

ABHRA SARKAR
Assistant Professor of Statistics and Data Sciences
The University of Texas at Austin, USA
[last updated in January, 2024]

CONTACT INFORMATION

Department of Statistics and Data Sciences (SDS)
College of Natural Sciences (CNS)
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EMPLOYMENT HISTORY

The University of Texas at Austin, Texas, USA

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

EDUCATION AND TRAINING

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: 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 (First in First Class)** 2007 - 2009

- Area of Specialization: Advanced Statistical Inference
- Project: Singular Distributions and Their Connections with Iterated Function Systems Fractals

B.Sc. in **Statistics (First in First Class)** 2004 - 2007

- Minors: Mathematics and Physics

AWARDS AND HONORS

The University of Texas at Austin, Austin, TX, USA

- **Mitchell Prize, 2020** from the **International Society for Bayesian Analysis (ISBA)** (\$1000) "awarded in recognition of an outstanding paper that describes how a Bayesian analysis has solved an important applied problem" [[link to the paper](#)]
- Best Short Paper Award at the 11th ACM Symposium on Eye Tracking Research & Applications (2019)
- Rom Rhone International Professional Development Fund Award (\$1200 and \$1400 towards travel expenses for attending international conferences) (2018 & 2023)

Duke University, Durham, NC, USA

- **Mitchell Prize, 2018** from the **International Society for Bayesian Analysis (ISBA)** (\$1000) "awarded in recognition of an outstanding paper that describes how a Bayesian analysis has solved an important applied problem" [[link to the paper](#)]
- National Science Foundation travel award to attend American Statistical Association Nonparametric Statistics Workshop, University of Michigan, Ann Arbor, USA (\$500 towards travel expenses) (2016)

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

- **International Indian Statistical Association (IISA)** Student Paper Award (2014) (\$800 towards travel expenses) [[link to paper](#)]
- **American Statistical Association (ASA)** Section on Bayesian Statistical Science (SBSS) Student Paper Award (2013) (\$800 towards travel expenses) [[link to paper](#)]
- Invited member of national Statistics honor society **Mu-Sigma-Rho** (2013)
- Finalist for **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** (university topper) in M.Sc. (2009)
- **Prof. R. C. Bose** Award for excellence in M.Sc. Examination (awarded by **the Calcutta Statistical Association**, 2008) (₹ 2,000 book grant)
- **First in First Class** (university topper) in B.Sc. (2007)
- **Swami Lokeshwarananda** Award for overall excellence in academics (awarded by **Ramakrishna Mission Residential College, Narendrapur**, 2007) (₹ 10,000 and books)
- **Prof. Anil Bhattacharya** Award for excellence in Statistics (from the Department of Statistics, **Ramakrishna Mission Residential College, Narendrapur**, 2007) (₹ 3,000 book grant)

RESEARCH INTERESTS AND KEY WORDS

Bayesian Semiparametric and Nonparametric Methods; Bayesian Computation; Latent Variable Models; Measurement Error Models; Density Deconvolution; Regression with Errors-in-Variables; Categorical Probability Models; (Nonhomogeneous) (Higher Order) (Factorial) (Hidden) Markov (Renewal) (Mixed) Models; Tensor Factorization Models; (Functional) (Mixed) Longitudinal and Time Series Models; Change Point Analysis; Covariance and Precision Matrix Models; Copula Models; (Gaussian) (Copula) Graphical Models; Drift-Diffusion Models; (Nonhomogeneous) (Mixed) Vector Autoregressive Processes; Granger Causality; Multi-dimensional Scaling; Statistical Applications in Nutritional Epidemiology, Auditory/Speech Processing Neuroscience, Speech, Language, and Hearing Disorders, Vocal Communication Neuroscience, Metabolomics, Climatology, and Clinical Trial Design.

