

# CURRICULUM VITAE

MILAN HLADÍK



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## CONTACT

### *Office*

Address: Charles University, Department of Applied Mathematics,  
Malostranské nám. 25, 118 00 Prague, Czech Republic  
Tel.: +420 95155-4308  
Fax: +420 257 531 014 (secretary)  
E-mail: [hladik@kam.mff.cuni.cz](mailto:hladik@kam.mff.cuni.cz)  
URL: <http://kam.mff.cuni.cz/~hladik/>

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## EDUCATION AND ACADEMIC DEGREES

- 2015            Doc. at Charles University, habilitation thesis: Interval linear algebra
- 2003 – 2006    PhD study at Charles University, Faculty of Mathematics and Physics,  
branch of study: Econometrics and operations research,  
PhD thesis: Explicit description of supporting and separating hyperplanes  
of convex polyhedral sets depending on parameters,  
(supervisor: Libuše Grygarová).
- 1997 – 2003    Master study at Charles University, Faculty of Mathematics and Physics,  
study program: Computer science,  
specialization: Discrete mathematics and optimization,  
thesis: Postoptimal analysis for transportation problem.

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## TEACHING EXPERIENCES

at Faculty of Mathematics and Physics, Charles University (2003–?):

- basic course in Linear algebra I, II and III, advanced lectures in Integer programming, Multicriteria optimization, Fundamentals of nonlinear optimization, Nonlinear optimization algorithms, Discrete and Continuous Optimization.
- introducing and teaching Interval methods
- introducing and leading Optimization seminar

- teaching assistant of Discrete mathematics, Graph theory and combinatorics I, Algorithms and data structures II (besides the aforementioned).

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#### WORKING EXPERIENCES

- 2015 – ? Associate professor at Charles University, Faculty of Mathematics and Physics, Department of Applied Mathematics
- 2012 – ? External researcher at University of Economics, Faculty of Informatics and Statistics, Department of Econometrics
- 2009 – 2015 Assistant professor at Charles University, Faculty of Mathematics and Physics, Department of Applied Mathematics
- 2008 (17 December 2007 – 31 August 2008) Postdoc position in COPRIN team at INRIA, Sophia Antipolis, France. Research subject: Interval linear algebra.
- 2006 – 2009 Junior researcher at Charles University, Faculty of Mathematics and Physics, Department of Applied Mathematics

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#### ACADEMIC EXPERIENCES

- 2019 – ? vicehead of the Department of Applied Mathematics
- 2015 – ? head of Optimization Division at the Department of Applied Mathematics
- 2012 – 2015 scientific secretary at the Department of Applied Mathematics

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#### MISCELLANEA

- 2016 in June 23, author of a new logo of the Department of Applied Mathematics

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#### GUESTS

- 2019 *Moslem Zamani*, University of Tehran, Iran
- 2015 *Marzieh Dehghani-Madiseh*, Amirkabir Univ. of Technology, Tehran, Iran  
topic: New methods in interval matrix computations
- 2015 *Snehashish Chakraverty*, National Institute of Technology Rourkela, India  
topic: Interval linear equations
- 2012 *Sanaz Rivaz*, Shahid Bahonar University of Kerman, Kerman, Iran,  
topic: Multiobjective linear programming with interval coefficients

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#### VISITS

- 2018 University of Salerno, Italy, February 11–16, hosted by *Raffaele Cerulli*

- 2018 University of Salerno, Italy, June 12–17, hosted by *Raffaele Cerulli*
- 2018 project Auctus, INRIA Bordeaux – Sud-Ouest, France, August 20–26, hosted by *David Daney*
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## STUDENTS

- Bachelor’s students: 11 defended
  - Master’s students: 5 defended
  - PhD students: 1 defended
    - *Jaroslav Horáček* (2019), Interval linear and nonlinear systems, Young scientists award from MatTriad‘13 and invited speaker to MatTriad‘15,
  - PhD students: 3 currently under supervision
    - *Elif Garažová* (since 2016), Interval linear programming
    - *Matej Moravčík* (since 2014), Algorithms for extensive form games with imperfect information
    - *Martin Schmid* (since 2013), Algorithmic game theory
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## RESEARCH AREA AND AREA OF INTEREST

Interval analysis:

- Interval-valued linear systems and interval matrices; Numerical analysis and matrix theory; Interval-valued regression problems and statistics

Optimization and operations research:

- Global optimization; Linear programming; Multiobjective optimization; Parametric programming and sensitivity analysis; Game theory
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## COLLABORATION

