DEBDEEP PATI

Contact Information

Department of Statistics
Texas A&M University
401C Blocker Building
3143 TAMU, 155 Ireland St
College Station, TX 77843, USA

Phone: (979) 845-3141
Fax: (979) 845-3144
Website: www.stat.tamu.edu/∼debdeep
E-mail: debdeep@stat.tamu.edu/
debdeep@tamu.edu

Education and Training

Duke University, Durham, North Carolina, USA

Ph.D., Department of Statistical Science (05/15/2012)

- Thesis Topic: Bayesian nonparametric modeling and theory for complex data
- Advisor: Professor David B. Dunson
- Area of Study: Nonparametric Bayes

Master of Science, Department of Statistical Science, (12/05/2010)

- Thesis Topic: Bayesian nonparametric regression with varying residual density
- Advisor: Professor David B. Dunson
- Area of Study: Nonparametric Bayes

Indian Statistical Institute, Kolkata, West Bengal, India

Master of Statistics, Department of Statistics, (06/15/2008)

- First Division with Distinction
- Specialization: Mathematical Statistics and Probability

Bachelor of Statistics, Department of Statistics, (06/15/2006)

- First Division with Distinction
- Project Topic: Nonparametric inequality measure based on ranks

Professional Experience

Professor, Department of Statistics, Texas A&M University, College Station, Texas, USA
09/01/2022 to Present

Director of PhD program, Department of Statistics, Texas A&M University, College Station, Texas, USA
09/01/2021 to present

Associate Professor, Department of Statistics, Texas A&M University, College Station, Texas, USA
09/01/2017 to 08/31/2022

Assistant Professor, Department of Statistics, Florida State University, Tallahassee, Florida, USA
07/18/2012 to 07/07/2017

Awards and Honors

A National and International

International Indian Statistical Association

- Young Researcher Award in the theory and methods category, 2018

International Society for Bayesian Analysis
- Honorable mention for the Leonard J. Savage Award for outstanding dissertation in Bayesian statistical theory and methods, 2013

The American Statistical Association
- Student paper competition award, Section on Bayesian Statistical Science (SBSS), 2012

International Biometric Society
- Distinguished student paper award, International Biometric Society (ENAR), 2010

International Society for Bayesian Analysis
- Finalist for the ISBA 10 / Valencia 9 Student Video Competition, Benidorm, Spain (June 2010)

B Competitive travel awards

National Science Foundation
- NSF travel award for participating in International Society for Bayesian Analysis (ISBA) World Meetings, Benidorm, Spain (June 2010)
- Travel Award for attending NSF workshop on high-dimensional theory, methods and applications, Yale University, 2012
- Travel Award for attending 9th Workshop in Bayesian nonparametrics, Amsterdam, The Netherlands, 2013
- Travel Award for attending ISBA, 2014, Cancun, Mexico
- Travel Award for attending 10th Workshop in Bayesian nonparametrics 2015, Raleigh, NC, USA
- Travel Award to participate in the Mathematics Research Communities (MRC) conference on Algebraic Statistics, 2016, Snowbird, Utah

C Miscellaneous

Indian Statistical Institute, Kolkata
- University Scholarship, 2003-2008
- Prizes for good performances in various semesters, 2003-2008

Jagadis Bose National Science Talent Search
- JBNSTS Senior Scholarship, 2003-2008

West Bengal Board of Higher Education
- Stood 32^{nd} in West Bengal Board of Secondary Education out of 600000 students
- Stood 32^{nd} in Joint Entrance Examination out of 100000 students
- Stood 4^{th} in West Bengal Council for Higher Secondary Education out of 400000 students

Research Interests

Bayes theory and methods in high dimensions; Approximate Bayesian methods; high dimensional network analysis, Bayesian graphical models, efficient Bayesian computation, hierarchical modeling of complex shapes, point pattern data modeling, real-time tracking algorithms, fair algorithms.

Published Journal Articles

Convention: Mentored PhD Students / postdocs: Publications marked with $\star \rightarrow$ PhD student, $\star\star \rightarrow$ Postdoc

(J1) **Pati D.**, Reich B.J. and Dunson D.B. (2011). Bayesian geostatistical modeling with informative sampling locations. *Biometrika* **98** (1): 35-48. Winner of the ENAR Distinguished student paper award.

