Dr. Yongtao Guan

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School of Business Administration, University of Miami
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EDUCATION

2003 Ph.D. in Statistics, Texas A&M University

1998 B.S. in Statistics, Minor in Economics, Peking University

EXPERIENCE

Director, Deloitte Institute for Research and Practice in Analytics (DIRPA), May, 2018-present.

Leslie O. Barnes Professor of Management Science, University of Miami, November, 2015-present.

Chair, Management Science, University of Miami, 2013-present.

Chair, Computer Information System, University of Miami, 2013-2016.

Professor, Management Science, University of Miami, 2011-present.

Professor, Biostatistiscs (secondary), University of Miami, 2011-present.

Professor, Health Sector Management and Policy (secondary), University of Miami, 2016-present.

Assistant & Associate Professor, Biostatistics, Yale University, 2006-2011.

Assistant Professor, Management Science, University of Miami, 2003-2006.

RESEARCH INTERESTS

- Methodology: point processes, spatial-temporal processes, longitudinal data analysis.
- Applications: business, epidemiology, social media, substance abuse.

HONORS & AWARDS

- Dean's 2018 Appreciation Award, Miami Business School, 2018.
- Provost's Funding Award, U. of Miami, 2018.
- Fellow, American Statistical Association, 2015.
- School of Business Administration Researcher of the Year Award, U. of Miami, 2015.
- H.O. Hartley Award (outstanding former student award, TAMU, Statistics), 2015.
- Recipient of over 3 million dollars of research grants as PI.
- National Science Foundation CAREER Award, 2009 (one of four recipients in Statistics).
- Keynote speaker, ASA Connecticut Regional Conference, 2007.
- James W. McLamore Research Award in Business and Social Sciences, U. of Miami, 2004.

LEADERSHIP & SERVICE

- Building a strong Business Analytics group within the Business School at University of Miami; hired six new faculty members (four tenure-track and two clinical-track).
- Developed a new Master program in Business Analytics (MSBA) at University of Miami; increased enrollment from 11 students to over 100 students in four years with a $> 90\%$ placement record within three months of graduation.
- Launched an advisory board for the MSBA program and Management Science Department consisting of > 20 senior executives.
- Established partnerships with > 20 companies to provide MSBA students with experiential learning opportunities.
- Revitalized the Ph.D. program in Management Science at University of Miami by introducing more emphasis on data analytics; recruited 5 students.
- Revamped the undergraduate curriculum in Management Science and changed its name to Business Analytics at University of Miami; drastically increased enrollment in the major.
- Developed a new Bachelor of Business Administration major in Business Analytics.
- Launched a 4.5-year Accelerated Master Program in Business Analytics.
- Developed a Business Analytics cognate for undergraduate students seeking a Bachelor degree in Business Administration at University of Miami.
- Served as a Fellow at *OpenIntro*, a group that provides free educational materials in Statistics, Algebra, Calculus, Physics and Medicine, 2011-2015.
- Served on local organizing committee for Spatial Econometrics Association Meeting 2015.
- Organized *University of Miami Spatial Statistics Conference 2012*.
- Serving/served as Associate Editor for *Journal of the American Statistical Association, Theory and Methods*, *Annals of Applied Statistics* and *Stat*.
- Served on ENAR Student Award Committee, 2010-2012.
- Served as Guest Editor for *Statistics and Its Interface* and *Spatial Statistics*.
- Served as a panel reviewer for NIH IRAP Study Section and NSF Statistics panel.
- Served on the University Research Council at University of Miami, 2012-2014.
- Served on numerous curriculum and promotion committees.

PUBLICATIONS (* indicates corresponding author)

Journal of the American Statistical Association:

- Xu, G., Waagepetersen, R. and **Guan, Y.** (2018), "Stochastic Quasi-likelihood for Case-Control Point Pattern Data", *Journal of the American Statistical Association, Theory and Methods*, to appear.
- Tang, J., Li, Y. and **Guan, Y.** (2016), "Generalized Quasi-Likelihood Ratio Tests for Semiparametric Analysis of Covariance Models in Longitudinal Data", *Journal of the American Statistical Association, Theory and Methods*, 111(514), 736–747.

- Huang, H., Li, Y. and **Guan, Y.** (2014), "Joint Modeling and Clustering Paired Generalized Longitudinal Trajectories with Application to Cocaine Abuse Treatment Data", *Journal of the American Statistical Association, Applications and Case Studies*, 109(508), 1412–1424.

