

# Zijian Guo

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- CONTACT INFORMATION Hill Center (215) 696-0716 (C)  
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Piscataway, NJ 08854 <http://statistics.rutgers.edu/home/zijguo/>
- RESEARCH INTERESTS High-dimensional inference, causal inference and econometrics.
- Inference for high-dimensional regression
  - Instrumental variable methods
  - Heritability and co-heritability analysis in genomics
  - Mediation analysis
- WORK *Assistant Professor* Sep 2017-present  
Department of Statistics and Biostatistics  
Rutgers, the State University of New Jersey, Piscataway, NJ
- Visiting Scholar* August 2017  
Center for Statistics in Big Data, Perelman School of Medicine  
University of Pennsylvania, Philadelphia, PA  
*Host:* Hongzhe Li
- EDUCATION *PhD in Statistics* May 2017  
Department of Statistics, The Wharton School  
University of Pennsylvania, Philadelphia, PA  
*Thesis advisor:* T. Tony Cai
- Bachelor of Science in Mathematics* July 2012  
Department of Mathematics  
The Chinese University of Hong Kong, Shatin, Hong Kong
- PAPERS Published/Accepted Papers (\* indicates alphabetical ordering authorship, citation=86)
1. **Guo, Z.**, Kang, H., Cai, T. T., & Small, D. S. (2018). Confidence Interval for Causal Effects with Invalid Instruments using Two-Stage Hard Thresholding. *Journal of the Royal Statistical Society: Series B*, to appear.
  2. **Guo, Z.**, Wang, W., Cai, T. T., & Li, H. (2017). Optimal estimation of genetic relatedness in high-dimensional linear models. *Journal of the American Statistical Association*, to appear.
  3. \*Cai, T. T., & **Guo, Z.** (2017). Confidence intervals for high-dimensional linear regression: Minimax rates and adaptivity. *Annals of Statistics*, 45(2), 615-646.
  4. \*Cai, T. T., & **Guo, Z.** (2017). Accuracy assessment for high-dimensional linear regression. *Annals of Statistics*, to appear.
  5. **Guo, Z.**, & Small, D. S. (2016). Control function instrumental variable estimation of nonlinear causal effect models. *Journal of Machine Learning Research*, 17(100), 1-35.
  6. **Guo, Z.**, Small, D. S., Gansky, S. A., & Cheng, J. (2016). Mediation analysis for count and zero-inflated count data without sequential ignorability. *Journal of the Royal Statistical Society: Series C*, to appear.
  7. Cheng, J., Cheng N. F., **Guo, Z.**, Gregorich, S., Amid I. I., & Gansky, S. A. (2016). Mediation analysis for count and zero-inflated count data. *Statistical Methods in Medical Research*, to appear.

8. **Guo, Z.**, Cheng, J., Lorch, S. A., & Small, D. S. (2014). Using an instrumental variable to test for unmeasured confounding. *Statistics in Medicine*, 33(20), 3528-3546.
9. **Guo, Z.**, Kogan, R., Qiu, H., & Strichartz, R. S. (2014). Boundary value problems for a family of domains in the Sierpinski gasket. *Illinois Journal of Mathematics*, 58(2), 497-519.

Technical Reports

10. **Guo, Z.**, Kang, H., Cai, T. T., & Small, D. S. (2016). Testing Endogeneity with High Dimensional Covariates. *Journal of Econometrics*, under review.
11. Lowder, E. M., Desmarais, S. L., **Guo, Z.**, Coffey, T., & Van Dorn, R. A. (2016). Receipt of disability benefits, behavioral health service utilization, and recidivism in mental health jail diversion clients. submitted to *Administration and Policy in Mental Health and Mental Health Services Research*.

SOFTWARE

**Two Stage Hard Thresholding**

R code is available at <http://stat.wharton.upenn.edu/~zijguo/Software.html>.

TEACHING  
EXPERIENCE

**Instructor**

Rutgers University

FSRM 588: Financial Data Mining

Fall 2017

The Wharton School, University of Pennsylvania

STAT 111 : Introductory Statistics

Summer 2016

*Instructor Rating: 3.6 out of 4.0*

**Recitation Instructor**

Fall 2014

The Wharton School, University of Pennsylvania

STAT 111: Introductory Statistics

**Teaching Assistant**

The Wharton School, University of Pennsylvania

STAT 102: Business Statistics

Spring 2017

STAT 970: Mathematical Statistics

Fall 2016

STAT 622: Statistical Modeling

Spring 2016

STAT 550: Mathematical Statistics

Fall 2015

STUDENTS  
SUPERVISED

**Supervised PhD Student:**

**PhD Student Committee:** Sai Li (2018);

**Supervised Master Student:**

HONORS AND  
AWARDS

• IMS travel Award, JSM

Aug. 2017

• President Gutmann Leadership Award, University of Pennsylvania

Apr. 2017

• J. Parker Bursk Prize

Sept. 2016

*Awarded by the Statistics Department at the Wharton School for excellence in research.*

• Statistics in Epidemiology Young Investigator Award, JSM

Aug. 2013

*Awarded by the American Statistical Association section on Statistics in Epidemiology for the paper “Using an instrumental variable to test for unmeasured confounding.”*

- Chung Chi College Departmental Prize, CUHK 2011
- Dr. Chao Yong Chi-hsing Scholarship in Mathematics, CUHK 2011
- Chung Chi Traveling Award in Mathematics, CUHK 2011
- Chung Chi Ivy League Exchange Scholarship, CUHK 2010
- Caring Alumni Student Exchange Scholarship, CUHK 2010
- Dean’s List, College of Arts and Science, UPenn 2010
- Dean’s Honors List, Faculty of Science, CUHK 2008, 2009
- Chung Chi College Scholarship, CUHK 2009
- Honors at Entrance to the Chinese University of Hong Kong (4 years) 2008

