

Pavlina Rumcheva

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Mailing address: Academic Georgi Bonchev Street, Block 8, Office 417, Sofia 1113, Bulgaria.

Citizenship: Bulgaria, USA.

Degrees

PhD Statistics, August 2005.

Department of Statistics, University of Florida, Gainesville, FL, USA.

Dissertation title: Projected Multivariate Linear Models for Directional Data: Estimation and Tests of Hypotheses.

Advisor: Brett Presnell.

MS Mathematics – specialization in Probability and Statistics, July 2000.

Faculty of Mathematics and Informatics, Sofia University, Sofia, Bulgaria.

Thesis title: Random Matrices with Dirichlet Distributed Rows.

Advisor: Tzvetan Ignatov.

Languages

Bulgarian, English, German.

B2 Goethe Certificate, January 2020, Goethe Institute, Berlin, Germany.

Government Experience

Senior Service Fellow, May 2012 – April 2018.

National Center for Health Statistics, Centers for Disease Control and Prevention, Hyattsville, MD, USA.

- Developed regression models for analyzing data collected through internet surveys.
- Evaluated measurement error models for linked data; estimated confidence bands.

- Conducted research on small-area estimation for the National Health Interview Survey.
- Designed an introductory course on the R programming language.
- Coordinated the activities for the International Year of Statistics 2013; organized and chaired the Statistics in Health session at the Symposium of the U.S. Statistical Agencies held on November 13–14, 2013 at the Bureau of Labor Statistics in Washington, DC, USA.

Academic Experience

Assistant Professor, December 2020 – Present.

Department of Operations Research, Probability and Statistics, Institute of Mathematics and Informatics, Bulgarian Academy of Sciences, Sofia, Bulgaria.

- Directional data analysis.
- Survival analysis.

Lecturer, Level B, March 2010 – January 2012.

Sydney School of Public Health, University of Sydney, Sydney, NSW, Australia.

- Onsite and online graduate courses in Biostatistics.
- Survival Analysis.
- Health Research Methods and Ethics.
- Principles of Statistical Inference, Biostatistics Collaboration AU.
- Supervised and examined Master of Biostatistics workplace projects.
- Consulted medical and public health researchers on statistical analyses.
- Conducted independent and collaborative research.

Assistant Research Statistician, August 2002 – July 2005.

Children's Oncology Group Statistics and Data Center, University of Florida, Gainesville, FL, USA.

- Performed statistical analyses such as Kaplan-Meier survival analysis, log-rank test, Fisher's exact test, Cox proportional hazards model.
- Collaborated with oncologists to determine study goals and analyses.
- Implemented monitoring rules for the safety and efficacy of clinical trials.

- Produced Study Progress Reports.
- Prepared statistical summaries and manuscripts for publication.
- Collaborated with biostatisticians, programmers and data managers.

Teaching Assistant, August 2000 – August 2002.

Department of Statistics, University of Florida, Gainesville, FL, USA.

- Introduction to Statistics.
- Engineering Statistics.

Teaching Assistant, October 1999 – June 2000.

Department of Economics and Business Administration, Sofia University,
Sofia, Bulgaria.

- Introduction to Statistics.
- Quantitative Management.

Industry Experience

Risk Analyst, September 2009 – March 2010.

GE Capital, General Electric Company, Sydney, NSW, Australia.

- Performed credit risk valuation and forecasting for time series panel data on mortgages.
- Estimated financial reserves using transition matrix models.
- Prepared reports on the portfolio performance.
- Delivered presentations on the economic environment.

Research Associate, January 2008 – January 2009.

Goldman, Sachs & Co, New York, NY, USA.

- Analyzed a 33 million record data set to estimate the credit risk of financial products and investors.
- Prepared research reports summarizing the overall performance of the financial market.
- Estimated default rates on mortgage-backed securities using logistic regression models.
- Analyzed metropolitan home prices using regression models.

Senior Research Statistician, July 2005 – December 2007.

C-BASS LLC, New York, NY, USA.