- Li, Y. and **Guan, Y.** (2014), "Functional Principal Component Analysis of Spatio-Temporal Point Process with Applications in Disease Surveillance", *Journal of the American Statistical Association, Theory and Methods*, 109(507), 1205–1215.

- Huang, H., Ma, X., Waagepetersen, R., Holford, T., Wang, R., Risch, H., Mueller, L. and **Guan, Y.*** (2014), "A New Estimation Approach for Combining Epidemiological Data from Multiple Sources", *Journal of the American Statistical Association, Applications and Case Studies*, 109(505), 11–23.

- **Guan, Y.**, Li, Y. and Sinha, R. (2011), "Cocaine Dependence Treatment Data: Methods for Measurement Error Problems With Predictors Derived From Stationary Stochastic Processes", *Journal of the American Statistical Association, Applications and Case Studies*, 106(493), 480–493.

- Diggle, P., **Guan, Y.***, Hart, A., Paize, F. and Stanton, M. (2010), "Estimating Individual-Level Risk in Spatial Epidemiology Using Spatially Aggregated Information on the Population at Risk", *Journal of the American Statistical Association, Applications and Case Studies*, 105(492), 1394–1402.

- **Guan, Y.** (2009), "On Nonparametric Variance Estimation for Second-Order Statistics of Inhomogeneous Spatial Point Processes with a Known Parametric Intensity Form", *Journal of the American Statistical Association, Theory and Methods*, 104(488), 1482–1491

- **Guan, Y.** (2008), "On Consistent Nonparametric Intensity Estimation for Inhomogeneous Spatial Point Processes", *Journal of the American Statistical Association, Theory and Methods*, 103(483), 1238–1247.

- **Guan, Y.**, Waagepetersen, R. and Beale, C. (2008), "Second-Order Analysis of Inhomogeneous Spatial Point Processes with Proportional Intensity Functions", *Journal of the American Statistical Association, Theory and Methods*, 103(482), 769–777.

- **Guan, Y.** and Loh, J. M. (2007), "A Thinned Block Bootstrap Variance Estimation Procedure for Inhomogeneous Spatial Point Patterns", *Journal of the American Statistical Association, Theory and Methods*, 102(480), 1377–1386.

- **Guan, Y.** (2006), "A Composite Likelihood Approach in Fitting Spatial Point Process Models", *Journal of the American Statistical Association, Theory and Methods*, 101(476), 1502–1512.

- **Guan, Y.**, Sherman, M., and Calvin J.A. (2004), "A Nonparametric Test for Spatial Isotropy Using Subsampling", *Journal of the American Statistical Association, Theory and Methods*, 99(467), 810–821.

Journal of the Royal Statistical Society, Series B:

- **Guan, Y.**, Jalilian, A. and Waagepetersen, R. (2015), "Quasi-likelihood for Spatial Point Processes", *Journal of the Royal Statistical Society, Series B*, 77(3), 677-697.

- **Guan, Y.** and Wang, H. (2010), "Sufficient Dimension Reduction for Spatial Point Processes directed by Gaussian Random Fields", *Journal of the Royal Statistical Society, Series B*, 72(3), 367–387.

- Waagepetersen, R. and **Guan, Y.** (2009), "Two-Step Estimation for Inhomogeneous Spatial Point Processes", *Journal of the Royal Statistical Society, Series B*, 71(3), 685–702.
- **Guan, Y.** (2008), "Variance Estimation for Statistics Computed from Inhomogeneous Spatial Point Processes", *Journal of the Royal Statistical Society, Series B*, 70(1), 175–190.
- **Guan, Y.** and Sherman, M. (2007), "On Least Squares Fitting for Stationary Spatial Point Processes", *Journal of the Royal Statistical Society, Series B*, 69(1), 31–49.

Biometrika:

- Deng, C., Waagepetersen, R. and **Guan, Y.*** (2014), "A Combined Estimating Function Approach for Fitting Stationary Point Process Models", *Biometrika*, 101(2), 393–408.
- **Guan, Y.** and Shen, Y. (2010), "A Weighted Estimating Equation Approach for Inhomogeneous Spatial Point Processes", *Biometrika*, 97(4), 867–880.
- **Guan, Y.** (2009), "Fast Block Variance Estimation Procedures for Inhomogeneous Spatial Point Processes", *Biometrika*, 96(1), 213–220.
- **Guan, Y.** (2008), "A Goodness-of-Fit Test for Inhomogeneous Spatial Poisson Processes", *Biometrika*, 95(4), 831–845.