- *Theoretical properties and interval methods for parametric linear systems* (2015-2017), bilateral agreement, E.D. Popova (Bulgarian Academy of Sciences) and M. Hladík (Charles University in Prague)
  - *Data analytics for the optimization of industrial processes and flows under uncertainty* (2018), program for PhD students in Physics, Mathematics and Applications – Curriculum Mathematics, at University of Salerno
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## MEMBERSHIP

- EUROPT – The Continuous Optimization Working Group of EURO (since 2008)
- JČMF – Union of Czech Mathematicians and Physicists (since 2010)

- SIAM – Society for Industrial and Applied Mathematics (since 2015)
- ILAS – International Linear Algebra Society (since 2016)
- ČSOV – Czech Society for Operations Research (since 2017)
- iSoGO – International Society of Global Optimization ( since 2018)

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#### INVITED PLENARY TALKS AT CONFERENCES AND WORKSHOPS

- *The role of interval linear algebra in global pptomization*, 1st International Workshop on Trusted Numerical Computations, TNC 2018, June 19–20, Krakow, Poland. Minisymposium at International Conference on Emerging Trends in Applied Mathematics and Mechanics, ETAMM 2018.
- *Interval robustness in linear programming* (in czech), 20th winter school of JČMF, ROBUST 2018, January 21–26, Rybník, Czech Republic.
- *Introduction to interval computation and numerical verification*, invited two lectures, Seminar of numerical analysis and winter school, SNA 2017, January 30 – February 3, 2017, Ostrava, Czech Republic.
- *Interval Programming* (with M. Černý, invited series of 8 lectures), workshop for the 7th International Conference of Iranian Operations Research Society, OR 2014, May 12–13, Semnan, Iran.
- *Optimization with uncertain, inexact or unstable data: Linear programming and the interval approach* (with M. Černý, invited lecture), 10th International Conference on Strategic Management and its Support by Information Systems, SMSIS 2013, August 29–30, Valašské Meziříčí, Czech Republic.
- *New directions in interval linear programming*, 15th GAMM-IMACS International Symposium on Scientific Computing, Computer Arithmetic and Verified Numerical Computations, SCAN 2012, September 23–29, Novosibirsk, Russia.
- *Algorithms, complexity and interval data* (with M. Černý, in czech), 17th summer school of JČMF, ROBUST 2012, September 9–14, Němčičky, Czech Republic.

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#### EDITORIAL BOARD

- European Journal of Operational Research (since 2018)
- Reliable Computing (since 2016)
- International Journal of Fuzzy Computation and Modelling (since 2013, since 2018 Associate Editor)

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#### PROGRAM COMMITTEE MEMBERSHIP

- 6th World Congress on Global Optimization, *WCGO 2019*, Metz, France, July 8–10, 2019

- 14th Global Optimization Workshop, *LeGO 2018*, Leiden, The Netherlands, September 18–21, 2018
  - 1st International Workshop on Trusted Numerical Computations, *TNC 2018*, Krakow, Poland, June 19–20, 2018
  - The 7th International Conference of Iranian Operation Research Society, *ORO 2014*, Semnan, Iran, May 14–15, 2014
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## CONFERENCE ORGANIZING

Main organizer:

- 8th Small Workshop on Interval Methods, SWIM 2015, June 9-11, 2015, Prague, Czech Republic. <http://kam.mff.cuni.cz/conferences/swim2015/>

Special sessions:

- Session on *Interval Matrices* at MatTriad 2017 - International Conference on MATRIX Analysis and its Applications, September 25-29, 2017, Będlewo, Poland.
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## GRANT PROJECTS

Principal investigator:

- *Novel approaches for relaxation and approximation techniques in deterministic global optimization*, 2018–2020, grant P403-18-04735S of the Grant Agency of the Czech Republic.
- *Interval methods for optimization problems*, 2013–2017, grant P402-13-10660S of the Grant Agency of the Czech Republic.

Team member:

- *Decision Making in Uncertain Environment: Stability Analysis and Robustification of Optimization Models*, 2016–2018, grant P403-16-00408S of the Grant Agency of the Czech Republic, principal investigator M. Černý.
- *Center of excellence – Institute for Theoretical Computer Science*, 2012–2018, research center supported by the project P202/12/G061 of GA CR, principal investigator J. Nešetřil.
- *Models of Optimal Economic Decision Making under Instability, Uncertainty and Indeterminacy*, 2012–2015, grant P403/12/1947 of the Grant Agency of the Czech Republic, principal investigator M. Černý.
- *Center for Foundations of Modern Computer Science*, 2018–2023, Charles University research center in the program UNCE, UNCE/SCI/004, principal investigator J. Sgall.
- *Center of Modern Computer Science*, 2012–2017, Charles University research center in the program UNCE, principal investigator J. Sgall.
- *PRVOUK P46 – Computer Science*, 2011–2015, Charles University grant, principal coordinator O. Čepek.

