JERZY A. WIECZOREK

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EDUCATION

Ph.D. in Statistics, Carnegie Mellon University, Pittsburgh, PA — Expected May 2018

- Thesis: *Model-Selection Properties of Forward Selection and Cross Validation in High-Dimensional Regression*, Adviser: J. Lei. Committee: S. Balakrishnan, R.J. Tibshirani, V. Vu, L. Wasserman.
- Advanced Data Analysis (ADA) Project: *Functional Connectivity Analysis of Autism using Neuroimaging Data*, Advisers: R. Kass, A. Ghuman.

M.S. in Statistics, Portland State University, Portland, OR — June 2009

- M.S. Degree Paper: *Finite Sample Properties of Minimum Kolmogorov-Smirnov Estimator and Maximum Likelihood Estimator for Right-Censored Data*, Adviser: J.S. Kim

B.S. in Engineering, Olin College of Engineering, Needham, MA — May 2006

Budapest Semesters in Mathematics, Budapest, Hungary — Fall 2004

RESEARCH INTERESTS

Sparse high-dimensional statistics; model selection and assessment; cross-validation; dimension reduction; visualizing data uncertainty; small area estimation; analysis of poverty, health, & human-rights data

PEER-REVIEWED JOURNAL ARTICLES

- Wright, T., Klein, M., and Wieczorek, J. "A Primer on Visualizations for Comparing Populations, Including the Issue of Overlapping Confidence Intervals." *The American Statistician*, to appear, 2017+.
- Lawry, L., de Brouwer, A.M., Smeulers, A., Rosa, J.C., Kisielewski, M., Johnson, K., Scott, J., and Wieczorek, J. "The Use of Population-Based Surveys for Prosecutions at the International Criminal Court: A Case Study of Democratic Republic of Congo." *International Criminal Justice Review*, 24 (1), 2014.
- Wieczorek, J., Fernández-Moctezuma, R., and Bertini, R.L. "Techniques for Validating an Automatic Bottleneck Detection Tool Using Archived Freeway Sensor Data." *Transportation Research Record: Journal of the Transportation Research Board*, vol. 2160, pp. 87-95, 2010.

PREPRINTS & OTHER PUBLICATIONS

- Wang, D., and Wieczorek, J. "Consistent Sequential Sparse PCA with Deflation." (revising for resubmission)
- Kshirsagar, V., Wieczorek, J., Ramanathan, S., and Wells, R. "Household poverty classification in data-scarce environments: a machine learning approach." *Proceedings of NIPS 2017 Workshop on Machine Learning for the Developing World*. URL https://arxiv.org/abs/1711.06813, 2017.
- Wieczorek, J. "`RankingProject`: The Ranking Project: Visualizations for Comparing Populations," R package version 0.1.1. URL https://cran.r-project.org/package=RankingProject, 2017.
- Wright, T., Klein, M., and Wieczorek, J. "Ranking Populations Based on Sample Survey Data." *Research Report Series (Statistics # 2014-07)*, Washington, DC: Center for Statistical Research and Methodology, U.S. Bureau of the Census, 2014.
- Wright, T., Klein, M., and Wieczorek, J. "An Overview of Some Concepts for Potential Use in Ranking Populations Based on Sample Survey Data." *Proceedings of the 59th World Statistics Congress of the International Statistical Institute*, The Hague, The Netherlands: International Statistical Institute, 2013.
- Wieczorek, J., and Franco, C. "An Empirical Artificial Population and Design-Based Simulation for Small Area Model Evaluation." *JSM Proceedings, Section on Survey Research Methods*, Alexandria, VA: American Statistical Association, 2013.