GRANTS

- G.1 Novel statistical frameworks for local inference in neuroscience of learning [[link](#)]
(Role: Principal Investigator; Funding Agency: **The National Science Foundation**; Award No: DMS-1953712; Duration: 2020-23; Total Intended Award Amount: \$600,976)
- G.2 Online modulation of auditory brainstem responses to speech [[link](#)]
(Role: Co-Investigator; Principal Investigator: Dr. Bharath Chandrasekaran; Funding Agency: **The National Institutes of Health**; Award No: R01DC013315-05; Duration: 2019-20)

PAPERS & MANUSCRIPTS

- | | | | |
|-----------------------------|-----------------------------|----------------------------|--------------------------|
| 1 Methodology papers | 2 Application papers | 3 Consulting papers | 4 Software papers |
| 5 Review papers | | | |

* SDS Postdoctoral Mentees, ** SDS Doctoral Student Advisees, *** SDS Doctoral Student Mentees,
**** Non-SDS Doctoral Student Mentees, ***** SDS Undergraduate Student Mentees,
† Equal contributions.

Manuscripts in Submission / Under Revision

- 33** Fan, J.^{**}, Sitek, K., Chandrasekaran, B. and **Sarkar, A.** (2024+). Bayesian tensor decomposed vector autoregressive models for inferring Granger causality from high-dimensional multi-subject panel neuroimaging data. (being revised to be resubmitted) [[link to arXiv preprint](#)]
- 32** Chandra, N. K.^{*†}, Sitek, K.[†], Chandrasekaran, B. and **Sarkar, A.** (2024+). Functional connectivity across the human subcortical auditory system using an auto-regressive matrix-variate Gaussian copula graphical model with partial correlations. (under revision) [[link to bioRxiv preprint](#)]
- 31** Rebaudo, G.^{*}, Llanos, F., Chandrasekaran, B. and **Sarkar, A.** (2024+) Bayesian mixed multidimensional scaling for auditory processing. (under revision) [[link to arXiv preprint](#)]
- 30** Chandra, N. K.^{*}, Müller, P. and **Sarkar, A.** (2024+). Bayesian scalable precision factor analysis for Gaussian graphical models. (under revision) [[link to arXiv preprint](#)]
- 29** **Sarkar, A.** and Dunson, D. B. (2024+). Bayesian semiparametric higher order hidden Markov models. (under revision) [[link to arXiv preprint](#)]
- 28** **Sarkar, A.**, Cominetti, O., Montoliu, I., Hosking, J., Pinkney, J., Martin, F. P. and Dunson, D. B. (2024+). Bayesian semiparametric inference in longitudinal metabolomics data: The EarlyBird study. (under revision)

Papers Accepted / Published

- 27** Roark, C. L., Rebaudo, G.^{*}, Paulon, G.^{**}, McHaney, J. R., **Sarkar, A.** and Chandrasekaran, B. (2024+) Individual differences in working memory impact task engagement and decision processes during speech category learning. To appear in *PLOS One*.
- 26** Mukhopadhyay, M., McHaney, J., Chandrasekaran, B. and **Sarkar, A.** (2024+). Bayesian semiparametric longitudinal inverse-probit mixed models for category learning. To appear in *Psychometrika*.
- 25** Wu, Y.^{****} and **Sarkar, A.** (2024+). BMRMM: An R package for Bayesian Markov (renewal) mixed models. To appear in the *R Journal*.
- 24** Fan, J.^{**} and **Sarkar, A.** (2024+). Bayesian semiparametric local clustering of multiple time series data. To appear in *Technometrics*. [[link](#)]
- 23** Paulon, G.^{**}, Müller, P. and **Sarkar, A.** (2024+). Bayesian semiparametric hidden Markov tensor partition models for longitudinal data with local variable selection. To appear in *Bayesian Analysis*. [[link](#)]
- 22** Wu, Y.^{****}, Jarvis, E. D. and **Sarkar, A.** (2024+). Bayesian semiparametric Markov renewal mixed models for vocalization syntax. To appear in *Biostatistics*. [[link](#)]
- 21** Quinto-Pozos, D., Joyce, T., **Sarkar, A.**, DiLeo, M. and Hou, L. (2023) L2 learners' signed language processing relates, in part, to perspective-taking skills. *Language Learning*, 73, 64-100. [[link](#)]
- 20** Chandra, N. K.^{*}, **Sarkar, A.**, de Groot, J. F., Yuan, Y. and Müller, P. (2023). A Bayesian nonparametric common atoms regression model for designing synthetic controls in clinical trials. *Journal of the American Statistical Association, Applications and Case Studies*, 118, 2301-2314. [[link](#)] [[ISBA Biostats and Pharma Junior Researcher Award 2023 for Chandra, N.K.](#)]
- 19** Müller, P., Chandra, N. K.^{*} and **Sarkar, A.** (2023). Bayesian approaches to include real world data in clinical studies. *Philosophical Transactions of the Royal Society A*, 381: 20220158. [[link](#)]
- 18** Roy, A. and **Sarkar, A.** (2023). Bayesian semiparametric multivariate density deconvolution via stochastic rotation of replicates. *Computational Statistics & Data Analysis*, 182: 107706. [[link](#)]
- 17** **Sarkar, A.** (2022). Bayesian semiparametric covariate informed multivariate density deconvolution. *Journal of Computational and Graphical Statistics*, 31, 1153–1163. [[link](#)]
- 16** Roark, C. L., Paulon, G.^{**}, **Sarkar, A.** and Chandrasekaran, B. (2021). Comparing artificial perceptual category learning across modalities in the same individuals. *Psychonomic Bulletin & Review*, 28, 898-909. [[link](#)]
- 15** Wang, H., Asefa, T., and **Sarkar, A.** (2021). A novel non-homogeneous hidden Markov model for simulating and predicting monthly rainfall. *Theoretical and Applied Climatology*, 143, 627-638. [[link](#)]
- 14** Paulon, G.^{**}, Llanos, F., G., Chandrasekaran, B. and **Sarkar, A.** (2021). Bayesian semiparametric longitudinal drift-diffusion mixed models for tone learning in adults. *Journal of the American Statistical Association, Applications and Case Studies*, 116, 1114-1127. [[link](#)] [[Mitchell Prize 2020](#), “awarded