- *Modern methods, structures and systems of computer science*, 2005–2011, grant MSM0021620838 of the Ministry of education of the Czech Republic, principal investigator J. Kratochvíl.
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#### REFeree

- Peer review activity: see <https://publons.com/author/1198622/>
  - Editors' Award for Excellence in Reviewing, by European Journal of Operational Research, 2018
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#### BOOKS AND BOOK CHAPTERS

- [1] M. Hladík. *Lineární algebra (nejen) pro informatiky*. MatfyzPress, Praha, 1st edition, 2019. In Czech.
  - [2] M. Hladík. Interval linear programming: A survey. In Z. A. Mann, ed., *Linear Programming – New Frontiers in Theory and Applications*, chapter 2, pages 85–120. Nova Science Publishers, New York, 2012.
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#### PAPERS IN JOURNALS

- [1] M. Dehghani-Madiseh and M. Hladík. Enclosing the solution set of the parametric generalised sylvester matrix equation  $A(p)XB(p) + C(p)XD(p) = F(p)$ . *Int. J. Syst. Sci.*, 50(11):2153–2167, 2019.
- [2] E. Garajová and M. Hladík. On the optimal solution set in interval linear programming. *Comput. Optim. Appl.*, 72(1):269–292, 2019.
- [3] E. Garajová and M. Hladík. Checking weak optimality and strong boundedness in interval linear programming. *Soft Comput.*, 23(9):2937–2945, 2019.
- [4] E. Garajová, M. Hladík, and M. Rada. Interval linear programming under transformations: optimal solutions and optimal value range. *Cent. Eur. J. Oper. Res.*, 27(3):601–614, Sep 2019.
- [5] M. Hladík. Universal efficiency scores in data envelopment analysis based on a robust approach. *Expert Syst. Appl.*, 122:242–252, May 2019.
- [6] M. Hladík. Tolerances, robustness and parametrization of matrix properties related to optimization problems. *Optim.*, 68(2-3):667–690, 2019.
- [7] M. Hladík. Support set invariancy for interval bimatrix games. *Int. J. Uncertainty Fuzziness Knowl.-Based Syst.*, 27(02):225–237, 2019.
- [8] M. Hladík, M. Rada, S. Sitarz, and E. Garajová. Range sets for weak efficiency in multi-objective linear programming and a parametric polytopes intersection problem. *Optim.*, 68(2-3):645–666, 2019.
- [9] M. Hladík and I. Skalna. Relations between various methods for solving linear interval and parametric equations. *Linear Algebra Appl.*, 574:1–21, August 2019.
- [10] M. Rada, M. Hladík, and E. Garajová. Testing weak optimality of a given solution in interval linear programming revisited: NP-hardness proof, algorithm and some polynomially-solvable cases. *Optim. Lett.*, 13(4):875–890, June 2019.