- Wieczorek, J., Nugent, C., and Hawala, S. "A Bayesian Zero-One Inflated Beta Model for Small Area Shrinkage Estimation." *JSM Proceedings, Section on Survey Research Methods*, Alexandria, VA: American Statistical Association, 2012.
- Wieczorek, J., and Hawala, S. "A Bayesian Zero-One Inflated Beta Model for Estimating Poverty in U.S. Counties." *JSM Proceedings, Section on Survey Research Methods*, Alexandria, VA: American Statistical Association, pp. 2812-2822, 2011.
- Wieczorek, J., and Kim, J.S. "Finite Sample Properties of Minimum Kolmogorov-Smirnov Estimator and Maximum Likelihood Estimator for Right-Censored Data." *JSM Proceedings, Section on Statistical Computing*, Alexandria, VA: American Statistical Association, pp. 4150-4162, 2010.
- Palmer, J., Bertini, R.L., Rehborn, H., Wieczorek, J., and Fernández-Moctezuma, R. "Comparing a Bottleneck Identification Tool with the Congested Traffic Pattern Recognition System ASDA/FOTO Using Archived Freeway Data from Portland, Oregon." *Proceedings of the 16th World Congress on Intelligent Transport Systems*, Stockholm, Sweden, September 21-25, 2009.

RESEARCH & PROFESSIONAL EXPERIENCE

Statistical Consultant: Duolingo, Pittsburgh, PA — July 2017 to present
- Consults with data science team on nonparametric A/B testing for concurrent overlapping experiments

Statistical Consultant: Innovations for Poverty Action, New Haven, CT — Sept 2017 to Oct 2017
- Reviews statistical learning methods and R code for estimating "poverty scorecards," predictive models used by nonprofits to predict household-level poverty and target project beneficiaries

Mathematical Statistician: U.S. Census Bureau, Washington, DC — Feb 2010 to July 2013
- Evaluated and refined models and R/SAS software for small area estimation of poverty in U.S. counties and school districts; taught workshops on small area estimation, data visualization, and R software

Graduate Assistant: Intelligent Transportation Systems Lab, Portland, OR — Sept 2007 to June 2009
- Evaluated and adapted freeway bottleneck identification algorithms; led research design and analysis; algorithm development and graphical display in MATLAB; data transfer, cleaning, and analysis in R

Research Analyst, Consumer Insights & Trends: Ziba Design, Portland, OR — Aug 2006 to June 2007
- Conducted interviews, focus groups, and market research to model consumer behaviors and attitudes

Student Researcher: Olin Intelligent Vehicles Laboratory, Needham, MA — Summer 2005
- Prototyped stereo-vision obstacle-avoidance neural network in MATLAB for autonomous vehicle

Intern: NASA-Langley Research Center, Hampton, VA — Summer 2000
- Validated data accuracy and tested bespoke software for wind tunnel data analysis

TEACHING EXPERIENCE

Co-Developer, "Teaching Statistics": Carnegie Mellon University, Pittsburgh, PA — Jan 2017 to present
- Helped to propose series of half-semester graduate courses on statistics education; co-designs the course schedules, syllabi, readings, and assignments for each topic (Spring 2017: introductory statistics curricula; Fall 2017: running a pilot study on think-aloud interview protocols for validating assessment questions)

Teaching Assistant: Carnegie Mellon University, Pittsburgh, PA — Sept 2013 to present
- Undergraduate Advanced Data Analysis (Spring 2017), Experimental Design for Behavioral and Social Sciences (Fall 2016), Summer Undergraduate Research Experience in Statistics (Summer 2016), Introduction to Statistical Inference (Spring 2015), Discrete Multivariate Analysis (Fall 2014), Sampling, Survey and Society (Spring 2014), Statistical Computing (Fall 2013)

Course Instructor: Carnegie Mellon University, Pittsburgh, PA — Summer 2014 and Fall 2015
- Master's-level 36-721, Statistical Graphics and Visualization (Fall 2015); redesigned course content & grading from scratch to include formative assessment and active learning methods
- Sophomore-level 36-309, Experimental Design for Behavioral and Social Sciences (Summer 2014)
- Course syllabi and materials: http://www.stat.cmu.edu/~jwieczor/

Workshop Instructor: U.S. Census Bureau, Washington, DC Mar 2012 to Feb 2013

- "Best Practices for Table Design and Data Visualization," National Statistical Service of the Republic of Armenia, Feb 11-21, 2013
- "R Graphics Course," U.S. Census Bureau, July 9-10, 2012
- "Computer Applications for Small Area Estimation," U.S. Census Bureau, April 23 and 30, 2012
- "R 101," U.S. Census Bureau, March 8 and 22, 2012

Course Instructor: Global Language Network, Washington, DC June 2011 to May 2012

- Polish language courses (Beginner I and II)