in recognition of an outstanding paper that describes how a Bayesian analysis has solved an important applied problem”] [\[SBSS Student Paper Award 2021 for Paulon, G.\]](#) [\[UT-Austin CNS research highlight\]](#) [\[The Texas Scientist\]](#)

- 13** Sarkar, A., Pati, D., Mallick, B.K. and Carroll, R. J. (2021). Bayesian copula density deconvolution for zero-inflated data in nutritional epidemiology. *Journal of the American Statistical Association, Applications and Case Studies*, 116, 1075-1087. [\[link\]](#)
- 12** Ebeid, I. A.****, Bhattacharya, N., Gwizdka, J. and **Sarkar, A.** (2019). Analyzing gaze transition behavior using Bayesian mixed effects Markov models. *Proceedings of the 11th ACM Symposium on Eye Tracking Research & Applications*. [\[Best Short Paper Award\]](#) [\[One of two short papers selected for oral presentation\]](#)
- 11** Paulon, G.**, Reetzke, R., Chandrasekaran, B. and **Sarkar, A.** (2019). Functional logistic mixed effects models for learning curves from longitudinal binary data. *Journal of Speech, Language and Hearing Research*, 62, 543-553. [special issue with focus on improving statistical practices in speech, language and hearing sciences]. [\[link\]](#) [\[selected by the American Speech-Language-Hearing Association \(ASHA\) to be included in their 2020 Journal Self-Study Program that allows ASHA members to earn education credits reading current research\]](#)
- 10** Zoh, R., **Sarkar, A.**, Carroll, R. J. and Mallick, B.K. (2018). A powerful Bayesian test for equality of means in high dimensions. *Journal of the American Statistical Association, Theory and Methods*, 113, 1733-1741. [\[link\]](#)
- 9** **Sarkar, A.**, Chabout, J., Macopson, J. J., Jarvis, E. D. and Dunson, D. B. (2018). Bayesian semiparametric mixed effects Markov models with application to vocalization syntax. *Journal of the American Statistical Association, Applications and Case Studies*, 113, 1515-1527. [\[link\]](#) [\[Mitchell Prize 2018, “awarded in recognition of an outstanding paper that describes how a Bayesian analysis has solved an important applied problem”\]](#) [\[The Daily Texan\]](#)
- 8** **Sarkar, A.**, Pati, D., Chakraborty, A., Mallick, B.K. and Carroll, R. J. (2018). Bayesian semiparametric multivariate density deconvolution. *Journal of the American Statistical Association, Theory and Methods*, 113, 401-416. [\[link\]](#)
- 7** Chakraborty, M., Chen, L.-F., Fridel, E. E., 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. *Scientific Reports*, 7, 1-18. [\[link\]](#)
- 6** **Sarkar, A.** and Dunson, D. B. (2016). Bayesian nonparametric modeling of higher order Markov chains. *Journal of the American Statistical Association, Theory and Methods*, 111, 1791-1803. [\[link\]](#)
- 5** Chabout, J., **Sarkar, A.**[†], Patel, S.[†], Radden, 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. [\[link\]](#) [\[Duke press release\]](#) [\[News articles and blog posts\]](#)
- 4** Zhang, L., **Sarkar, A.**, and Mallick, B. K. (2016). Bayesian sparse covariance decomposition with graphical structure. *Statistics and Computing*, 26, 493-510. [\[link\]](#)
- 3** 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. [\[link\]](#) [\[Duke press release\]](#) [\[News articles and blog posts\]](#)
- 2** **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. [\[link\]](#) [\[IISA Student Paper Award 2014\]](#)
- 1** **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. [\[link\]](#) [\[SBSS Student Paper Award 2013\]](#)