(J2) **Pati D.**, Dunson D.B and S.T. Tokdar (2013). Posterior consistency in conditional distribution estimation. *Journal of Multivariate Analysis*, **116**: 456-472.

(J3) **Pati D.** and Dunson, D.B. (2014). Bayesian nonparametric regression with varying residual density. *The Annals of the Institute of Statistical Mathematics*, **66** (1): 1-31.

(J4) Bhattacharya A., **Pati D.** and Dunson D.B. (2014) Anisotropic function estimation using multi-bandwidth Gaussian processes. *The Annals of Statistics*, **32** (1): 352-381.

(J5) **Pati D.**, Bhattacharya A., Pillai N.S. and Dunson D.B. (2014) Posterior contraction in sparse Bayesian factor models for massive covariance matrices.*The Annals of Statistics*, **42** (3): 1102-1130.

(J6) Sarkar A.*, Mallick B., Staudenmayer J., **Pati D.**, Carroll R.J. (2014) Bayesian Semiparametric Density Deconvolution in the Presence of Conditionally Heteroscedastic Measurement Errors. Winner of the SBSS student paper award. *Journal of Computational and Graphical Statistics*, **23** (4): 1101-1125.

(J7) Cervone D.*, Pillai N.S., **Pati D.**, Berbecko R. and Lewis J.H. (2014) A location-mixture autoregressive model for online forecasting of lung-tumor motion. *The Annals of Applied Statistics*, **8** (3): 1341-1371.

(J8) Gu K.*, **Pati D.** and Dunson D.B. (2014) Bayesian multiscale modeling of closed curves in point clouds. *Journal of the American Statistical Association*, **109** (508): 1481-1494.

(J9) Bhattacharya A., **Pati D.**, Pillai N.S. and Dunson D.B. (2015) Dirichlet Laplace priors for optimal shrinkage. *Journal of the American Statistical Association*, **110** (512): 1479-1489. (See BLOG entry: Gelman, A. (2013). Infill asymptotics and sprawl asymptotics. Statistical Modeling, Causal Inference, and Social Science).

(J10) Tang Y.*, Sinha D., **Pati D.**, Lipsitz S.R., Lipshultz S. (2015) Bayesian partial linear model for skewed longitudinal data. Winner of the ENAR Distinguished student paper award in 2013. *Biostatistics*, **16** (3): 441-453.

(J11) Zhang Z.*, **Pati D.**, Srivastava A. (2015) Bayesian clustering of shapes of curves. *Journal of Statistical Planning and Inference*, 166: 171-186.

(J12) **Pati D.**, Bhattacharya A. (2015) Adaptive Bayesian inference in the Gaussian sequence model using exponential-variance priors. *Statistics & Probability Letters*, **103**, 100 -104.

(J13) **Pati D.**, Bhattacharya A., Cheng G. (2015) Optimal Bayesian estimation in random covariate design with a rescaled Gaussian process prior. *The Journal of Machine Learning Research*, **16**, 2837-2851.

(J14) Bhattacharya A., **Pati D.**, Pillai N.S. and Dunson D.B. (2016) Sub-optimality of some continuous shrinkage priors. *Stochastic Processes and their Applications*, **126**(12): 3828–3842. (Invited paper in memoriam: Evarist Giné)

(J15) Li H.*, **Pati D.** (2017) Variable selection using shrinkage priors. *Computational Statistics & Data Analysis*, **107**, 107–119.

(J16) Norets A., **Pati D.** (2017) Adaptive Bayesian estimation of conditional densities. *Econometric Theory* **33**, 980-1012.

(J17) Bhattacharya A., **Pati D.** (2017) Posterior contraction in Gaussian process regression using Wasserstein approximations. *Information and Inference*, **6**, 416–440.

(J18) Vo G.*, **Pati D.** (2017) Sparse additive Gaussian process with soft interactions. Open Journal of Statistics, **7**, 567-588.

(J19) Sarkar A.*, **Pati D.**, Chakrabarty A., Mallick B., Carroll R.J. (2018) Bayesian semiparametric multivariate density deconvolution. *Journal of the American Statistical Association*. **113**, (521) 401–416.

