

# Ji Meng Loh

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## Professional Experience

Associate Professor, New Jersey Institute of Technology	Sep 2012 - present
Director of Statistics Consulting Laboratory, NJIT	Sep 2013 - present
Principal Member, Technical Staff, AT&T Labs-Research	Sep 2009 - Aug 2012
Associate Professor, Columbia University	Jul 2006 - Sep 2009
Research Fellow, Statistical and Applied Mathematical Sciences Institute (SAMSI)	Jan 2006 - Jun 2006
Assistant Professor, Columbia University	Jul 2001 - Jun 2006
Research Assistant, University of Chicago	Sep 1997 - Jul 2001
Teaching Assistant, University of Chicago	Sep 1997 - Jul 2001
Teacher, Anderson Junior College, Singapore	Mar 1994 - Sep 1997
Teaching Assistant, Victoria University of Wellington, NZ	1990

## Education

Ph.D. Statistics, University of Chicago	2001
Postgraduate Diploma in Education, National Institute of Education, Singapore	Mar 1994
B.Sc. Mathematics and Physics (1st Class Honors), Victoria University of Wellington, NZ	Dec 1991

## Research Interests

Spatial statistics, bootstrap methods for spatial data, anomaly detection, data quality, emulation and uncertainty quantification, applications to astronomy, fMRI and epidemiology.

## Research Publications

Cheng, R. and **Loh, J. M.** (2017) "Learning-based Method with Valence Shifters for Sentiment Analysis", *23rd ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, (in preparation).

Berti-Equille, L., **Loh, J. M.** and Thirumuruganathan, S. (2017) "Are Outlier Detection Methods Resilient to Sampling?", *43rd International Conference on Very Large Data Bases (VLDB)*, (submitted).

**Loh, J. M.** and Jang, W. (2017) "Quantitative Comparison of Two-Point Correlation Functions from Real and Mock Galaxy Surveys", *Astrophysical Journal* (under revision).

Jang, W. and **Loh, J. M.** (2017) "Bandwidth Selection for Estimation the Two-Point Correlation Function of a Spatial Point Pattern Using AMSE", *Statistica Sinica* (to appear).

Fang, Y. and **Loh, J. M.** (2016) "Single-Index Model for Inhomogeneous Spatial Point Processes", *Statistica Sinica* (to appear), doi:10.5705/ss.202015.0173.

Kwate, N. O. and **Loh, J. M.** (2016) "Fast Food and Liquor Store Density, Co-tenancy, and Turnover: Vice Store Operations in Chicago, 1995-2008", *Applied Geography*, 67, 1-13.

- Yue, Y. and **Loh, J. M.** (2015) “Variable Selection for Inhomogeneous Spatial Point Processes”, *Canadian Journal of Statistics*, 43, 288-305.
- Dasu, T., **Loh, J. M.** and Srivastava, D. (2014) “Empirical Glitch Explanations”, *20th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*.
- Jang, W., Lim, J., Lazar, N. A., **Loh, J. M.** and Yu, D. (2014) “Some Properties of Generalized Fused Lasso and Its Applications to High Dimensional Data”, *Journal of the Korean Statistical Society* (published online).
- Loh, J. M.** (2014) “Spatial Detection of Anomalous Cellular Network Events”, *Statistical Analysis and Data Mining*, 7, 212-225.
- Berti, L., **Loh, J. M.** and Dasu, T. (2013) “A Masking Index for Quantifying Hidden Glitches”, *IEEE 13th International Conference on Data Mining (ICDM)*, doi:10.1109/ICDM.2013.16.
- Loh, J. M.** (2013) “Comparing Spatial Densities Characterizing Human Mobility Using Ratio Maps”, *Statistics and Its Interface*, 6, 577-584.
- Yue, Y. and **Loh, J. M.** (2013) “Bayesian Nonparametric Estimation of Pair Correlation Function for Inhomogeneous Spatial Point Processes”, *Journal of Nonparametric Statistics*, 25, 463-474.
- Becker, R., Cáceres, R., Hanson, K., Isaacman, S., **Loh, J. M.**, Martonosi, M., Rowland, J., Urbanek, S., Varshavsky, A. and Volinsky, C. (2012) “Human Mobility Characterization from Cellular Network Data”, *Communications of the ACM*, 56, 74-82.
- Loh, J. M.** and Dasu, T. (2012) “Effect of Data Repair on Mining Network Streams”, *International Conference on Data Mining, Data Mining in Networks Workshop*.
- Dasu, T. and **Loh, J. M.** (2012) “Statistical Distortion: Consequences of Data Cleaning”, *38th International Conference on Very Large Data Bases (VLDB)*, 5, 1674-1683.
- Kwate, N., **Loh, J. M.**, White, K. and Saldana, N. (2012) “Retail Redlining in New York City: Racialized Access to Day-to-Day Retail Resources”, *Journal of Urban Health*, DOI:10.1007/s11524-012-9725-3.
- Yue, Y., Lindquist, M. and **Loh, J. M.** (2012) “Meta-analysis of Functional Neuroimaging Data using Bayesian Nonparametric Binary Regression”, *Annals of Applied Statistics*, 6, 697-718.
- Yau, C. Y. and **Loh, J. M.** (2012) “A Generalization of the Neyman-Scott Process”, *Statistica Sinica*, 22, 1717-1736.
- Loh, J. M.** and Dasu, T. (2011) “Auditing Data Streams for Correlated Glitches”, *International Conference on Information Quality (ICIQ)*.
- Becker, R., Cáceres, R., Hanson, K., **Loh, J. M.**, Urbanek, S., Varshavsky, A. and Volinsky, C. (2011) “Route Classification using Cellular Handoff Patterns”, *13th ACM International Conference on Ubiquitous Computing (UbiComp)*.
- Becker, R., Cáceres, R., Hanson, K., **Loh, J. M.**, Urbanek, S., Varshavsky, A. and Volinsky, C. (2011) “Clustering Anonymized Mobile Call Detail Records to Find Usage Groups”, *1st Workshop on Pervasive*