SOFTWARE PRODUCTS

Software implementing our research is always made publicly available through online supplementary materials on journal websites. Other software products released or published separately are listed here.

Software Published

2. R package BMRMM:

2022

Implements flexible Bayesian Markov (renewal) mixed models to analyze categorical sequences (and associated state duration times or inter-state intervals).

Main developer: Yutong Wu**** [\[link to paper 1\]](#) [\[link to paper 2\]](#) [\[link to the package on CRAN\]](#)

1. R package lddmm: 2022
Implements a flexible Bayesian longitudinal drift-diffusion mixed model for category learning to analyze response accuracies and associated (censored) response times.
Main developer: Giorgio Paulon** [\[link to the paper\]](#) [\[link to the package on CRAN\]](#)

STUDENTS AND POSTDOCS

SDS Postdoctoral Mentees

- Dr. Giovanni Rebaudo (Co-Mentor Dr. Peter Müller), 2020-23
 - First position after postdoctoral tenure: Assistant Professor, The University of Turin, Italy
- Dr. Noirit Kiran Chandra (Co-Mentor Dr. Peter Müller), 2020-22
 - First position after postdoctoral tenure: Assistant Professor, The University of Texas at Dallas, USA

SDS Doctoral Student Advisees

- Blake Moya, 2020-25
- Jingjing Fan, 2018-23
 - Thesis title: Bayesian semiparametric methods for complex longitudinal and time series systems.
 - First position after graduation: Data Scientist, Theta, San Diego, California, USA
- Giorgio Paulon (Co-Advisor Dr. Peter Müller), 2016-21
 - Thesis title: Bayesian semiparametric methods for complex longitudinal and survival data
 - First position after graduation: Statistical Scientist, Berry Consultants, Austin, Texas, USA

SDS Doctoral Student Mentees

- Amber Day, 2021-22

SDS Undergraduate Student Mentees

- Berkeley Ho, 2023-present
- Vijetha Ramdas, 2023-present

SDS Doctoral Student Committees

- Michael R Schwob (primary advisor Dr. Mevin Hooten), 2020-24
- Qiaohui Lin (primary advisors Dr. Purnamitra Sarkar and Dr. Peter Mueller), 2018-22
- Zengquing (Vera) Liu (primary advisor Dr. Peter Müller), 2018-22
- Yuguang Yue (primary advisor Dr. Mingyuan Zhou), 2018-21
- Su Chen (primary advisor Dr. Stephen Walker), 2017-20

Non-SDS Doctoral Student Mentees

- Yutong Wu, Operations Research and Industrial Engineering, 2019-2023
- Islam Akef Ebeid, School of Information, 2018-2020