Biometrics:

- Deng, C., **Guan, Y.**, Waagepetersen, R. and Zhang, J. (2017), "Second-order Quasi-likelihood for Spatial Point Process Models", *Biometrics*, 73(4), 1311–1320.
- Jalilian, A., **Guan, Y.**, Mateu, J. and Waagepetersen, R. (2015), "Multivariate Product-Shot-Noise Cox Point Process Models", *Biometrics*, 71(4), 1022–1033.
- Chang, X., Waagepetersen, R., Yu, H., Ma, X., Holford, T., Wang, R., and **Guan, Y.*** (2015), "Disease Risk Estimation by Combining Case-Control Data with Aggregated Information on the Population at Risk", *Biometrics*, 71(1), 114–121.
- **Guan, Y.** (2011), "Second-Order Analysis of Semiparametric Recurrent Event Processes", *Biometrics*, 67(3), 730–739.
- **Guan, Y.**, Yan, J. and Sinha, R. (2011), "Variance Estimation for Statistics Computed from Single Recurrent Event Processes", *Biometrics*, 67(3), 711–718.
- **Guan, Y.** (2011), "Bias-Corrected Variance Estimation and Hypothesis Testing for Spatial Point and Marked Point Processes Using Subsampling", *Biometrics*, 67(3), 926–936.
- **Guan, Y.** (2008),"A KPSS Test for Stationarity for Spatial Point Processes", *Biometrics*, 64(3), 800–806.
- **Guan, Y.**, Sherman, M., and Calvin J.A. (2006), "Assessing Isotropy for Spatial Point Processes", *Biometrics*, 62(1), 119–125.
- **Guan, Y.** (2006), "Tests for Independence between Marks and Points of a Marked Point Process", *Biometrics*, 62(1), 126–134.

Other Refereed Journals:

- Jalilian, A., **Guan, Y.**, and Waagepetersen, R. (2018), "Orthogonal Series Estimation of the Pair Correlation Function of a Spatial Point Process", *Statistica Sinica*, to appear.

- Deng, C., Waagepetersen, R., Wang, M. and **Guan, Y.** (2018), "A Fast Spectral Quasi-Likelihood Approach for Spatial Point Processes", *Statistics and Probability Letters*, 133, 59–64.

- Sun, Y., Chang, X. and **Guan, Y.** (2018), "Flexible and efficient estimating equations for variogram Estimation", *Computational Statistics and Data Analysis*, 122, 45–58.

- Bernales, P., **Guan, Y.**, Natarajan, H., Gimenez, P. and Tajes, M. (2017), "Less Is More: Harnessing Product Substitution Information to Rationalize SKUs at Intcomex", *Inferfaces*, 47(3), 230–243.

- Gilan, O., McKay, L., Gregoire, T., **Guan, Y.**, Leader, B. and Holford, T. (2016), "Spatiotemporal Calibration and Resolution Refinement of Output from Deterministic Models", *Statistics in Medicine*, 35(14), 2422–2440.

- Shen, Y., Huang, H. and **Guan, Y.** (2016), "A Conditional Estimating Equation Approach for Recurrent Event Data with Additional Longitudinal Information", *Statistics in Medicine*, 35(24), 4306–4319

- Waagepetersen, R., **Guan, Y.**, Jalilian, A. and Mateu, J. (2016), "Analysis of Multi-Species Point Patterns using Multivariate log Gaussian Cox Processes", *Journal of the Royal Statistical Society, Series C*, 61(1), 77–96.

- Ye, J., Li, Y., and **Guan, Y.** (2015), "Joint Modeling of Longitudinal Drug Using Pattern and Time to First Relapse in Cocaine Dependence Treatment Data", *Annals of Applied Statistics*, 9(3), 1621–1642.

- Thurman, A.L., Fu, R., **Guan, Y.**, and Zhu, J. (2015), "Regularized Estimating Equations for Model Selection of Clustered Spatial Point Processes", *Statistica Sinica*, 25, 173–188.

- Zhang, L., **Guan, Y.**, Leaderer, B. and Holford, T. (2015), "Estimating Daily Nitrogen Dioxide Level: Application of a Longitudinal Model with Spatially-Correlated Random Effects", *Environmental and Ecological Statistics*, 22(2), 329–344.

