RNDr. Michal Červinka, Ph.D.

Vitae November 2020

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Academic Experience:

- **1/2016 -** research fellow
  at Academy of Sciences of the Czech Republic
  Institute of Information Theory and Automation
  Department of Mathematical Decision-Making Theory

- **10/2009 -** Assistant Professor/Senior Lecturer
  at Charles University in Prague
  Institute of Economic Studies, Faculty of Social Sciences
  Teaching Modules - Introductory Statistics, Statistics, Topics in Statistics, Bachelor Thesis Seminar I and II

- **6/2005 - 12/2015** research assistant
  at Academy of Sciences of the Czech Republic
  Institute of Information Theory and Automation
  Department of Mathematical Decision-Making Theory
  (5/2005 - 8/2008 PhD student, 9/2009 - 12/2013 post-doc)

Education:

- **10/2003 - 9/2008** PhD in Mathematics
  at Charles University in Prague, Faculty of Mathematics and Physics
  Specialization: Econometrics and Operations Research
  Advisor: Doc. Ing. Jiří Outrata, DrSc.

- **10/2003 - 6/2006** Bc (BSc equivalent) in Economics at Charles University in Prague, Faculty of Social Sciences
  Study programme: Bachelor in Economic Theories

- **10/1998 - 6/2003** Mgr. (MSc. equivalent) in Mathematics, RNDr.
  at Charles University in Prague, Faculty of Mathematics and Physics
  Study programme: Master in Mathematics, Specialization: Econometrics

Further Education:

- May 2019: Spring School of Variational Analysis and its Applications, Paseky, Czech Republic (part of the organizing team)
- April 2015: Spring School of Variational Analysis and its Applications, Paseky, Czech Republic (part of the organizing team)
- April 2012: Spring School of Variational Analysis and its Applications, Paseky, Czech Republic
- July 2009: Advanced Course on Optimization: Theory, Methods and Applications at Universita Autonoma de Barcelona, Barcelona, Spain
- April 2009: Spring School of Variational Analysis and its Applications, Paseky, Czech Republic
- April 2006: Spring School of Variational Analysis and its Applications, Paseky, Czech Republic
- July 2004: Summer school for ICCOPT 2014 at Rensselaer Polytechnic Institute, Troy, NY, USA

Research Visits:

- May – August 2018: visiting prof. Tim Hoheisel, research stay, McGill University, Montreal, Quebec, Canada
- June – July and September 2011: visiting prof. Didier Aussel, research stay, University of Perpignan, France
- August – September 2006: visiting prof. Daniel Ralph, research stay, Judge Business School, Cambridge University, UK

Language Skills:

- **Czech** native
- **English** near native (C2)
- **German** working knowledge (A2/B1)
- **Chinese** basic communication skills (A1)

Teaching Experience:

- 2019 Lectures of doctoral course Advanced Topics of the Field - Chapters on Modern Optimization Theory and Equilibria; Faculty of Mathematics and Physics, Charles University in Prague; in Czech/English
- 2015 – Bachelor Thesis Seminar I, II; Faculty of Social Sciences, Charles University in Prague; in Czech and English
- 2014 – Lectures of bachelor course Introductory Statistics; Faculty of Social Sciences, Charles University in Prague; in English
- 2014 Lectures of doctoral course Chapters on Modern Optimization and Equilibria; Faculty of Mathematics and Physics, Charles University in Prague; in Czech/English
- 2012 – 2015 Lectures of bachelor course Topics in Statistics; Faculty of Social Sciences, Charles University in Prague; in English
- 2009 – Lectures of bachelor course Statistics; Faculty of Social Sciences, Charles University in Prague; in English
- 2006 – 2011 Tutorial classes of bachelor courses Econometrics I, II; Faculty of Social Sciences, Charles University in Prague; in Czech
- 2004 – 2006 Tutorial classes of bachelor courses Optimization I, Introductory Optimization; Faculty of Mathematics and Physics, Charles University in Prague; in Czech
- 2004 – 2005 Tutorial classes of bachelor courses Probability Theory and Mathematical Statistics I, II; Faculty of Social Sciences, Charles University in Prague; in Czech

Theses Supervision Experience:

- **Current PhD student** Veronika Borůvková (Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University and UTIA)
- **Master Theses** 2 supervised, 1 awarded the Dean's distinction
- **Bachelor Theses** 22 supervised, 5 awarded the Dean's distinction

