

ARITRA SENGUPTA

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[Linkedin Profile](#)

CURRENT POSITION *(Since January 2013)*

Quantitative Analytics and Modeling
House Price Modeling (Single Family Risk Management)
Federal Home Loan Mortgage Association (Freddie Mac), McLean, VA, USA

In my current role at Freddie Mac I am responsible for developing and analyzing house price models that assess the market, credit and/or operational risks of new and existing financial and mortgage products or portfolios to support business and risk decisions. I have assumed the lead responsibility on several House Price models, which are key to Freddie Mac's business.

My responsibilities also include (but are not limited to):

- developing new and improved models related to housing markets. (like the house price forecasting model, etc.)
- leading projects/initiatives to meet the Single-Family Modeling objectives.
- developing strategies to analyze and interpret output of models or analytic applications, which assess things such as relative risks of each product within the portfolio.
- planning, executing, and documenting analysis of different house price models.
- evaluating and managing risks associated with different house price models.
- interacting with different business lines and providing them technical and analytical assistance.

EDUCATION

- PhD, Department of Statistics, The Ohio State University, 2012.
 - *Advisor*: Dr. Noel Cressie.
 - *Thesis*: Empirical Hierarchical Modeling and Predictive Inference for Big, Spatial, Discrete, and Continuous Data.
- M.Sc. Statistics, Indian Institute of Technology, Kanpur, 2007.
- B.Sc. Statistics, Calcutta University (India), 2005.

RESEARCH INTERESTS

- Spatial Statistics and Spatio-Temporal Modeling.
- Bayesian Methods and its Applications.
- Analysis of Network Data.
- Applied Time Series and Econometric Models.
- Machine Learning Algorithms.

PROJECTS, INTERNSHIPS, AND OTHER PROFESSIONAL EXPERIENCE

- Teaching Assistantship at The Ohio State University. (*September, 2007 - December, 2012*)
Responsibilities included teaching in recitation, preparing homework and solutions, grading homework assignments, having office hours, developing & maintaining course webpage, etc.
- Research Associateship with Dr. Noel Cressie, at The Ohio State University. (*July, 2011 - August, 2012*)
Spatial-Random-Effects (SRE) Model for Cloud Data.
This research involved statistical analysis of the MODIS (MODerate resolution Imaging Spectroradiometer) cloud-mask data. The goal of this research was to quantify the uncertainty in the data and to produce optimal predictions of the cloud-probability process, along with measures of its uncertainty.
Associated Research Articles:
 - Sengupta, A., Cressie, N., Frey, R., and Kahn, B. H. (2012). "Statistical modeling of MODIS cloud data using the Spatial Random Effects model." In Proceedings of the 2012 Joint Statistical Meetings, Alexandria, VA: American Statistical Association, 3111-3123.
 - Sengupta, A., Cressie, N., Kahn, B. H. and Frey, R. (2016). "Predictive Inference for Big, Spatial, Non-Gaussian Data: MODIS Cloud Data and its Change-of-Support." Australian & New Zealand Journal of Statistics, **58**: 15-45.
- Internship with the Analytics Team at the Retail Financial Services, Chase Bank, Columbus, OH, USA. (*June, 2010 - September, 2010*)
Developed a statistical modeling framework that could be used to determine the market capacity for new ATM placement.
- Project with the Division of Mathematical and Information Sciences (CMIS), Marine Labs in Hobart, CSIRO, Australia. (*July, 2009 - September, 2009*)
A summer project with the CMIS group in CSIRO, Hobart, Australia.
Project Title: Location error in Kalman filter updates for ocean data assimilation schemes, using data from animal tags.
Associated Research Article:
 - Sengupta A, Foster SD, Patterson TA, Bravington M (2012). "Accounting for Location Error in Kalman Filters: Integrating Animal Borne Sensor Data into Assimilation Schemes." PLoS ONE. **7(8)**: e42093.

COMPUTING SKILLS

- Statistical Software: R, Python, Matlab, SAS.
- SAS Certified Base Programmer for SAS 9. (*Certification obtained September 10, 2010*)

ONLINE CERTIFICATIONS

- **Machine Learning.** Coursera Course Certificates; License number-S53G4FTHATXB. (*Certification obtained April 2016*)
- **Financial Markets.** Coursera Course Certificates; License number-9GVX8GYZRCY8. (*Certification obtained April 2016*)
- **The Power of Macroeconomics: Economic Principles in the Real World.** Coursera Course Certificates; License number-54UYMH5AUQ3K. (*Certification obtained February 2016*)

PUBLICATIONS

A list of my publications can be found [here](#).

HONORS AND AWARDS

- Ransom & Marian Whitney Award for Best Dissertation Research; Department of Statistics, The Ohio State University. (*Apr 2013*)
- Gary Koch Travel Award (from the Department of Statistics, The Ohio State University) to attend the Joint Statistical Meetings in San Diego, CA, USA (*July 2012*), the Joint Statistical Meetings in Miami Beach, FL, USA (*Aug 2011*) and the Joint Statistical Meetings in Vancouver, Canada (*Aug 2010*).
- Ranked second among all the students of the Statistics Department of IIT Kanpur (MSc, 2007)
- Received the Ahibhusan Chatterjee Memorial Prize for the second best performance among the Statistics students of the Undergrad College (the Presidency College, Calcutta University) in the statistics honours exam (BSc, 2005)

REFERENCE

Available on Request.

Last updated: October 12, 2018