- [11] I. Skalna and M. Hladík. Direct and iterative methods for interval parametric algebraic systems producing parametric solutions. *Numer. Linear Algebra Appl.*, 26(3):e2229:1–e2229:24, 2019.
- [12] M. Černý and M. Hladík. Possibilistic linear regression with fuzzy data: Tolerance approach with prior information. *Fuzzy Sets Syst.*, 340:127–144, 2018.
- [13] M. Dehghani-Madiseh and M. Hladík. Efficient approaches for enclosing the united solution set of the interval generalized Sylvester matrix equations. *Appl. Numer. Math.*, 126:18–33, 2018.
- [14] D. Hartman and M. Hladík. Regularity radius: Properties, approximation and a not a priori exponential algorithm. *Electron. J. Linear Algebra*, 33:122–136, 2018.
- [15] M. Hladík. Bounds for the solutions of absolute value equations. *Comput. Optim. Appl.*, 69(1):243–266, 2018.
- [16] M. Hladík. Testing pseudoconvexity via interval computation. *J. Glob. Optim.*, 71(3):443–455, 2018.
- [17] M. Hladík. The worst case finite optimal value in interval linear programming. *Croat. Oper. Res. Rev.*, 9(2):245–254, 2018.
- [18] M. Hladík. AE regularity of interval matrices. *Electron. J. Linear Algebra*, 33:137–146, 2018.
- [19] J. Horáček, M. Hladík, and J. Matějka. Determinants of interval matrices. *Electron. J. Linear Algebra*, 33:99–112, 2018.
- [20] J. Horáček, V. Koucký, and M. Hladík. Novel approach to computerized breath detection in lung function diagnostics. *Comput. Biol. Med.*, 101:1–6, 2018.
- [21] S. Chakraverty, M. Hladík, and N. R. Mahato. A sign function approach to solve algebraically interval system of linear equations for nonnegative solutions. *Fund. Inform.*, 152(1):13–31, 2017.
- [22] S. Chakraverty, M. Hladík, and D. Behera. Formal solution of an interval system of linear equations with an application in static responses of structures with interval forces. *Appl. Math. Model.*, 50:105–117, 2017.
- [23] M. Hladík. Transformations of interval linear systems of equations and inequalities. *Linear Multilinear Algebra*, 65(2):211–223, 2017.
- [24] M. Hladík. Interval convex quadratic programming problems in a general form. *Cent. Eur. J. Oper. Res.*, 25(3):725–737, 2017.
- [25] M. Hladík. On strong optimality of interval linear programming. *Optim. Lett.*, 11(7):1459–1468, 2017.
- [26] M. Hladík and M. Černý. Two optimization problems in linear regression with interval data. *Optim.*, 66(3):331–349, 2017.
- [27] J. A. dit Sandretto and M. Hladík. Solving over-constrained systems of non-linear interval equations - And its robotic application. *Appl. Math. Comput.*, 313:180–195, 2017.
- [28] I. Skalna and M. Hladík. A new algorithm for Chebyshev minimum-error multiplication of reduced affine forms. *Numer. Algorithms*, 76(4):1131–1152, 2017.
- [29] I. Skalna and M. Hladík. A new method for computing a p-solution to parametric interval linear systems with affine-linear and nonlinear dependencies. *BIT Numer. Math.*, 57(4):1109–1136, 2017.
- [30] M. Černý and M. Hladík. Inverse optimization: towards the optimal parameter set of inverse LP with interval coefficients. *Cent. Eur. J. Oper. Res.*, 24(3):747–762, 2016.
- [31] M. Hladík. An extension of the  $\alpha$ BB-type underestimation to linear parametric Hessian

- matrices. *J. Glob. Optim.*, 64(2):217–231, 2016.
- [32] M. Hladík. Robust optimal solutions in interval linear programming with forall-exists quantifiers. *Eur. J. Oper. Res.*, 254(3):705–714, 2016.
- [33] M. Hladík and M. Černý. First step immersion in interval linear programming with linear dependencies. *Bull. Iranian Math. Soc.*, 42(7):43–53, 2016.
- [34] M. Hladík and J. Rohn. Radii of solvability and unsolvability of linear systems. *Linear Algebra Appl.*, 503:120–134, 2016.
- [35] A. Mostafaei, M. Hladík, and M. Černý. Inverse linear programming with interval coefficients. *J. Comput. Appl. Math.*, 292:591–608, 2016.
- [36] S. Rivaz, M. A. Yaghoobi, and M. Hladík. Using modified maximum regret for finding a necessarily efficient solution in an interval MOLP problem. *Fuzzy Optim. Decis. Mak.*, 15(3):237–253, 2016.
- [37] A. Shahin, P. Hanafizadeh, and M. Hladík. Sensitivity analysis of linear programming in the presence of correlation among right-hand side parameters or objective function coefficients. *Cent. Eur. J. Oper. Res.*, 24(3):563–593, 2016.
- [38] M. Hladík. On the efficient Gerschgorin inclusion usage in the global optimization  $\alpha$ BB method. *J. Glob. Optim.*, 61(2):235–253, 2015.
- [39] M. Hladík. Complexity issues for the symmetric interval eigenvalue problem. *Open Math.*, 13(1):157–164, 2015.
- [40] M. Hladík. AE solutions and AE solvability to general interval linear systems. *Linear Algebra Appl.*, 465(0):221–238, 2015.
- [41] M. Hladík and M. Černý. Total least squares and Chebyshev norm. *Procedia Comput. Sci.*, 51(0):1791–1800, 2015.
- [42] M. Hladík and E. D. Popova. Maximal inner boxes in parametric AE-solution sets with linear shape. *Appl. Math. Comput.*, 270:606–619, 2015.
- [43] M. Černý and M. Hladík. The complexity of computation and approximation of the t-ratio over one-dimensional interval data. *Comput. Stat. Data Anal.*, 80(0):26–43, 2014.
- [44] M. Hladík. How to determine basis stability in interval linear programming. *Optim. Lett.*, 8(1):375–389, 2014.
- [45] M. Hladík. New operator and method for solving real preconditioned interval linear equations. *SIAM J. Numer. Anal.*, 52(1):194–206, 2014.
- [46] M. Hladík. Strong solvability of linear interval systems of inequalities with simple dependencies. *Int. J. Fuzzy Comput. Model.*, 1(1):3–14, 2014.
- [47] M. Hladík. On approximation of the best case optimal value in interval linear programming. *Optim. Lett.*, 8(7):1985–1997, 2014.
- [48] M. Hladík and M. Černý. Tolerance approach to possibilistic nonlinear regression with interval data. *IEEE Trans. Cybern.*, 44(12):2509–2520, 2014.
- [49] M. Hladík and S. Ratschan. Efficient solution of a class of quantified constraints with quantifier prefix exists-forall. *Math. Comput. Sci.*, 8(3-4):329–340, 2014.
- [50] M. Černý, J. Antoch, and M. Hladík. On the possibilistic approach to linear regression models involving uncertain, indeterminate or interval data. *Inf. Sci.*, 244:26–47, 2013.
- [51] M. Hladík. Bounds on eigenvalues of real and complex interval matrices. *Appl. Math. Comput.*, 219(10):5584–5591, 2013.
- [52] M. Hladík. Weak and strong solvability of interval linear systems of equations and inequalities. *Linear Algebra Appl.*, 438(11):4156–4165, 2013.
- [53] M. Hladík and S. Sitarz. Maximal and supremal tolerances in multiobjective linear pro-



