

Curriculum Vitae

Name: Patrícia Martinková
Address: Institute of Computer Science
Academy of Sciences of the Czech Republic
Pod Vodárenskou věží 2, 182 47 Prague, Czech Republic
e-mail: martinkova@cs.cas.cz
web page: <http://www.cs.cas.cz/martinkova/>

Educational Background:

2003 – 2007 PhD. in Probability and Mathematical Statistics,
Charles University in Prague, Czech Republic
Thesis: Reliability of Composite Dichotomous Measurements
1998 – 2003 MSc. in Probability, Mathematical Statistics and Econometry,
Charles University in Prague, Czech Republic

Academic positions:

Since 2008 *Researcher* at Institute of Computer Science, AS CR,
2013 – 2015 *Visiting research scholar* at Dept. of Statistics and Center for Statistics and
Social Studies, University of Washington, USA
2007 – 2008 *Junior Scientist* at Center for Biomedical Informatics, AS CR
2001 – 2006 *Research Assistant* at Institute of Computer Science, AS CR

Awards and Grants:

2015 – 2017 Czech Science Foundation – Junior Project (PI)
2013 – 2014 Fulbright-Masaryk Fellowship
Feb 2014 Outreach Lecturing Fund (OLF) Award, CIES
July 2013 Best poster award (IMPS 2013, Arnhem, the Netherlands)
May 2013 Travel award (Czech Statistical Society)
May 2011 Otto Wichterle Award (Academy of Sciences of the Czech Republic)
Sep 2006 Best student paper award (Week of Doctoral Students ICS ASCR)

Memberships:

Czech Statistical Society
American Statistical Association
Association for Educational Finance and Policy
International Society for Clinical Biostatistics

Other:

2013 – 2014 English language learners (ELL) co-representative, Sandpoint Elementary PTA

Selected Research Projects:

- 2015 – 2017 **Estimation of psychometric measures as part of admission test development**
Project covers description of the current status of admission process to Czech colleges and universities and preparation of methodology for development of standardized admission tests and more complex and structured admission process. Special attention is given to psychometric tools. Theoretical results are implemented and demonstrated on real admission data.
- 2013 – 2015 **Applicants at the Doorstep**
IES project of Center of Education and Data Research. Analysis of relationship between measures of teacher applicants and subsequent teacher performance. Estimation of intra-rater and inter-rater reliability of ratings of the applicants and its impact on their predictive power.
- 2014 – 2015 **Defining and Assessing Core Principles for Undergraduate Physiology**
NSF project of Edmonds Community College. Analysis of properties of newly designed homeostasis inventory and its items across different groups of undergraduate students.
- 2003 – 2013 **Reliability of measurements**
Research on reliability estimates in various models (IRT models, multilevel models, etc). Simulations on behavior of various estimates, including newly proposed estimate *logistic alpha*. Coauthored 3 articles. Research presented at IMPS and ISCB conferences, CRESST UCLA, BEAR center UC Berkeley and UC Merced.
- Since 2006 **Analysis of admission tests to Charles University, Prague**
Analysis of data of admission tests and study outcomes at the School of Medicine, Charles University in Prague. Co-authored 5 reports, one article and an automation of IRT analysis and item calibration using free statistical software R.
- Since 2010 **European Survey on Physiotherapy in MS**
Consultations on design and statistical analyses of complex questionnaire on Physical rehabilitation in multiple sclerosis.
- 2007 – 2010 **Psychometric properties of clinical tests used in MS**
Analysis of set of clinical measurements in multiple sclerosis patients.

Teaching:

- Winter 2015 EDPSY 595 **Item Response Theory**
- Spring 2015 STAT/CS&SS/SOC 221 **Statistical Concepts and Methods for the Social Sciences**
- 2002 – 2013 **Statistics in Medical Research.** EuroMISE Centre, Czech Republic.
- 2004 **Statistics for the Social Sciences.** University of J. E. Purkyne, Czech Republic
- 2004 **Biostatistics - lab.** School of Natural Sciences, Charles University in Prague.

Guest lectures:

- 2013 **Seminar in longitudinal data analysis.** University of Washington.
R lab on longitudinal data analysis.
- 2014 **Introduction to R for Social Scientists.** University of Washington.
R lab on sampling and probability distribution calculations.

Students:

Katarína Vlčková: [Test and Item Fairness](#) (master thesis defended 2015)

Selected publications

Books:

Štuka Č, **Martinková P**, Vejražka M, Trnka J, Komenda M. *Student Assessment in Medical Education: Construction and Analysis of Tests at Medical Schools*. [Testování při výuce medicíny. Konstrukce a analýza testů na lékařských fakultách. In Czech]. Praha: Karolinum, 2013. ISBN 9788024623696.

Papers:

Martinková P, Goldhaber D. Improving Teacher Selection: The Effect of Inter-Rater Reliability in the Screening Process. *CEDR working paper 2015-7*. University of Washington.

Řasová K, **Martinková P**, et al. Physical therapy in multiple sclerosis differs across Europe – Information regarding an ongoing study. *The Journal of International Medical Research*, 2014.

Martinková P, Vlčková K. Estimation of reliability of educational and psychological measurements. *Bulletin of Czech Statistical Society*, 25(4), pp. 1-15, 2014.