Grant Projects:

- **2019 - 2021** PRIMUS/19/HUM/17 Behavioral Finance and Macroeconomics: New Insights for the Mainstream (Charles University)
- **2018 - 2020** GA ČR 18-04145S Utilization of Stochastic Optimization and Equilibrium Models in Portfolio Selection and Energy Finance (principal investigator) (UTIA)
- **2015 - 2017** GA ČR 15-00735S Stability analysis of optima and equilibria in economics (UTIA)
- **2013 - 2016** GA ČR 13-01930S Robust methods for nonstandard situations, their diagnostics and implementations (Charles University)
- **2012 - 2014** GA ČR 402/12/1309 A Multivalued Approach to Optima and Equilibria in Economics (UTIA)
- **2009 - 2011** GA ČR 201/09/1957 Development of methods for solving large scale nonlinear programming and nonsmooth optimization methods (UTIA)
- **2007** GA UK 7645/2007 Homotopy method for solving equilibrium problems with linear complementarity constraints (principal investigator) (Charles University)
- **2005 - 2008:** GA AV A1030405 Development of a programming system for solving large scale nonlinear and nonsmooth optimization problems (UTIA)

Michal Červinka has focused on new applications of recent advances in nonlinear optimization and equilibrium modeling in finance and energy economics. His main research topics in recent years include development of new tools for stability analysis of stationarity points and solutions to mathematical programming problems with disjunctive structure, development of new solution approaches and modifications of existing numerical methods to particular structures of problems arising from various economics and finance applications.

Publications:

Citations (ResearchGate): 105
H-Index (ResearchGate): 6
https://orcid.org/0000-0002-4661-5444

Refereed Research Publications:

1. Benko M., Červinka M., Hoheisel T.: Sufficient Conditions for Metric Subregularity of Constraint Systems with Applications to Disjunctive and Ortho-Disjunctive Programs, accepted for publication in Set-Valued and Variational Analysis on November 10, 2020.

2. Branda M., Bucher M., Červinka M., Schwartz A.: Convergence of a Scholtes-type regularization method for cardinality-constrained optimization problems with an application in sparse robust portfolio optimization, Computational Optimization and Applications, 70(2), 503-530, 2018.

3. Červinka, M., Kanzow Ch., Schwarz A.: Constraint qualifications and optimality conditions for optimization problems with cardinality constraints, Mathematical Programming, 160(1), 353–377, 2016.

4. Outrata J., Ferris M., Červinka, M., Outrata M.: On Cournot-Nash-Walras equilibria and their computation, Set-Valued and Variational Analysis, 24(3), 387–402, 2016.

5. Aussel D., Červinka M., Marechal M.: Deregulated electricity markets with thermal losses and production bounds: models and optimality conditions, RAIRO-Oper. Res., 50(1), 19-38, 2016.

6. Červinka M.: A note on stability of stationary points in Mathematical Programs with generalized Complementarity Constraints, Optimization, 65(5), 1-12, 2016.

7. Adam L., Červinka M., Pištěk M.: Normally Admissible Stratifications and Calculation of Normal Cones to a Finite Union of Polyhedral Sets, Set-Valued and Variational Analysis, 24(2), 207–229, 2016.

8. Červinka M., Outrata J., Pištěk M.: On Stability of M-stationary Points in MPCCs, Set-Valued and Variational Analysis, 22(3), 575-595, 2014.

9. Červinka M., Matonoha C., Outrata J.: On the computation of relaxed pessimistic solutions to MPECs, Optimization Methods & Software, 28(1), 186-206, 2013.

10. Červinka M.: On Computation of C-stationary points for Equilibrium Problems with Linear Complementarity Constraints via Homotopy Method, Kybernetika, 46 (4), 730-753, 2010.

11. Outrata J., Červinka M.: On the implicit programming approach in a class of mathematical programs with equilibrium constraints, Control and Cybernetics, 38, 1557-1574, 2009.

12. Mordukhovich B. S., Outrata J., Červinka M.: Equilibrium problems with complementarity constraints: case study with applications to oligopolistic markets. Optimization, 56(4), 479-494, 2007.

13. Červinka M.: A note on existence of mixed solutions to equilibrium problems with equilibrium constraints, Bulletin of the Czech Econometric Society, 24, 27-44, 2007.