Non-SDS Undergraduate Student Mentees

- Micaela Broselow, 2019-2020

TEACHING

The University of Texas at Austin, Texas, USA

- **Statistics and Data Sciences**

SDS 383C: Statistical Modeling I (SDS Ph.D. Program Core Course)	Fall 2018,19,20,21,22
SDS 315: Statistical Thinking (SDS Undergraduate Major Core Course)	Spring 23,24
SDS 328M: Biostatistics (Undergraduate Level General Course)	Spring 2018,19,20
• Summer Statistics Institute	
Statistical Methods for Categorical Data: Logistic Regression and Beyond	Summer 2019,21
Duke University , Durham, North Carolina, USA	
• Guest Lecturer (Primary Instructor: Dr. David B. Dunson)	
STA 531: Advanced Stochastic Modeling (Graduate Level)	Spring 2017
Texas A&M University , College Station, Texas, USA	
• Course Instructor	
STAT 302: Statistical Methods (Undergraduate Level)	Summer I & II 2013
• Teaching Assistant	
STAT 608: Regression Analysis (Graduate Level)	Summer 2014
STAT 642: Design of Experiments (Graduate Level)	Summer 2014
STAT 651: Statistics in Research (Graduate Level)	Spring 2013
STAT 302: Statistical Methods (Undergraduate Level)	Fall 2011

PROFESSIONAL MEMBERSHIPS

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

PROFESSIONAL ACTIVITIES AND SERVICES

- Colloquium Committee Chair, *Statistics and Data Sciences*, the University of Texas at Austin, 2022-23.
- Secretary/Treasurer for the *American Statistical Association (ASA) Section on Bayesian Statistical Science (SBSS)*, 2023-24.
- Grant reviewer for the *National Science Foundation (NSF)* (ad hoc and panel).
- Manuscript reviewer for Bayesian Analysis (BA); Biometrics; Biostatistics; Electronic Journal of Statistics (EJS); Environmental Health Perspectives (EHP); International Conference on Machine Learning (ICML); Methods in Ecology and Evolution; Metrika; Neural Information Processing Systems (NIPS); Journal of the American Statistical Association (JASA); Journal of Computational and Graphical Statistics (JCGS); Journal of Econometrics (JE); Journal of Machine Learning Research (JMLR); Journal of Speech, Language, and Hearing Research (JSLHR); PLOS One; Sankhya; Statistics and Computing; Statistical Methods in Medical Research; Statistical Science (StatSci); Statistics in Medicine; Statistics and Probability Letters; Technometrics.
- Paper competition and other professional award reviewer.
 - International Society for Bayesian Analysis (ISBA) Mitchell Prize Committee Chair, 2023.
 - International Society for Bayesian Analysis (ISBA) Blackwell-Rosenbluth Award, 2022.
 - Student Paper Competition for Section on Bayesian Statistical Science (SBSS) of the American Statistical Association (ASA), 2016 and 2019.
 - American Statistical Association (ASA) Biometrics Section Byar Award, 2018.
- Liaison between *Statistics and Data Sciences*, the University of Texas at Austin, and the *National Institute of Statistical Sciences (NISS)*, 2020-Present.
- Computing Committee, *Statistics and Data Sciences*, the University of Texas at Austin, 2021-22.
- Ph.D. Admissions Committee, *Statistics and Data Sciences*, The University of Texas at Austin, 2022, 24.
- Colloquium Chair, *Statistics and Data Sciences*, the University of Texas at Austin, 2018-20.
- Treasurer for *Statistics Graduate Students' Association (SGSA)*, Texas A&M University, 2013-14.

