, V.: A note on weighted combination methods for probability estimation. *Preprints of the 3rd International Workshop on Scalable Decision Making held in conjunction with ECML/PKDD 2013*, Eds: Guy Tatiana V., Kárný Miroslav, (Prague, CZ, 23.09.2013-23.09.2013) [2013]
- Sečkářová, V.: Tools for Decision Making under Uncertainty. *WDS'11 Proceedings of Contributed Papers: Part I - Mathematics and Computer Sciences*, p. 19-24, 20th Annual Conference of Doctoral Students - WDS 2011, (Prague, CZ, 31.05.2011-03.06.2011) [2011]
- Sečkářová, V.: Towards a Supra-Bayesian Approach to Merging of Information. *The 2nd International Workshop on Decision Making with Multiple Imperfect Decision Makers. Held in Conjunction with the 25th Annual Conference on Neural Information Processing Systems (NIPS 2011)*, p. 81-86 (Sierra Nevada, ES, 16.12.2011-16.12.2011)[2011]

Dedecius, K., Sečkárová, V.: Towards Distributed Bayesian Estimation A Short Note on Selected Aspects. The 2nd International Workshop on Decision Making with Multiple Imperfect Decision Makers. Held in Conjunction with the 25th Annual Conference on Neural Information Processing Systems (NIPS 2011), p. 67-72 (Sierra Nevada, ES, 16.12.2011-16.12.2011) [2011]

Sečkárová, V.: Supra-Bayesian Approach to Merging of Incomplete and Incompatible Data. Decision Making with Multiple Imperfect Decision Makers, p. 1-6 , Eds: Guy Tatiana V., Karny Miroslav, Wolpert David, Workshop on Decision Making with Multiple Imperfect Decision Makers. Held in conjunction with the 24th Annual Conference on Neural Information Processing Systems, (Whistler, B.C. Canada, CA, 06.12.2010-11.12.2010) [2010]

Sečkárová, V.: Supra-Bayesian Combination of Probability Distributions. Proceedings of the 11th International PhD Workshop on Systems and Control a Young Generation Viewpoint, p. 112-117, 11th International PhD Workshop on Systems and Control, (Veszprém, HU, 01.09.2010-03.09.2010) [2010]