Řasová K, **Martinková P**, Vyskotová J, Šedová M. Assessment set for evaluation of clinical outcomes in multiple sclerosis - psychometric properties. *Patient Related Outcome Measures*, 3, pp. 59-70, 2012.

Štuka Č, **Martinková P**, Zvára K, Zvárová J. The prediction and probability for successful completion in medical study based on admission test and pre-admission grades. *The New Educational Review*, 28(2), pp. 138-152, 2012.

Řasová K, Kalistová H, Kučera P, Juzová O, Zimová D, Medová E, Doležil D, Jandová D, Tintěra J, Ibrahim I, Zvára K, Bičíková M, **Martinková P**. Physiotherapy as an immunoactive therapy? A pilot study. *Neuroendocrinology Letters*, 33(1), pp. 67-75, 2012.

Ibrahim I, Tintěra J, Škoch A, Jirů F, Hlušík P, **Martinková P**, Zvára K, Řasová K. Fractional anisotropy and mean diffusivity in the corpus callosum of patients with multiple sclerosis: the effect of physiotherapy. *Neuroradiology*, 53(11), pp. 917-26, 2011.

Martinková P, Zvára K. Reliability of Composite Dichotomous Measurements. *European Journal for Biomedical Informatics*, 6(2), pp. 14-23, 2010.

Řasová K, Brandejský P, Tintěra J, Krásenský J, Zimová D, Medová E, Herbenová A, Kalistová H, Jech R, Řasová M, Zemanová P, Zeman J, Ibrahim I, **Martinková P**, Doležil D, Jandová D. Bimanual Tandem Motor Task with Multiple Sclerosis in Functional Magnetic Resonance Imaging: Effect of Physiotherapeutic Techniques - a Pilot Study. *Česká a Slovenská neurologie a neurochirurgie*, 72(4), pp. 350-358, 2009.

Martinková P, Zvára K. Reliability in the Rasch Model. *Kybernetika*, 43(3), pp. 315-26, 2007.

Martinková P, Zvára jr. K, Zvárová J, Zvára K. The New Features of the Exame Evaluation System and Reliability of Its Fixed Tests. *Methods of Information in Medicine*, 45(2), pp. 310-315, 2006.

Řasová K, Havrdová E, Brandejský P, Zálišová M, Foubíková B, **Martinková P**. Comparison of the Influence of Different Rehabilitation Programmes on Clinical, Spirometric and Spiroergometric Parameters in Patients with Multiple Sclerosis. *Multiple Sclerosis*, 12(2), pp. 227-234, 2006.

Řasová K, Krásenský J, Havrdová E, Obenberger J, Seidel Z, Doležal O, **Rexová P**, Zálišová M. Is it Possible to Actively and Purposely make use of Plasticity and Adaptability in the Neurorehabilitation Treatment of Multiple Sclerosis Patients? A Pilot Project. *Clinical Rehabilitation*, 19(2), pp. 170-181, 2005.

Vášková M, Mejstříková E, Kalina T, **Martinková P**, Omelka M, Trka J, Starý J, Hrušák O. Transfer of Genomics Information to Flow Cytometry: Expression of CD27 and CD44 Discriminates Subtypes of Acute Lymphoblastic Leukemia. *Leukemia*, 19(5), pp. 876-878, 2005.

Selected presentations

Martinková P. Researching Reliability Estimates in the Context of Czech Admission Tests. Presented as part of OLF travel award at BEAR seminar, UC Berkeley (host Karen Draney), CRESST UCLA (host Li Cai), UC Merced (host William Shadish), Feb 2014.

Martinková P, Turčičová M. Generalized Reliability Used for the Comparison of Reliability Estimates in Tests with Binary Items. Presented at IMPS 2013, Arnhem, Netherlands. Best poster award.

Řasová K, **Martinková P**, Henze, T. Towards an Inventory of the Content of Physical Rehabilitation in Europe. *Lifelong Perspective: Rehabilitation for MS Patients with Complex Needs*, University of Turku, pp. 24, 2011. Presented at RIMS 2011, Turku, Finland.

Martinková P, Řasová K. Statistical Analysis of Questionnaire on Physical Rehabilitation in Multiple Sclerosis. *Česká a Slovenská neurologie a neurochirurgie*, 3, pp. S340, 2010. Presented at RIMS 2010, Praha, Czech Republic.

Martinková P, Šedová M, Řasová K. Reliability of clinical functioning measures in patients with multiple sclerosis. *30th Annual Conference of the International Society for Clinical Biostatistics*, pp. 147, 2009. Presented at ISCB 2009, Praha, Czech Republic.

Martinková P, Zvára K. Reliability of Composite Dichotomous Measurements. *29th Annual Conference of the International Society for Clinical Biostatistics*, pp. 93, 2008. Presented at ISCB 2008, Copenhagen, Denmark.

Šedová M, **Martinková P**, Gabalec L. Assessment and comparison of two questionnaires of quality of life in Crohn's disease patients. *Lifestat 2008. Statistics and Life Sciences: Perspective and Challenges*, pp.224. Presented at Lifestat, 2008, Munich, Germany.