

# ABHRA SARKAR

## CONTACT INFORMATION

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Department of Statistics and Data Sciences  
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## ACADEMIC APPOINTMENTS

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**University of Texas at Austin**, Texas, USA

Assistant Professor of **Statistics and Data Sciences** 2017 - Present

## EDUCATION AND TRAINING

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**Duke University**, Durham, North Carolina, USA

Postdoctoral Fellowship in **Statistical Science** 2014 - 2017

- Mentor: Dr. David B. Dunson

**Texas A&M University**, College Station, Texas, USA

Ph.D. in **Statistics** 2009 - 2014

- Thesis Title: Bayesian Semiparametric Density Deconvolution and Regression in the Presence of Measurement Errors
- Advisors: Dr. Bani K. Mallick and Dr. Raymond J. Carroll

**University of Calcutta**, Calcutta, West Bengal, India

M.Sc. in **Statistics** 2007 - 2009

- Master's Project Title: Some Notes on Singular Distributions with Special Reference to Their Connection with IFS Fractals
- Area of Specialization: Advanced Statistical Inference

B.Sc. in **Statistics** 2004 - 2007

- Minors: Mathematics and Physics

## AWARDS AND HONORS

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**Duke University**, Durham, NC, USA

- NSF Travel Award to attend ASA Nonparametric Statistics Workshop, University of Michigan, Ann Arbor, USA (\$500 towards travel expenses)

**Texas A&M University**, College Station, Texas, USA

- **International Indian Statistical Association (IISA)** Student Paper Award (2014) (\$800 towards travel expenses)
- **American Statistical Association (ASA) Section on Bayesian Statistical Science (SBSS)** Student Paper Award (2013) (\$800 towards travel expenses)
- Invited member of national Statistics honor society **Mu-Sigma-Rho** (2013)
- **American Statistical Association (ASA) Nonparametric Statistics Section** Student Paper Award (2012) (\$800 towards travel expenses)
- Invited member of all-discipline honor society **Phi-Kappa-Phi** (2012)
- **Institute for Applied Mathematics and Computational Science (IAMCS)** Graduate Fellowship (2009-2011) (\$60,000 research fellowship with fringe benefits)

**University of Calcutta**, Calcutta, West Bengal, India

- **First in First Class** in M.Sc. (2009)
- **Prof. R. C. Bose Award** for excellence in M.Sc. Examination (awarded by the **Calcutta Statistical Association**, 2008) (Rs 2,000 book grant)
- **First in First Class** in B.Sc. (2007)
- **Swami Lokeshwarananda Award** for overall excellence in academics (awarded by **Ramakrishna Mission Residential College, Narendrapur**, 2007) (Rs 10,000 and books)
- **Prof. Anil Bhattacharya Award** for excellence in Statistics (awarded by the Department of Statistics, **Ramakrishna Mission Residential College, Narendrapur**, 2007) (Rs 3,000 book grant)

## RESEARCH INTERESTS

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Bayesian Semiparametric and Nonparametric Methods; Latent Variable Models; Higher Order Markov and Hidden Markov Models; Measurement Error/Errors-in-variables Models; Longitudinal Data Analysis; Applications of Statistical Methods to Problems in Nutritional Epidemiology, Disease Epidemiology and Neuroscience.

## PAPERS PUBLISHED / ACCEPTED

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1. Zoh, R., **Sarkar, A.**, Carroll, R. J. and Mallick, B.K. (2017+). A powerful Bayesian test for equality of means in high dimensions. To appear in Journal of the American Statistical Association.
2. **Sarkar, A.**, Pati, D., Chakraborty, A., Mallick, B.K. and Carroll, R. J. (2017+). Bayesian semiparametric multivariate density deconvolution. To appear in Journal of the American Statistical Association. [[link to arXiv preprint](#)]
3. Chakraborty, M., Fridel, E.E., Chen, L., Klein, M. E., Senft, R., **Sarkar, A.** and Jarvis, E. D. (2017). Overexpression of human NR2B receptor subunit in LMAN causes stuttering and song sequence changes in adult zebra finches. Nature Scientific Reports, 7, 1-18. [[link](#)]
4. **Sarkar, A.** and Dunson, D. B. (2016). Bayesian nonparametric modeling of higher order Markov chains. Journal of the American Statistical Association, 111, 1791-1803. [[link](#)]
5. Chabout, J., **Sarkar, A.\***, Patel, S.\*, Raiden, T., Dunson, D. B., Fisher, S. E. and Jarvis, E. D. (2016). A Foxp2 mutation implicated in human speech deficits alters sequencing of ultrasonic vocalizations in adult male mice. Frontiers in Behavioral Neuroscience, 10, 1-18. [\*equal contributions] [[link](#)] [[Duke press release](#)] [[News articles and blog posts](#)]
6. Zhang, L., **Sarkar, A.**, and Mallick, B. K. (2016). Bayesian sparse covariance decomposition with graphical structure. Statistics and Computing, 26, 493-510. [[link](#)]
7. Chabout, J., **Sarkar, A.**, Dunson, D. B. and Jarvis, E. D. (2015). Male song syntax depends on contexts and influences female preferences in mice. Frontiers in Behavioral Neuroscience, 9, 1-19. [[link](#)] [[Duke press release](#)] [[News articles and blog posts](#)]
8. **Sarkar, A.**, Mallick, B. K. and Carroll, R. J. (2014). Bayesian semiparametric regression in the presence of conditionally heteroscedastic regression and measurement errors. Biometrics, 70, 823-834. [[link](#)] [[IISA Student Paper Award, 2014](#)]
9. **Sarkar, A.**, Mallick, B. K., Staudenmayer, J., Pati, D. and Carroll, R. J. (2014). Bayesian semiparametric density deconvolution in the presence of conditionally heteroscedastic measurement errors. Journal of Computational and Graphical Statistics, 23, 1101-1125. [[link](#)] [[SBSS Student Paper Award, 2013](#)]