PRESENTATIONS

- Bayesian semiparametric covariate informed density deconvolution
 - Joint Statistical Meeting, Toronto, Canada, August 2023.
 - Annual Conference of the International Indian Statistical Association (IISA), Golden, Colorado, USA, June 2023.
- Bayesian semiparametric local inference in longitudinal drift-diffusion mixed models for tone learning in adults (and other related problems)
 - Department of Statistics and Data Science, National University of Singapore, November 2022. (presented remotely)
 - Department of Statistics, Texas A&M University, College Station, USA, September 2022.
 - Department of Statistics, Bocconi University, Milan, Italy, October 2020. (presented remotely)
- Bayesian semiparametric hidden Markov tensor partition models for longitudinal data with local variable selection / Bayesian semiparametric longitudinal functional mixed models with locally informative predictors.
 - Annual Conference of the International Indian Statistical Association (IISA), Bangalore, India, December 2022. (presented video recording)
 - Annual Conference of the International Chinese Statistical Association, Gainesville, USA, June 2022.
 - Eastern North American Region (ENAR) International Biometric Society (IBS) Conference, Houston, USA, March 2022. (presented remotely)
 - CMStatistics, London, UK, December 2021. (presented remotely)
 - Annual Conference of the International Indian Statistical Association (IISA), Chicago, USA, May 2021. (presented remotely)
- Bayesian semiparametric longitudinal drift-diffusion mixed models for tone learning in adults.
 - Annual Conference of the International Society for Bayesian Analysis, Kunming, China, June 2021. (presented remotely)
 - CMStatistics, London, UK, December 2020. (presented remotely)
 - Annual Conference of the International Indian Statistical Association (IISA), Mumbai, India, December 2019.
 - Data Science Conference, Texas A&M University, College Station, Texas, USA, September 2019.
 - Joint Statistical Meetings, Denver, Colorado, USA, August 2019.
- Bayesian semiparametric higher order hidden Markov models.
 - Annual Conference of the International Biometric Society (IBS), Seoul, Korea (presented remotely), August 2020.
- Bayesian semiparametric covariate informed density deconvolution.
 - Joint Statistical Meeting, Philadelphia, PA, USA (presented remotely), August 2020.
- Bayesian semiparametric approaches to density deconvolution problems - my journey so far.
 - American Statistical Association Austin Chapter, Texas, USA, February 2020.
- Bayesian copula density deconvolution for zero-inflated data in nutritional epidemiology.
 - Conference of Texas Statisticians, Lamar University, Beaumont, Texas, USA, April 2019.
- Novel statistical frameworks for analysis of structured sequential data - higher order Markov and hidden Markov models and mixed Markov models.
 - Department of Management Science and Statistics, University of Texas at San Antonio, USA, October 2018.
- Novel statistical frameworks for analysis of structured sequential data - higher order hidden Markov models.

- Junior Research in Bayesian nonparametric modeling of complex or unknown populations, Joint Statistical Meeting, Vancouver, British Columbia, Canada, August 2018.
- Bayesian semiparametric modeling of high-dimensional longitudinal metabolomics data.
 - Annual Conference of the International Indian Statistical Association (IISA), Gainesville, Florida, May 2018.
- Bayesian semiparametric mixed effects Markov models.
 - Annual Conference of the International Chinese Statistical Association Applied Statistics Symposium, Chicago, Illinois, USA, June 2017.
- Novel statistical frameworks for analysis of structured sequential data - higher order Markov models and mixed effects Markov models.
 - Department of Biostatistics, University of Michigan, Ann Arbor, USA, February 2017.
 - Department of Statistics and Data Sciences, University of Texas at Austin, USA, January 2017.
 - Department of Statistics, University of Florida, Gainesville, USA, January 2017.
 - Department of Statistics, University of Michigan, Ann Arbor, USA, January 2017.
 - Department of Biostatistics, University of Texas MD Anderson Cancer Center, Houston, USA, November 2016.
- Novel statistical frameworks for analysis of structured sequential data - higher order Markov and hidden Markov models.
 - Department of Biostatistics, University of Wisconsin, Madison, USA, February 2016.
 - Department of Biostatistics, Johns Hopkins University, Baltimore, Maryland, USA, February 2016.
 - Department of Statistics, University of Georgia, Athens, USA, February 2016.
 - Department of Statistics, University of Illinois at Urbana-Champaign, USA, February 2016.
 - Department of Statistics, Florida State University, Tallahassee, USA, January 2016.
- Bayesian nonparametric methods for structured sequential data.
 - American Statistical Association (ASA) Nonparametric Statistics Workshop, University of Michigan, Ann Arbor, USA, October 2016.
- Bayesian nonparametric modeling of higher order Markov chains.
 - Annual Conference of the International Chinese Statistical Association Applied Statistics Symposium, Atlanta, Georgia, USA, June 2016.
- 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.
- 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 semiparametric regression in the presence of conditionally heteroscedastic measurement and regression errors. (Contributed Talk)
 - Annual Conference of the International Indian Statistical Association (IISA), Riverside, California, USA, July 2014.
- 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 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.