14. Červinka M.: A numerical approach to weak Pareto solutions to equilibrium problems with equilibrium constraints , Journal of Electrical Engineering - Elektrotechnický časopis, 57(7), 14-17, ISCAM 2006. International Conference in Applied Mathematics for undergraduate and graduate students, (Bratislava, SK, 07.04.2006-08.04.2006), 2006.

15. Červinka M.: Necessary Conditions for Solution to 2-Leaders-and-1-Follower EPEC, WDS'04 Proceedings of Contributed Papers, Part I, 58-62, 2004.

Other Publications:

16. Červinka M. (edt.): Variational Analysis and Its Applications, MATFYZPRESS, (Praha 2019) , Spring School in Variational Analysis /7./, (Paseky nad Jizerou, CZ, 19.05.2019-25.05.2019) (lecture notes)

17. Červinka M., Rückmann J.-J., Stein O. (edts.): Optimization, Volume 68, Issue 2-3 (2019), special issues dedicated to 11th International Conference on Parametric Optimization and Related Topics (paraoptxi)

18. Červinka M., Kratochvíl V. (edts.): Parametric Optimization and Related Topics XI, MatfyzPress, (Praha 2017) , 11TH INTERNATIONAL CONFERENCE ON PARAMETRIC OPTIMIZATION AND RELATED TOPICS, (Praha, CZ, 20170919) (lecture nores)

19. Červinka M. (edt.): Variational Analysis and Its Applications, MATFYZPRESS, (Praha 2015) , Spring School in Variational Analysis /6./, (Paseky nad Jizerou, CZ, 19.04.2015-25.04.2015)

20. Červinka M. (edt.): Variational Analysis and its applications, MATFYZPRESS, (Praha 2012) Spring school in variational analysis Lecture notes vol.2012 , Jarní škola variační analýzy, Paseky nad Jizerou 2012, (Paseky nad Jizerou, CZ, 22.4.-28.4.2012) (lecture notes)

21. Červinka M. (edt.): Lecture notes spring school in variational analysis Paseky 2009, MFF UK, (Paseky nad Jizerou 2009) , Spring school in variational analysis, (Paseky, CZ, 19.04.2009-25.4.2009)

22. Červinka M.: Hierarchical Structures in Equilibrium Problems, Matematicko fyzikální fakulta Univerzity Karlovy, PhD Thesis, 2008

23. Outrata J., Červinka M.: Boris S. Mordukhovich: Variational analysis and generalized differentiation , Mathematical Methods of Operations Research vol.65, 1 (2007), p. 195-198 (book review)

Selected List of Presentations

- International Conference on Continuous Optimization ICCOPT 2019, Berlin, Germany
- Computational Management Science CMS 2019 and Mathematical Methods in Industry and Economics MMEI 2019, Chemnitz, Germany
- invited talk at TU Chemnitz, Germany, 2018
- 11th International Conference on Parametric Optimization and Related Topics PARAOPT XI, 2017, Prague, Czech Republic (chair of the local organizing committe)
- Mathematical Methods in Industry and Economics MMEI 2017, Jidřichův Hradec, Czech Republic
- International Conference on Continuous Optimization 2016, Tokyo, Japan
- 13th Viennese Workshop on Optimal Control and Dynamic Games 2015, Vienna, Austria
- 1st Central European Set-Valued and Variational Analysis Meeting 2015, Göttingen, Germany
- Annual international conference of the German Operations Research Society GOR 2014, Aachen, Germany
- 12th Workshop on Advances in Continuous Optimization EUROPT 2014, Perpignan, Germany
- invited talk at TU Darmstadt, Germany, 2014
- International Conference on Continuous Optimization 2013, Lisbon, Portugal
- invited talk at University of Wurzburg, Germany, 2012
- International Conference on Continuous Optimization 2010, Santiago, Chile
- 23rd European Conference on Operational Research EURO XXIII 2009, Bonn, Germany
- 22nd European Conference on Operational Research EURO XXII 2007, Prague, Czech Republic
- 13th Czech-French-German Conference on Optimization 2007, Heidelberg, Germany
- International Conference on Continuous Optimization 2007, Hamilton, Canada
- Workshop on Optimization in Finance 2005, Coimbra, Portugal
- International Conference on Continuous Optimization 2004, Troy NY, USA (without active presentation)