## TEACHING EXPERIENCE

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**Duke University**, Durham, NC, USA

- **Guest Lecturer**

STA 531: Advanced Stochastic Modeling

Spring, 2017

**Texas A&M University**, College Station, TX, USA

- **Course Instructor**

STAT 302: Statistical Methods

Summer I & II, 2013

- **Teaching Assistant**

STAT 608: Regression Analysis	Summer, 2014
STAT 642: Design of Experiments	Summer, 2014
STAT 651: Statistics in Research	Spring, 2013
STAT 302: Statistical Methods	Fall, 2011

## COMPUTING SKILLS

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Expertise: R, Matlab

Basic Programming Knowledge: C, HTML, Ruby

## PROFESSIONAL MEMBERSHIPS

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American Statistical Association (ASA),  
International Society for Bayesian Analysis (ISBA),  
Institute of Mathematical Statistics (IMS).

## PROFESSIONAL ACTIVITIES

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- Referee for Statistical Science, Statistics in Medicine, Environmental Health Perspectives, Journal of Machine Learning Research, Statistics and Probability Letters, Bayesian Analysis, Sankhya, Journal of the American Statistical Association
- Treasurer for **Statistics Graduate Students' Association (SGSA)**, TAMU for the academic year 2013-2014.

## PRESENTATIONS

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- Bayesian nonparametric nonhomogeneous hidden Markov models (Contributed Talks).
  - Joint Statistical Meetings, San Diego, California, USA, July, 2012.
  - Young Statisticians' Meet, Department of Statistics, University of Burdwan, Burdwan, West Bengal, India, December, 2012.
- Bayesian semiparametric density deconvolution in the presence of conditionally heteroscedastic measurement errors. (Contributed Talks)
  - Eighth International Triennial Calcutta Symposium, University of Calcutta, Calcutta, West Bengal, India, December, 2012.
  - Joint Statistical Meetings, Montréal, Québec, Canada, August, 2013.
- Bayesian semiparametric regression in the presence of conditionally heteroscedastic measurement and regression errors. (Contributed Talk)
  - International Indian Statistical Association Conference on Research Innovations in Statistics for Health, Education, Technology, and Society, Riverside, California, USA, July, 2014.
- Bayesian methods for assessing health effects of chemical mixtures (Poster).
  - NIEHS Workshop on Statistical approaches for Assessing Health Effects for Environmental Chemical Mixtures in Epidemiology Studies, Research Triangle Park, Durham, North Carolina, USA, July, 2015.
- Bayesian nonparametric modeling of higher order Markov chains (Poster).
  - Duke Workshop on Sensing and Analysis of High-Dimensional Data, Duke University, Durham, North Carolina, USA, July, 2015.
- Novel statistical frameworks for analysis of structured sequential data - higher order Markov and hidden Markov models (Invited Talks).
  - Department of Statistics, Florida State University, Tallahassee, USA, January, 2016.
  - Department of Statistics, University of Illinois at Urbana-Champaign, USA, February, 2016.
  - Department of Statistics, University of Georgia, Athens, USA, February, 2016.
  - Department of Biostatistics, Johns Hopkins University, Baltimore, Maryland, USA, February, 2016.
  - Department of Biostatistics, University of Wisconsin, Madison, USA, February, 2016.

- Novel statistical frameworks for analysis of structured sequential data - higher order Markov models and mixed effects Markov models (Invited Talks).
  - Department of Biostatistics, University of Texas MD Anderson Cancer Center, Houston, USA, November, 2016.
  - Department of Statistics, University of Michigan, Ann Arbor, USA, January, 2017.
  - Department of Statistics, University of Florida, Gainesville, USA, January, 2017.
  - Department of Statistics and Data Sciences, University of Texas at Austin, USA, January, 2017.
  - Department of Biostatistics, University of Michigan, Ann Arbor, USA, February, 2017.
- Bayesian nonparametric modeling of higher order Markov chains (Invited Talk).
  - International Chinese Statistical Association Applied Statistics Symposium, Atlanta, Georgia, USA, June, 2016.
- Bayesian nonparametric methods for structured sequential data (Invited Talk).
  - ASA Nonparametric Statistics Workshop, University of Michigan, Ann Arbor, USA, October, 2016.
- Bayesian semiparametric mixed effects Markov models (Invited Talk).
  - International Chinese Statistical Association Applied Statistics Symposium, Chicago, Illinois, USA, June, 2017.

## REFERENCES

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Available upon request.