- gramming. *Eur. J. Oper. Res.*, 228(1):93–101, 2013.
- [54] E. D. Popova and M. Hladík. Outer enclosures to the parametric AE solution set. *Soft Comput.*, 17(8):1403–1414, 2013.
- [55] J. Horáček and M. Hladík. Computing enclosures of overdetermined interval linear systems. *Reliab. Comput.*, 19(2):142–155, 2013.
- [56] M. Černý and M. Hladík. Two complexity results on c-optimality in experimental design. *Comput. Optim. Appl.*, 51(3):1397–1408, 2012.
- [57] M. Hladík. Complexity of necessary efficiency in interval linear programming and multi-objective linear programming. *Optim. Lett.*, 6(5):893–899, 2012.
- [58] M. Hladík. Enclosures for the solution set of parametric interval linear systems. *Int. J. Appl. Math. Comput. Sci.*, 22(3):561–574, 2012.
- [59] M. Hladík and M. Černý. Interval regression by tolerance analysis approach. *Fuzzy Sets Syst.*, 193:85–107, 2012.
- [60] M. Hladík, D. Daney, and E. P. Tsigaridas. An algorithm for addressing the real interval eigenvalue problem. *J. Comput. Appl. Math.*, 235(8):2715–2730, 2011.
- [61] M. Hladík, D. Daney, and E. P. Tsigaridas. A filtering method for the interval eigenvalue problem. *Appl. Math. Comput.*, 217(12):5236–5242, 2011.
- [62] M. Hladík, D. Daney, and E. P. Tsigaridas. Characterizing and approximating eigenvalue sets of symmetric interval matrices. *Comput. Math. Appl.*, 62(8):3152–3163, 2011.
- [63] M. Hladík and L. Jaulin. An eigenvalue symmetric matrix contractor. *Reliab. Comput.*, 16:27–37, 2011.
- [64] M. Hladík. Optimal value bounds in nonlinear programming with interval data. *TOP*, 19(1):93–106, 2011.
- [65] M. Hladík. Tolerance analysis in linear systems and linear programming. *Optim. Methods Softw.*, 26(3):381–396, 2011.
- [66] M. Hladík, D. Daney, and E. Tsigaridas. Bounds on real eigenvalues and singular values of interval matrices. *SIAM J. Matrix Anal. Appl.*, 31(4):2116–2129, 2010.
- [67] M. Hladík. On the separation of parametric convex polyhedral sets with application in MOLP. *Appl. Math.*, 55(4):269–289, 2010.
- [68] M. Hladík. Interval valued bimatrix games. *Kybernetika*, 46(3):435–446, 2010.
- [69] M. Hladík. Solution sets of complex linear interval systems of equations. *Reliab. Comput.*, 14:78–87, 2010.
- [70] M. Hladík. Generalized linear fractional programming under interval uncertainty. *Eur. J. Oper. Res.*, 205(1):42–46, 2010.
- [71] M. Hladík. Multiparametric linear programming: support set and optimal partition invariancy. *Eur. J. Oper. Res.*, 202(1):25–31, 2010.
- [72] M. Hladík. Optimal value range in interval linear programming. *Fuzzy Optim. Decis. Mak.*, 8(3):283–294, 2009.
- [73] M. Hladík. Separation of convex polyhedral sets with column parameters. *Kybernetika*, 44(1):113–130, 2008.
- [74] M. Hladík. Description of symmetric and skew-symmetric solution set. *SIAM J. Matrix Anal. Appl.*, 30(2):509–521, 2008.
- [75] M. Hladík. Computing the tolerances in multiobjective linear programming. *Optim. Methods Softw.*, 23(5):731–739, 2008.
- [76] M. Hladík. Additive and multiplicative tolerance in multiobjective linear programming.