*Urban Applications (PURBA)*.

Becker, R., Cáceres, R., Hanson, K., **Loh, J. M.**, Urbanek, S., Varshavsky, A. and Volinsky, C. (2011) "A Tale of One City: Using Cellular Network Data for Urban Planning", *IEEE Pervasive Computing*, 10, 18-26.

Yue, Y. and **Loh, J. M.** (2011) "Bayesian Nonparametric Intensity Estimation for Inhomogeneous Spatial Point Processes", *Biometrics*, 67, 937-946.

Hariharan R., **Loh, J. M.**, Shanahan, J. and Yamada, K. (2010) "Spatial Probabilistic Modeling of Calls to Businesses", *ACM SIGSPATIAL 2010*.

Kwate, N. and **Loh, J. M.** (2010) "Separate and Unequal: The Influence of Neighborhood and School Characteristics on Spatial Proximity between Fast Foods and School", *Preventive Medicine*, 51, 153-156.

**Loh, J. M.** (2010) "K-scan for Anomaly Detection in Disease Surveillance", *Environmetrics*, 22, 179-191.

**Loh, J. M.** and Jang, W. (2010) "Estimating a Cosmological Mass Bias Parameter with Semi-Parametric Bootstrap Bandwidth Selection", *Journal of the Royal Statistical Society, Series C*, 59, 761-779.

Yue, Y., **Loh, J. M.** and Lindquist, M. (2010) "Adaptive Spatial Smoothing of fMRI Images", *Statistics and Its Interface*, 3, 3-14.

Jang, W. and **Loh, J. M.** (2010) "Density Estimation for Grouped Data with Application to Line Transect Sampling", *Annals of Applied Statistics*, 4, 893-915.

**Loh, J. M.** (2010) "Bootstrapping an Inhomogeneous Point Process", *Journal of the Statistical Planning and Inference*, 140, 734-749.

Kwate, N., Yip, C., **Loh, J. M.** and Williams, D. (2008) "Inequality in Obesogenic Environments: Fastfood Density in New York City" *Health and Place*, 15, 363-373.

Lindquist, M. and **Loh, J. M.** and Atlas, L. Y. and Wager, T. (2008) "Modeling the Hemodynamic Response Function in fMRI: Efficiency, Bias and Mis-modeling", *NeuroImage*, 45, S187-S198.

**Loh, J. M.**, Linquist, M. and Wager, T. (2008) "Residual Analysis for Detecting Mismodeling in fMRI Images", *Statistica Sinica*, 18, 1421-1448.

**Loh, J. M.** (2008) "A Valid and Fast Spatial Bootstrap for Correlation Functions", *Astrophysical Journal*, 681, 726-734.

**Loh, J. M.** (2008) "Estimating Third-Order Moments for an Absorber Catalog", *Astrophysical Journal*, 674, 636-643.

**Loh, J. M.** and Stein, M. L. (2008) "Spatial Bootstrap with Increasing Observations in a Fixed Domain", *Statistica Sinica*, 18, 667-688.