CONFERENCE PRESENTATIONS (presenter in bold)

- **Kshirsagar, V.**, Wieczorek, J., Ramanathan, S., and Wells, R. "Household poverty classification in data-scarce environments: a machine learning approach." NIPS 2017 Workshop on Machine Learning for the Developing World, Long Beach, CA, Dec 8, 2017.
- Burckhardt, P., Elliott, P., Hyun, S., Lin, K., Luby, A., Makris, C.P., Orellana, J., Reinhart, A., **Wieczorek, J.**, Weinberg, G., and Nugent, R. "Assessment of student learning and misconception identification in an introductory statistics course." Carnegie Mellon University Teaching & Learning Summit, Pittsburgh, PA, Oct 19, 2017.
- **Wieczorek, J.**, and Lei, J. "Model-Selection Consistency of Forward Selection in High-Dimensional Regression." 2017 Joint Statistical Meetings, Baltimore, MD, July 29-Aug 3, 2017.
- **Wieczorek, J.** "Statistical Graphics and Visualization: Course Learning Objectives and Rubrics." U.S. Conference on Teaching Statistics (USCOTS), State College, PA, May 18-20, 2017.
- **Wieczorek, J.** "Teaching Data Visualization with 'Specs Grading.'" Tapestry Conference, Estes Park, CO, Mar 9, 2016.
- **Wieczorek, J.**, Pane, M., and Steorts, R.C. "Struggles in Small Area Estimation: Benchmarking and Weighting." Small Area Estimation Conference 2014, Poznań, Poland, Sept 3-5, 2014.
- **Wright, T.**, Klein, M., and Wieczorek, J. "An Overview of Some Concepts for Potential Use in Ranking Populations Based on Sample Survey Data." 2013 World Statistics Congress, Hong Kong, China, Aug 25-30, 2013.
- Wieczorek, J., and **Franco, C.** "An Empirical Artificial Population and Design-Based Simulation for Small Area Model Evaluation." 2013 Joint Statistical Meetings, Montréal, Canada, Aug 3-8, 2013.
- **Wieczorek, J.**, Nugent, C., and Hawala, S. "A Bayesian Zero-One Inflated Beta Model for Small Area Shrinkage Estimation." 2012 Joint Statistical Meetings, San Diego, CA, July 28-August 2, 2012.
- **Lewis, R.**, Wieczorek, J., West, L., Mazive, E., Mbofana, F., Duce, P., and Cummings, S. "The role of household wealth in HIV/AIDS deaths and treatment-seeking behaviour in Mozambique: analyses from a post-census survey using verbal autopsy." XIX International AIDS Conference, Washington, DC, July 22-27, 2012.
- **Wieczorek, J.** "Interactively Mapping Significant Differences Between Areas." The 8th International useR! Conference, Nashville, TN, June 12-15, 2012.
- **Wieczorek, J.**, and Hawala, S. "A Bayesian Zero-One Inflated Beta Model for Estimating Poverty in U.S. Counties." 2011 Joint Statistical Meetings, Miami, FL, July 30-August 4, 2011.
- **Wieczorek, J.**, and Kim, J.S. "Finite Sample Properties of Minimum Kolmogorov-Smirnov Estimator and Maximum Likelihood Estimator for Right-Censored Data." 2010 Joint Statistical Meetings, Vancouver, BC, July 31-August 5, 2010.
- **Wieczorek, J.**, and Kim, J.S. "Extending MKSFitter to right-censored data." Annual meeting of The Western North American Region of The International Biometric Society and the Institute of Mathematical Statistics (WNAR/IMS 2009), Portland, OR, June 14-17, 2009.