*Oper. Res. Lett.*, 36(3):393–396, 2008.

- [77] M. Hladík. Solution set characterization of linear interval systems with a specific dependence structure. *Reliab. Comput.*, 13(4):361–374, 2007.

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PAPERS IN PROCEEDINGS

- [1] M. Hladík. Interval robustness of matrix properties for the linear complementarity problem. In L. Zadnik Stirn et al., ed., *Proceedings of the 15th International Symposium on Operational Research SOR'19, Bled, Slovenia, September 25-27, 2019*, pages 488–493, Ljubljana, Slovenia, 2019. BISTISK d.o.o.
- [2] M. Hladík, L. Kolev, and I. Skalna. Sufficient conditions for pseudoconvexity by using linear interval parametric techniques. In M. T. M. Emmerich et al., ed., *Proceedings LeGO 2018 - 14th International Global Optimization Workshop*, volume 2070 of *AIP Conference Proceedings*, pages 020001–1–020001–4, Melville, New York, 2019. American Institute of Physics (AIP).
- [3] M. Rada, E. Garajová, J. Horáček, and M. Hladík. A new pruning test for parametric interval linear systems. In L. Zadnik Stirn et al., ed., *Proceedings of the 15th International Symposium on Operational Research SOR'19, Bled, Slovenia, September 25-27, 2019*, pages 506–511, Ljubljana, Slovenia, 2019. BISTISK d.o.o.
- [4] M. Hladík. Positive semidefiniteness and positive definiteness of a linear parametric interval matrix. In M. Ceberio and V. Kreinovich, eds., *Constraint Programming and Decision Making: Theory and Applications*, volume 100 of *Studies in Systems, Decision and Control*, pages 77–88. Springer, Cham, 2018.
- [5] M. Hladík and M. Černý. The shape of the optimal value of a fuzzy linear programming problem. In P. Melin et al., ed., *Fuzzy Logic in Intelligent System Design*, volume 648 of *Advances in Intelligent Systems and Computing*, pages 281–286. Springer, Cham, 2018.
- [6] O. Král and M. Hladík. Parallel computing of linear systems with linearly dependent intervals in MATLAB. In R. Wyrzykowski et al., ed., *Parallel Processing and Applied Mathematics*, volume 10778 of *LNCS*, pages 391–401. Springer, Cham, 2018.
- [7] S. I. Kumkov, M. Hladík, L. A. Yolshina, and V. A. Yolshina. New information technology on the basis of interval analysis: Estimation of aluminum corrosion parameters in real electrochemical process. In E. Akimova et al., ed., *Proceedings of the 3rd International Workshop on Radio Electronics & Information Technologies, Yekaterinburg, Russia, March 14, 2018*, pages 76–85. CEUR Workshop Proceedings, 2018.
- [8] J. Horáček, J. Horáček, and M. Hladík. Detecting unsolvability of interval linear systems. In N. D. M. Martel and J. A. D. Sandretto, eds., *TNC'18. Trusted Numerical Computations*, volume 8 of *Kalpa Publications in Computing*, pages 54–69. EasyChair, 2018.
- [9] I. Skalna and M. Hladík. Enhancing monotonicity checking in parametric interval linear systems. In N. D. M. Martel and J. A. D. Sandretto, eds., *TNC'18. Trusted Numerical Computations*, volume 8 of *Kalpa Publications in Computing*, pages 70–83. EasyChair, 2018.
- [10] M. Hladík. On relation between P-matrices and regularity of interval matrices. In N. Bebbiano, ed., *Applied and Computational Matrix Analysis*, volume 192 of *Springer Proceedings in Mathematics & Statistics*, pages 27–35. Springer, 2017.
- [11] M. Hladík. On relation of possibly efficiency and robust counterparts in interval multiobjective linear programming. In A. Sforza and C. Sterle, eds., *Optimization and Decision*