Guan, Y. and **Loh, J. M.** (2007) "A Thinned Block Bootstrap Procedure for Modeling Inhomogeneous Spatial Point Patterns", *Journal of the American Statistical Association*, 102, 1377-1386.

**Loh, J. M.** and Zhu, Z. (2007) “Accounting for Spatial Correlation in the Scan Statistic” *Annals of Applied Statistics*, 1, 560-584.

**Loh, J. M.** (2007) “Discussion on Cosmic Structures and Validation of Statistical Models” in *Statistical Challenges in Modern Astronomy IV*, 371, 39-42.

**Loh, J. M.** and Gelman, A. (2006) “Discussion on Highly Structured Models” by Van Dyk, D. et al., *Bayesian Analysis*, 1, 237-240.

Rzhetsky, A., Iossifov, I., **Loh, J. M.**, and White, K. P. (2006) “Microparadigms: Chains of Collective Reasoning in Publications about Molecular Interactions,” *Proceedings of the National Academy of Sciences*, 103, 4930-4945.

**Loh, J. M.** and Stein, M. L. (2004) “Bootstrapping a Spatial Point Process,” *Statistica Sinica*, 14, 69-101.

**Loh, J. M.**, Stein, M. L. and Quashnock, J. M. (2003) “Estimating the Large-Scale Structure of the Universe Using Quasi-Stellar Object Carbon IV Absorbers,” *Journal of the American Statistical Association*, 98, 522-532.

**Loh, J. M.**, Quashnock, J. M. and Stein, M. L. (2003) “Estimating Large-Scale Structure from QSO Absorbers: Using Across-Line Information,” in *Statistical Challenges in Astronomy*, Feigelson, E. D. and Babu, G. J., eds, Springer, p459-460.

**Loh, J. M.**, Quashnock, J. M. and Stein, M. L. (2001) “A Measurement of the Three-Dimensional Clustering of C IV Absorption-Line Systems on Scales of 5-1000  $h^{-1}$  Mpc,” *Astrophysical Journal*, 560, 606-616.

Stein, M. L., Quashnock, J. M. and **Loh, J. M.** (2000) “Estimating the K-function of a point process with an application to cosmology,” *Annals of Statistics*, 28, 1503-1532.

Stein, M. L., Quashnock, J. M. and **Loh, J. M.** (1999) “Inference for point processes observed over many regions with an application to cosmology,” in *Proceedings of the International Conference on Stereology, Spatial Statistics and Stochastic Geometry*, Beneš, V., Janáček, J., and Saxl I., eds., (Prague: Union of Czech Mathematicians and Physicists), p52.

### Collaborative Publications

Ihde, E. S., Zamudio, S., **Loh, J. M.**, Zhu, Y., Woytanowski, J., Rosen, L., Liu, M. and Buckley, B. (2017) “Exposure to Bisphenol A and Common Substitutes among Fasting Mothers: Analysis of Fetal Cord Blood and Maternal Urine Using a Novel Assay”, *Environmental Health Perspectives* (in preparation).

Artigas, F., **Loh, J. M.**, Shin, J. Y., Grzyb, J. and Yao, Y. (2017) “Organic pollutants and heavy metal concentrations in tidal creek sediments after Hurricane Sandy: A Baseline for susceptible low lying areas in the Hackensack River estuary”, *Environmental Earth Sciences* (under revision).

Ihde, E. S., **Loh, J. M.** and Rosen, L. (2015) “Association of environmental chemicals and estrogen metabolites in children”, *BMC Endocrine Disorders*, 15, 83.

Ihde, E. S., Boscamp, J. R., **Loh, J. M.** and Rosen, L. (2015) “Safety and Efficacy of a 100% Dime-thicone Pediculocide in School-Age Children”, *BMC Pediatrics*, 15, 70.

Ihde, E. S., Nyirenda, T., Jain, A. K., **Loh, J. M.**, Artigas, F., Hobble, C., Elefante, D., Kojak, S., Shin, J. Y. and Rosen, L. (2014) “Mapping Contaminants Associated with Autism: A Public Health Pilot in New Jersey”, *Journal of Geographic Information Systems*, 6, 706-722.

Moore, L., Bain, J. M., **Loh, J. M.** and Levison, S. W. (2014) “PDGF-responsive Progenitors Persist in the Subventricular Zone across the Lifespan”, *ASN Neuro*, 6, 65-81.