TALKS

- Department seminar, Department of Statistics, Naikai University, China, “*Semi-supervised Inference for Explained Variance in High-dimensional Linear Regression and Its Applications*”, July. 2018
- Invited talk, IMS Asia Pacific Rim Meeting, Singapore, “*Semi-supervised Inference for Explained Variance in High-dimensional Linear Regression and Its Applications*”, June. 2018
- Invited talk, HongKong EcoStat Conference, Hong Kong, China, “*Semi-supervised Inference for Explained Variance in High-dimensional Linear Regression and Its Applications*”, June. 2018
- Invited talk, ICSA Symposium 2018, New Brunswick, USA, “*Semi-supervised Inference for Explained Variance in High-dimensional Linear Regression and Its Applications*”, June. 2018
- Invited talk, Purdue Symposium on Statistics, USA, “*Semi-supervised Inference for Explained Variance in High-dimensional Linear Regression and Its Applications*”, June. 2018
- Invited talk, 2018 Hangzhou Data Science Conference, Hangzhou, China, “*Semi-supervised Inference for Explained Variance in High-dimensional Linear Regression and Its Applications*”, May. 2018
- Invited talk, Lorentz Center, Leiden University, Netherlands, “*Semi-supervised Inference for Explained Variance in High-dimensional Linear Regression and Its Applications*”, Apr. 2018
- Department seminar, Department of Statistics, Columbia University, “*Semi-supervised Inference for Explained Variance in High-dimensional Linear Regression and Its Applications*”, Apr. 2018
- Topic contributed talk, Joint Statistical Meetings, Baltimore,USA, “*Optimal Estimation of Co-Heritability in High-Dimensional Linear Models*”, Aug. 2017
- Invited talk, IMS-China 2017, Nanning, China (Cancelled), June. 2017
- Invited talk, Statistical Foundations of Uncertainty Quantification for Inverse Problem, Cambridge, “*Inference for Functionals in High-dimensional Linear Models*”, June. 2017
- Seminar, Center for Statistical Methods in Big Data, University of Pennsylvania, “*Inference with High-dimensional Covariates and Possibly Invalid Instruments*”, Apr. 2017
- Seminar, Institute of Data science, Fox Business School, Temple University, “*Inference for High Dimensional Linear Models: Fundamental Limits and Algorithms*”, Feb. 2017
- Department seminar, Department of Biostatistics, UC Berkeley, “*Inference for High Dimensional Linear Models: Fundamental Limits and Algorithms*”, Feb. 2017
- Department seminar, Department of Statistics & Biostatistics, Rutgers, “*Inference for High Dimensional Linear Models: Fundamental Limits and Algorithms*”, Feb. 2017
- Department seminar, Department of Statistics, University of Michigan, “*Inference for High*

*Dimensional Linear Models: Fundamental Limits and Algorithms*”, Jan. 2017

- Department seminar, Department of Statistics, University of Minnesota, “*Inference for High Dimensional Linear Models: Fundamental Limits and Algorithms*”, Jan. 2017
- Department seminar, Department of Statistics, UIUC, “*Inference for High Dimensional Linear Models: Fundamental Limits and Algorithms*”, Jan. 2017
- Department seminar, DPMMS, University of Cambridge, “*Inference for High Dimensional Linear Regression: Fundamental Limits and Algorithms*”, Jan. 2017
- Department seminar, Department of Statistics, UC Santa Barbara, “*Inference for High Dimensional Linear Models: Fundamental Limits and Algorithms*”, Jan. 2017
- Invited talk, Mathematical Meeting in Statistics, Fréjus, France, “*Optimal Estimation of Genetic Correlation in High-dimensional Linear Models*”, Dec. 2016
- Econometrics Lunch, Department of Economics, University of Pennsylvania, “*Confidence Intervals for Treatment Effects in High-Dimensional Linear Models*”, Nov. 2016
- Contributed talk, Joint Statistical Meetings, Chicago, USA, “*Accuracy Assessment for High-dimensional Linear Regression*”, Aug. 2016
- Contributed talk, Eastern North American Region, Austin, USA, “*Confidence Intervals for High-Dimensional Linear Regression: Minimax Rates and Adaptivity*”, Mar. 2016
- Poster presentation, John W. Tukey Conference, Princeton University, “*Confidence Intervals for High-Dimensional Linear Regression: Minimax Rates and Adaptivity*”, Sept. 2015
- Contributed talk, Joint Statistical Meetings, Seattle, USA, “*Distance Matrix Estimation from Noisy Observation of Low Rank Position Matrix*”, Aug. 2015
- Contributed talk, Joint Statistical Meetings, Boston, USA, “*Instrumental Variable Approach for Mediation Analysis of Count Model*”, Aug. 2014
- Topic Contributed talk, Joint Statistical Meetings, Montreal, Canada, “*Instrumental Variable Approach for Mediation Analysis of Zero-Inflated Count Model*”, Aug. 2013
- Poster presentation, Atlantic Causal Inference Conference, Harvard University, “*Control Function Instrumental Variable Estimation of Nonlinear Causal Effect Models*”, May. 2013

ACADEMIC  
SERVICE

- Reviewer for the following journals: *Annals of Statistics*, *Statistica Sinica*, *IEEE International Symposium on Information Theory*, *Journal of Applied Statistics*, *Biometrics*, *Journal of Machine Learning*, *JASA*, *JRSSB*, *Biometrika*.
- Committee service: Department retreat (2017-2018); FSRM (2017-2018)

MEMBERSHIPS

- American Statistical Association
- Institute of Mathematical Statistics
- International Chinese Statistical Association
- The Econometric Society