- **Wieczorek, J.**, Li, H., Fernandez, R., and Bertini, R.L. "Integrating an Automated Bottleneck Detection Tool into an Online Freeway Data Archive." 88th Annual Meeting of the Transportation Research Board, Washington, DC, January 11-15, 2009.
- Bertini, R.L., Fernandez, R., **Wieczorek, J.**, and Li, H. "Using Archived ITS Data to Automatically Identify Freeway Bottlenecks in Portland, Oregon." 15th World Congress on ITS, New York City, NY, November 16-20, 2008.
- **Bertini, R.L.**, Li, H., Wieczorek, J., and Fernandez, R. "Using Archived Data to Systematically Identify and Prioritize Freeway Bottlenecks." 10th International Conference on Application of Advanced Technologies in Transportation, Athens, Greece, May 27-31, 2008.
- Bertini, R.L., Fernandez, R., Li, H., and **Wieczorek, J.** "Bottleneck Identification and Forecasting in Traveler Information Systems." CITE Annual Meeting and Quad Conference, Victoria, B.C., April 26–30, 2008.
- **Wieczorek, J.** "'Highly Evolved:' Managing the Accordionist's Identity in America." 3rd Annual Greater Boston Anthropology Consortium Student Conference, Wellesley, MA, March 3, 2006.
- **Wieczorek, J.**, and Spence, S. "Solving 'Rubik's Polyhedra' Using Three-Cycles." Fall 2003 Meeting of the Northeast Section of the Mathematical Association of America, Wellesley, MA, November 21-22, 2003.

ADDITIONAL TRAINING

Future Faculty Program: Eberly Center for Teaching Excellence, CMU Sept 2013 to present

- Nearing completion of training program, which has included 17 seminars on teaching and pedagogy; two teaching observations and follow-up review; a syllabus design project; and a teaching statement project

Joint Program in Survey Methodology: U.S. Census Bureau, Washington, DC Jan 2011 to Dec 2011

- Graduate courses via University of Maryland, College Park, on Inference from Complex Surveys; Small Area Estimation; Data Collection Methods in Survey Research; and Analysis of Complex Sample Data

HONORS & AWARDS

- Best Paper award, NIPS Workshop on Machine Learning for the Developing World, 2017
- Statistics Department TA Excellence Award, CMU, 2017
- Preliminary-round winner, Three Minute Thesis (3MT) competition, CMU, 2017
- F.S. Cater Prize in Statistics, PSU, 2009
- Joint Statistical Meetings (JSM) Student Stat Bowl 2nd place, 2008
- Oregon Transportation Research and Education Consortium (OTREC) Scholar, PSU, 2007-2008
- Franklin W. Olin Scholar, Olin College, 2002-2006

SERVICE TO PROFESSION & TO DEPARTMENT

Reviewer for *Annals of Statistics* (2017); *Journal of the Royal Statistical Society* (2016); *Preventing Chronic Disease* (2016); *Journal of Official Statistics* (2012, 2013, 2014); *Population Research & Policy Review* (2014); *Transportation Research Record* (2010)

Member, American Statistical Association (ASA), Bernoulli Society (BS), Institute of Mathematical Statistics (IMS), and Society for Industrial and Applied Mathematics (SIAM)

Statistics Department Help Network, CMU Aug 2017 to present

- Holds regular office hours for peers and postdocs to discuss concerns and/or seek advice

GenEd Committee, Dietrich College of Humanities & Social Sciences, CMU Mar 2016 to present

- Appointed by Dean as a member of full General Education committee and Assessment subcommittees; contributes to college's curriculum revision by articulating learning goals for Dietrich students and refining ways to assess how well the program addresses these goals

VOLUNTEER WORK

New Projects Committee: Statistics Without Borders, ASA Outreach Group Dec 2014 to Sept 2016

- Managed incoming projects; coordinated between clients and volunteer team; recommended statistical methodologies for flagging potential fraud during training of anthropometric interviewers

Statistical Consultant: Lawry Research Associates, Washington, DC Oct 2011 to Apr 2015

- Cleaned and re-analyzed post-conflict survey data from DR Congo for use in a journal article as well as evidence in the International Criminal Court trial of Bosco Ntaganda

Website Co-Chair: Statistics Without Borders, ASA Outreach Group Sept 2010 to July 2013

- Maintained website for statistical consulting volunteer organization

Data Hero: DC Action for Children, Washington, DC Mar 2012 to Oct 2012

- Collected, analyzed, and visualized open data on child well-being indicators for DC nonprofit

Adjunct Staff: StatAid, Washington, DC Nov 2010 to Nov 2011

- Analyzed survey data from DR Congo and Liberia regarding post-conflict trauma and mental health

LANGUAGES

R (proficient); MATLAB, Python, SAS, SPSS (moderate); JavaScript, Keras (limited)

Polish (native); Spanish (limited)