- Coeurjolly, J.F. and **Guan, Y.** (2015), "Covariance of Empirical Functionals for Inhomogeneous Spatial Point Processes With Parametric Intensities", *Journal of Statistical Planning and Inference*, 155, 79–92.

- Zhang, L., **Guan, Y.**, Leaderer, B. and Holford, T. (2013), "Estimating Daily Nitrogen Dioxide Level: Exploring Traffic Effects", *Annals of Applied Statistics*, 7(3), 1763-1777.

- Jalilian, A., **Guan, Y.** and Waagepetersen (2013), "Decomposition of Variance for Spatial Cox Processes", *Scandinavian Journal of Statistics*, 40(1), 119–137.

- Wang, R., Gross, C., Frick, K., Xu, X., Long, J., Raza, A., Galili, N., Zikria, J., **Guan, Y.** and Ma, X. (2013), "The Impact of Hypomethylating Agents on the Cost of Care and Survival of Elderly Patients with Myelodysplastic Syndromes", *Leukemia Research*, 1370–1375.

- Afshartous, D., **Guan, Y.**, and Mehrotra, A. (2009), "US Coast Guard Air Station Location with respect to Distress Calls: a Spatial Statistics and Optimization Based Methodology", *European Journal of Operation Research*, 196(3), 1086–1096.

- **Guan, Y.** (2009), "A Minimum Contrast Estimation Procedure for Estimating the Second-Order Parameters of Inhomogeneous Spatial Point Processes", *Statistics and Its Interfaces*, 2(1), 91–99.

- Brown, H. E., Diuk-Wasser, M. A., **Guan, Y.**, Caskey, S. and Fish, D. (2008), "Comparison of Three Satellite Sensors at Three Spatial Scales to Predict Larval Mosquito Presence in CT Wetlands", *Remote Sensing of the Environment*, 112(5), 2301–2308.

- **Guan, Y.** (2008), "A Marked Point Process Perspective in Fitting Spatial Point Process Models", *Journal of Statistical Planning and Inference*, 138(7), 2143–2153.

- **Guan, Y.** (2007), "A Least-Squares Cross-Validation Bandwidth Selection Approach in Pair Correlation Function Estimations", *Statistics and Probability Letters*, 77(18), 1722–1729.

- **Guan, Y.** (2007), "A Composite Likelihood Cross-Validation Approach in Selecting Bandwidth for the Estimation of the Pair Correlation Function", *Scandinavian Journal of Statistics*, 34(2), 336–346.

- **Guan, Y.**, Sherman, M., and Calvin J.A. (2007), "On Asymptotic Properties of the Mark Variogram Estimator of a Marked Point Process", *Journal of Statistical Planning and Inference*, 137(1), 148–161.

- **Guan, Y.** and Afshartous, D. (2007), "Test for Independence between Marks and Points of Marked Point Processes: a Subsampling Approach", *Environmental and Ecological Statistics*, 14(2), 101–111.

Book Chapters, Discussions and Reviews:

- **Guan, Y.** (2010), Book Review of "*Statistical Analysis and Modelling of Spatial Point Patterns*" by Illian et al, *Journal of the American Statistical Association*, 105(491), 1281–1281.

- **Guan, Y.** (2007), "Discussion of 'Modern Statistics for Spatial Point Processes' by Møller and Waagepetersen", *Scandinavian Journal of Statistics*, 34(4), 691–692.

- Afshartous, D., **Guan, Y.**, Mehrotra, A., and Magnussen, J. (2004), "Optimal Deployment of Resources for the U.S. Coast Guard", *Proceeding of the 10th International Conference on Productivity and Quality Research*, Miami, FL, Feb. 2004.

- Sherman, M., **Guan, Y.**, and Calvin, J.A. (2003), "Assessing Spatial Isotropy", in *Recent Advances and Trends in Nonparametric Statistics*, M. Akritas and D. Politis (Eds.), Elseview (North Holland), 467–475.

GRANTS HISTORY

Current

- NSF/DMS Grant: New Development in Point Process Theory, Methods and Applications (Principal Investigator, 07/2018-06/2021). Total budget: $100,000.

- NSF/MMS Grant: Collaborative Research: Non- and Semiparametric Modeling of Structured Human Activity Patterns Using Point Processes (co-Principal Investigator, 05/2018-04/2021). Total budget: $120,464.