- Science: Methodologies and Applications*, volume 217 of *Springer Proceedings in Mathematics & Statistics*, pages 335–343. Springer, Cham, 2017.
- [12] M. Hladík. The effect of Hessian evaluations in the global optimization  $\alpha$ BB method. In H. Bock et al., ed., *Modeling, Simulation and Optimization of Complex Processes HPSC 2015*, pages 67–79. Springer, Cham, 2017.
- [13] J. Horáček, M. Hladík, and M. Černý. Interval linear algebra and computational complexity. In N. Bebiano, ed., *Applied and Computational Matrix Analysis*, volume 192 of *Springer Proceedings in Mathematics & Statistics*, pages 37–66. Springer, 2017.
- [14] J. Novotná, M. Hladík, and T. Masařík. Duality gap in interval linear programming. In L. Zadnik Stirn et al., ed., *Proceedings of the 14th International Symposium on Operational Research SOR'17, Bled, Slovenia, September 27-29, 2017*, pages 501–506, Ljubljana, Slovenia, 2017. Slovenian Society Informatika.
- [15] E. Garajová, M. Hladík, and M. Rada. The effects of transformations on the optimal set in interval linear programming. In L. Zadnik Stirn et al., ed., *Proceedings of the 14th International Symposium on Operational Research SOR'17, Bled, Slovenia, September 27-29, 2017*, pages 487–492, Ljubljana, Slovenia, 2017. Slovenian Society Informatika.
- [16] E. Garajová, M. Hladík, and M. Rada. On the properties of interval linear programs with a fixed coefficient matrix. In A. Sforza and C. Sterle, eds., *Optimization and Decision Science: Methodologies and Applications*, volume 217 of *Springer Proceedings in Mathematics & Statistics*, pages 393–401. Springer, Cham, 2017.
- [17] D. Hartman and M. Hladík. Tight bounds on the radius of nonsingularity. In M. Nehmeier et al., ed., *Scientific Computing, Computer Arithmetic, and Validated Numerics: 16th International Symposium, SCAN 2014, Würzburg, Germany, September 21-26*, volume 9553 of *LNCS*, pages 109–115. Springer, 2016.
- [18] M. Hladík. Optimal preconditioning for the interval parametric Gauss–Seidel method. In M. Nehmeier et al., ed., *Scientific Computing, Computer Arithmetic, and Validated Numerics: 16th International Symposium, SCAN 2014, Würzburg, Germany, September 21-26*, volume 9553 of *LNCS*, pages 116–125. Springer, 2016.
- [19] J. Horáček, V. Koucký, and M. Hladík. Children lung function diagnostics - New methods for handling of clinical data. In *Proceedings of the 9th EAI International Conference on Bio-inspired Information and Communications Technologies (Formerly BIONETICS), BICT'15*, pages 174–176, Brussels, 2016. ICST.
- [20] M. Moravčík, M. Schmid, K. Ha, M. Hladík, and S. J. Gaukroder. Refining subgames in large imperfect information games. In *Proceedings of the Thirtieth AAAI Conference on Artificial Intelligence*, pages 572–578, Palo Alto, California, 2016. AAAI Press.
- [21] J. Bok and M. Hladík. Selection-based approach to cooperative interval games. In D. de Werra, G. H. Parlier, and B. Vitoriano, eds., *Operations Research and Enterprise Systems*, volume 577 of *Communications in Computer and Information Science*, pages 40–53. Springer, Switzerland, 2015.
- [22] M. Schmid, M. Moravčík, M. Hladík, and S. J. Gaukroder. Automatic public state space abstraction in imperfect information games. In *Computer Poker and Imperfect Information: Papers from the 2015 AAAI Workshop*, pages 51–56. AAAI Press, 2015.
- [23] M. Hladík and J. Horáček. Interval linear programming techniques in constraint programming and global optimization. In M. Ceberio and V. Kreinovich, eds., *Constraint Programming and Decision Making*, volume 539 of *Studies in Computational Intelligence*, pages 47–59. Springer, 2014.
- [24] M. Hladík and J. Horáček. A shaving method for interval linear systems of equations. In