- Developed competing risks survival models for estimating the mortgage default probability.
- Estimated regression models for longitudinal data on home prices at different geographic levels using various economic and demographic data.
- Fitted regression models for estimating the loss severity, loss timing and prepayment.
- Prepared credit risk reports on the portfolio performance and the financial market.

Computer Skills

Programming languages: R, SAS, SPSS, SQL, Matlab, StatXact, Minitab.

Software programs: LaTeX, MS Word, Excel, PowerPoint, Emacs, AQT.

Operating systems: MS Windows, UNIX.

Publications

Rumcheva P and Presnell B (2017). An improved test of equality of mean directions for the Langevin-von Mises-Fisher distribution. *Australian & New Zealand Journal of Statistics*, Volume 59, Issue 1. doi: 10.1111/anzs.12183.

Azimi F, Scolyer RA, Rumcheva P, Moncrieff M, Murali R, McCarthy SW, Saw RP, Thompson JF (2012). Tumor-Infiltrating Lymphocyte Grade Is an Independent Predictor of Sentinel Lymph Node Status and Survival in Patients With Cutaneous Melanoma. *Journal of Clinical Oncology*, Volume 30, Issue 21.

Clark JR, Rumcheva P, Veness MJ (2012). Analysis and Comparison of the 7th Edition American Joint Committee on Cancer (AJCC) Nodal Staging System for Metastatic Cutaneous Squamous Cell Carcinoma of the Head and Neck. *Annals of Surgical Oncology*, Volume 19, Issue 13.

Presnell B and Rumcheva P (2008). The mean resultant length of the spherically projected normal distribution. *Statistics & Probability Letters*, Volume 78, Issue 5.

Frazier L, Rumcheva P, Olson TA, Giller R, Cushing B, Cullen JW, Marina NM, London WB (2008). Application of the adult International Germ Cell Classification System to pediatric malignant non-seminomatous germ cell

tumors: A report from the Children's Oncology Group. *Pediatric Blood & Cancer*, Volume 50, Issue 4.

Bagatell R, Rumcheva P, London WB, Cohn SL, Look AT, Brodeur GM, Frantz C, Joshi V, Thorner P, Rao PV, Castleberry R, Bowman LC (2005). Outcomes of Children with Intermediate-risk Neuroblastoma After Treatment Stratified by MYCN Status and Tumor Cell Ploidy. *Journal of Clinical Oncology*, Volume 23, No 34.

Work in Progress

Papers from my dissertation.

Presentations

“Estimation of Parametric Models and Testing of Parametric Hypotheses for Directional Data”, National Seminar on Probability and Statistics, Institute of Mathematics and Informatics, Bulgarian Academy of Sciences, Sofia, Bulgaria, November 11, 2020.

“A Procedure for Evaluating and Comparing Small-Area Variability of Binary Outcomes”, Joint Statistical Meetings, Montreal, Canada, August 4, 2013.

“An Outcome Screening Procedure for Small Areas”, Federal Committee on Statistical Methodology Policy Seminar, Washington, D.C., December 4, 2012.

“Model Estimation and Hypothesis Testing for Directional Data”, Babson College, Wellesley, MA, February 27, 2012.

“Model Estimation and Hypothesis Testing for Directional Data”, The Graduate Center, CUNY, New York, NY, February 24, 2012.

“Random and Mixed Effects Models for Directional Data”, Statistical Concepts and Methods for the Modern World, Colombo, Sri Lanka, 28–30 December, 2011.

“Model Estimation and Tests of Hypotheses for Directional Data”, Australian Statistical Conference, Fremantle, WA, Australia, 6–10 December, 2010.

“Projected Multivariate Linear Models for Directional Data”, University of Florida, Department of Statistics, July 14, 2005.

“Projected Multivariate Linear Models for Directional Data: Estimation and Tests of Hypotheses”, University of Chicago, Department of Health Studies, February 14, 2005.

“Outcomes of Children with Intermediate-risk Neuroblastoma after Treatment Stratified by MYCN Status and Tumor Cell Ploidy”, Memorial Sloan-Kettering Cancer Center, July 27, 2004.

February 22, 2021.