### Grant Support

National Science Foundataion (DMS-1331010; \$997,664) co-Principal Investigator for <i>EXTREEMS-QED: Research and training in computational and data-enabled science and engineering for undergraduates in the mathematical sciences at NJIT</i>	2013-2018
Robert Wood Johnson Foundation - Healthy Eating Research Grant (\$100,000) co-Investigator for <i>Inequality in New York City's food environment: determinants of fast food density, spatial distribution, and store operation</i>	2008-2010
National Science Foundation Research Grant (SES-0624256; \$749,926) co-Principal Investigator for <i>DHB: Decentralization and Local Public Goods: How does allocation of decision-making authority affect provision?</i>	2007-2010
National Science Foundation Research Grant (AST-0507687; \$155,699) Principal Investigator for <i>Spatial Inference with Application to Astronomy</i>	2005-2009

### Awards

McCormick Fellowship, University of Chicago	1997-1999
Sir George Gray Scholarship, Victoria University of Wellington	1991
G. A. Rowan Memorial Bursary, Victoria University of Wellington	
Sir Robert Stout Scholarship, Victoria University of Wellington	1990
University Senior Scholarship, Victoria University of Wellington	
Emily Liliias Johnston Scholarship, Victoria University of Wellington	1989
Macmorran Prize for Mathematics, Victoria University of Wellington	
John P. Good Memorial Prize, Victoria University of Wellington	1988
David Payne Memorial Prize, Victoria University of Wellington	
Public Service Commission Scholarship, Public Service Commission of Singapore	1987

### Conference Presentations

3rd Institute of Mathematical Statistics Asia Pacific Rim Meeting (Invited) Joint Statistical Meeting	2014
Spatial Statistics Conference	2013
Data Mining in Networks Workshop in International Conference on Data Mining (peer reviewed)	2012
International Conference on Information Quality (peer reviewed) East North American Region (ENAR) Meeting (Invited)	2011
ICSA Applied Statistics Symposium (Invited) IMS-China International Conference on Statistics and Probability (Invited)	
International Workshop of Applied Probability (Invited) Joint Statistical Meeting	2010
Joint Statistical Meeting (contributed poster)	2009

Frontiers in Applied and Computational Mathematics (Invited)	2008
Joint Statistical Meeting (Invited)	2007
Institute of Mathematical Statistics Annual Meeting (Invited)	2006
Statistical Challenges in Modern Astronomy (Invited discussant)	
Joint Statistical Meeting	2005
International Chinese Statistical Association Applied Statistics Symposium (Invited)	2004
Case Studies in Bayesian Statistics VII (Invited discussant)	2003
Sixth North American New Researchers' Conference	
Joint Statistical Meeting (Invited)	2001

### Seminar Talks

Division of Mathematical Sciences, Nanyang Technological University, Singapore	2015
National Institute of Education, Nanyang Technological University, Singapore	2013
Baruch College, City University of New York	2012
University of Georgia	
New Jersey Institute of Technology	
New Jersey Institute of Technology	2011
University of Wisconsin-Madison	2009
Purdue University	
University of Connecticut	2008
University of Illinois at Urbana-Champaign	
University of Wisconsin-Madison	2007
Purdue University	
University of North Carolina at Chapel Hill	
Rutgers University	
UC Davis	
University of Pennsylvania	
Texas A&M	
Yale University	2006
National University of Singapore	
Statistical and Applied Mathematical Sciences Institute	
Rutgers University	2005
National University of Singapore	2004
Harvard University	2001
Columbia University	
Texas A&M	
Carnegie Mellon University	

### Professional Memberships

Institute of Mathematical Statistics	
International Chinese Statistical Association	

### Service to Academic Community

Reviewer for Statistica Sinica Annals of Applied Statistics	2016
Reviewer for Journal of the American Statistical Association Journal of Statistical Planning and Inference	2015
Reviewer for Scandinavian Journal of Statistics	2014
Instructor for spatial statistics class in Summer School in Statistics for Astronomers	2013

Reviewer for Spatial Statistics Journal Journal of the Royal Statistical Society, Series B Bernoulli	2013
Reviewer for Journal of Computational and Graphical Statistics Journal of the Royal Statistical Society, Series B Statistics and Its Interface	2012
Program Committee Member for ICASA 2011 Applied Statistics Symposium	2010-2011
Session organizer for ICASA 2010 International Conference	2010
Reviewer for Journal of Computational and Graphical Statistics Electronic Journal of Statistics	2010
Reviewer for Environmental and Ecological Statistics	2009
Reviewer for Journal of the Royal Statistical Society, Series B Journal of the American Statistical Association	2007
National Science Foundation reviewer for MPSA-AST program	Jun 2007
National Science Foundation Panel Reviewer for Joint Astronomy and Mathematical Sciences Program	2004
Reviewer for Annals of Statistics Statistical Methodology	2004