- R. Wyrzykowski, J. Dongarra, K. Karczewski, and J. Waśniewski, eds., *Parallel Processing and Applied Mathematics*, volume 8385 of *LNCS*, pages 573–581. Springer, 2014.
- [25] J. Horáček and M. Hladík. Subsquares approach – a simple scheme for solving overdetermined interval linear systems. In R. Wyrzykowski, J. Dongarra, K. Karczewski, and J. Waśniewski, eds., *Parallel Processing and Applied Mathematics*, volume 8385 of *LNCS*, pages 613–622. Springer, 2014.
- [26] M. Schmid, M. Moravčík, and M. Hladík. Bounding the support size in extensive form games with imperfect information. In *Proceedings of the Twenty-Eighth AAAI Conference on Artificial Intelligence*, pages 784–790, Palo Alto, California, 2014. AAAI Press.
- [27] M. Černý and M. Hladík. Optimization with uncertain, inexact or unstable data: Linear programming and the interval approach. In R. Němec and F. Zapletal, eds., *Proceedings of the 10th International Conference on Strategic Management and its Support by Information Systems*, pages 35–43, Ostrava, 2013. VŠB - Technical University of Ostrava.
- [28] J. Antoch, M. Černý, and M. Hladík. On computational complexity of construction of  $c$ -optimal linear regression models over finite experimental domains. *Tatra Mt. Math. Publ.*, 51:11–21, 2012.
- [29] M. Hladík. An interval linear programming contractor. In J. Ramík and D. Stavárek, eds., *Proceedings 30th Int. Conf. Mathematical Methods in Economics 2012, Karviná, Czech Republic*, pages 284–289 (Part I.). Silesian University in Opava, School of Business Administration in Karviná, September 2012.
- [30] M. Hladík and M. Černý. On the tolerance approach to possibilistic nonlinear regression over interval data. In M. Vořechovský et al., eds., *REC 2012, Proceedings of the 5th International Conference on Reliable Engineering Computing - Practical Applications and Practical Challenges, June 13-15, Brno*, pages 183–195. LITERA, 2012.
- [31] M. Hladík. Error bounds on the spectral radius of uncertain matrices. In T. Simos, ed., *Proceedings of the International Conference on Numerical Analysis and Applied Mathematics 2011 (ICNAAM-2011), G-Hotels, Halkidiki, Greece, 19-25 September*, volume 1389 of *AIP Conference Proceedings*, pages 882–885, Melville, New York, 2011. American Institute of Physics (AIP).
- [32] M. Černý and M. Hladík. The regression tolerance quotient in data analysis. In M. Houda and J. Friebelová, eds., *CD-ROM Proceedings 28-th Int. Conf. Mathematical Methods in Economics MME 2010, Part I, České Budějovice*, pages 98–104, 2010.
- [33] M. Černý, M. Hladík, and V. Skočdoplová. On computationally complex instances of the  $c$ -optimal experimental design problem: breaking RSA-based cryptography via  $c$ -optimal design. In Y. Lechevallier and G. Saporta, eds., *Proceedings of Compstat 2010, Paris*, pages 879–886, 2010.
- [34] M. Hladík and M. Černý. New approach to interval linear regression. In R. Kasimbeyli, C. Dinçer, S. Özpeynirci, and L. Sakalauskas, eds., *24th Mini-EURO Conference On Continuous Optimization and Information-Based Technologies in The Financial Sector MEC EurOPT 2010. Selected Papers*, pages 167–171, Vilnius, 2010. Technika.
- [35] M. Hladík. On necessary efficient solutions in interval multiobjective linear programming. In C. H. Antunes, D. R. Insua, and L. C. Dias, eds., *CD-ROM Proceedings of the 25th Mini-EURO Conference Uncertainty and Robustness in Planning and Decision Making URPDM 2010, April 15-17, Coimbra, Portugal*, pages 1–10, 2010.
- [36] M. Hladík. A contractor for the symmetric solution set. *WASET*, 71:94–99, 2010. Proceedings of the International Conference on Applied Mathematics and Engineering Mathematics, November 24-26, Venice, Italy.

- [37] M. Hladík. Tolerances in portfolio selection via interval linear programming. In P. Rehorova, K. Marsikova, and Z. Hubinka, eds., *CD-ROM Proceedings 26-th Int. Conf. Mathematical Methods in Economics MME08, Liberec, Czech Republic*, pages 185–191. Technical University Liberec, September 2008.
- [38] M. Hladík. Optimal value bounds in nonlinear programming with interval data. In L. Sakalauskas, G. W. Weber, and E. K. Zavadskas, eds., *Proceedings of the 20th international conference EURO Mini Conference: Continuous Optimization and Knowledge-Based Technologies, EurOPT 2008, May 20-23, Neringa, Lithuania*, pages 154–159, Vilnius, 2008. Technika.
- [39] M. Hladík. Separation of convex polyhedral sets with uncertain data. In *Proceedings 24-th Int. Conf. Mathematical Methods in Economics MME06, Pilsen*, pages 227–234, 2006.
- [40] O. Bojar, C. Brom, M. Hladík, and V. Toman. The Project ENTs: Towards Modelling Human-like Artificial Agents. In *Proceedings of Student Research Forum, SOFSEM 2005, Liptovský Ján, Slovak Republic*, pages 1–12, 2005.
- [41] M. Hladík. Explicit description of all separating hyperplanes of two convex polyhedral sets with rhs-parameters. In J. Šafránková, ed., *WDS 2004 - Proceedings of Contributed Papers, Part I, June 15-18, Matfyzpress, Prague*, pages 63–70, 2004.