- CDC Grant: Southeastern Regional CoE in Vector-Borne Diseases: The Gateway Program (co-Investigator, 01/2017-12/2021). Total budget: $9,999,628.

  This was one of four consortium grants for the entire country from CDC. Professor John Beier is the PI for the UM project.

Completed

- NIH/NCI R01 Grant: New Statistical Methods to Handle Spatial Uncertainty in Cancer Risk Estimation (Principal Investigator, 06/2013-05/2017). Total budget: $1,763,817.

  This grant was featured on *Coral Gables Television, The Miami Herald*, and three other news networks.

- NIH/NIDA R01 Grant: Statistical Methods for Understanding Heterogeneity in Cocaine Relapse (Principal Investigator, 01/2011-12/2014). Total budget: $1,055,985.

- NSF/DMS CAREER Award: New Statistical Methods for Massive Spatial, Temporal and Spatial-Temporal Processes (Principal Investigator, 07/2009-06/2014). Total budget: $400,000.

- NSF/DMS Grant: Spatial Point Pattern Analysis Using Composite Likelihood (Principal Investigator, 06/2006-05/2009). Total budget: $121,230.

- NIH/NCI Grant: Myelodysplastic Syndromes: Previous Exposures, Survival, and Quality of Life (Investigator, 09/2010-08/2011).

- NIH/NIDCR Grant: Interdisciplinary Research on Stress, Self-Control and Addiction (Investigator, 10/2008-06/2011).

- NIH/NINDS Grant: Injury and Recovery in Developing Brain (Investigator, 07/2009-06/2011).

- NIH/NIEHS Grant: Traffic and Respiratory Morbidity in the Northeast (Investigator, 07/2009-06/2011).

- EPA Grant: Integrating Earth Observation and Field Data into a Lyme Disease Model to Map and Predict Risks to Biodiversity and Human Health (Investigator, 01/2007-03/2009).

- CDC Grant: Spatial Risk Model for Ixodes Scapularis-borne Borrelia (Investigator, 06/2007-03/2008).

TEACHING

Courses taught at Yale University:

- Spatial Statistics (Ph.D.)
- Nonparametric Statistics (Ph.D.)
- Applied Regression Analysis (Master and Ph.D.)

Courses taught at University of Miami:

- Introduction to Business Statistics (Undergraduate)
- Design of Experiment (MBA & MSBA)
- Applied Regression Analysis and Forecasting (MBA & MSBA)
- Econometrics (Ph.D.)
- Spatial Statistics (Ph.D.)

STUDENTS AND POSTDOCS MENTORED:

As Supervisor:

- Kun Xu, postdoc (2014-2016).
  Current position: Senior Biostatistician, Novartis Pharmaceuticals Corporation.
- Xiaohui Chang, postdoc (2012-2014).
  Current position: tenure-track Assistant Professor, School of Business, Oregon State University.
- Hui Huang, Postdoc (2010-2013).
  Current position: Professor of Statistics, Sun Yat-Sen University.
- Ye Shen, Ph.D. in Biostatistics, graduated in December, 2011.
  Current position: Associate Professor of Biostatistics, Univ. of Georgia.
- Chong Deng, Ph.D. in Applied Math, Yale University, graduated in May, 2015.
  Chong Deng was a *finalist* for the John van Ryzin Award, ENAR, 2012.
  Current position: Quant Analyst at Citadel.
- Ming Wang, Ph.D. in Management Science, Univ. of Miami, graduated in August, 2018.
  Current position: Data Scientist, Quicken Loans.
- Chong Zhao, Ph.D. in Management Science, Univ. of Miami, graduated in August, 2018.
  Current position: Statistical Analyst/Data Scientist-Intermediate, Equifax.
- Yingjun Li, MPH with concentration on Biostatistics, graduated in May, 2009.
  Current position: Senior Quantitative Researcher, Ellington Management Group.

As Committee Member:

- Owais Gilani, Ph.D. of Biostatistics, Yale University, graduated in 2014.
- Lixun Zhang, Paul Cislo and Fu-Chi Hsieh, Ph.D. of Biostatistics, Yale University, all graduated in May, 2011.
- Heidi Brown, Ph.D. of Epidemiology of Microbial Diseases, graduated in 2007.
- Annie Gatewood, Ph.D. of Epidemiology of Microbial Diseases, graduated in 2008.