(J20) Sabnis G.*, **Pati D.**, Bhattacharya A. (2018) Compressed covariance estimation with automated dimension learning. *Sankhya (Series A)*, to appear. [DOI]

(J21) Bhingare A.*, Sinha D., **Pati D.**, Bandyopadhyay, D., Lipsitz S.R. (2018) Semiparametric Bayesian latent variable regression for skewed multivariate data Winner of ENAR distinguished student paper award and SBSS student paper competition. *Biometrics*. [DOI]

(J22) Geng J.*, Bhattacharya A., **Pati D.** (2019) Probabilistic community detection with unknown number of communities. *Journal of the American Statistical Association*. **114**, (526) 893–905.

(J23) Bhattacharya A., **Pati D.**, Yang Y (2019) Bayesian fractional posteriors. *The Annals of Statistics*, **47** (1): 39-66. (*Author names in alphabetical order*)

(J24) Dasgupta S.*, **Pati D.**, Srivastava A. (2019) Bayesian Shape-Constrained Density Estimation, *Quarterly of Applied Mathematics*. [Link]

(J25) Dasgupta S.*, **Pati D.**, Srivastava A. (2019) A two-step geometric framework for density modeling. [Link], *Statistica Sinica*, to appear.

(J26) Zhou, S.*, Giuliani, P.*, Piekarewicz, J., Bhattacharya A., Pati, D. (2019) Reexamining the proton-radius problem using constrained Gaussian processes. Winner of SETCASA Poster competition 2019 Second prize. [Link], *Physical Review C*, **99** (5): 055202

(J27) Dhara K.*, **Pati D.**, Sinha D., Lipsitz S.R. (2019) A New Bayesian Single Index Model with or without Covariates Missing at Random, [Link], *Bayesian Analysis*, to appear.

(J28) Mukherjee T., Kumar P., **Pati D.**, Blasch E., Pasiliao E., Xu L. (2019) Large scale FM signal strength map estimation for passive approximate localization. **2** (4): 319–348. *IEEE Journal of Big data mining and analytics*, to appear. [Link]

(J29) Ghosh P**., **Pati D.**, Bhattacharya A. (2019) Optimal Bayesian estimation in stochastic block models. [Link], *Sankhya Series A*, (invited for special volume in honor of Prof. J.K. Ghosh) to appear.

(J30) Ray, P.*, **Pati, D.**, Bhattacharya A. (2020) Efficient Bayesian shape-restricted function estimation with constrained Gaussian process priors. [Link] Winner of SETCASA Poster competition 2019 First prize. *Statistics and Computing*, **30**: 839–853.

(J31) Yang Y., **Pati D.**, Bhattacharya A. (2020) α-Variational inference with statistical guarantees. [Link], *The Annals of Statistics*, **48**, (2) 886–905.

(J32) Sarkar A., **Pati D.**, Mallick B., Carroll R.J. (2020) Bayesian Copula Density Deconvolution for Zero-Inflated Data with Applications in Nutritional Epidemiology. *Journal of the American Statistical Association, to appear*. [Link]

(J33) Olivier Binette*, **Pati D.** and Dunson D.B. (2020) Bayesian fitting of closed surfaces through tensor products, *The Journal of Machine Learning Research*, **21**, (119) 1–26. [Link]

(J34) Plummer S.*, **Pati D.**, Bhattacharya A. (2020) Dynamics of coordinate ascent variational inference: A case study in 2D Ising models. *Entropy* **22**, (11), 1263. [Link]

(J35) Dasgupta S.*, **Pati D.**, Jermyn, I. Srivastava A. (2020) Modality-Constrained Density Estimation via Deformable Templates. *Technometrics, to appear.* [Link]

(J36) Niu Y.*, **Pati D.**, Mallick, B. (2021) Bayesian Graph Selection Consistency Under Model Misspecification. *Bernoulli*. **27**, (1), 637–672. Winner of SETCASA Poster competition 2019 Second prize. [Link]

(J37) Lim Y., Bhattacharya A., Holt J. W., **Pati D.** (2021) Revisiting constraints on the maximum neutron star mass in light of GW190814. *Letter in Physical Review C, to appear.* [Arxiv]

(J38) Lei B., Tanner Q. K., Bhattacharya A., **Pati D.**, Qian X., Arroyave R., Mallick B.K. (2021) Bayesian Optimization with Adaptive Surrogate Models for Automated Experimental Design. *Nature Computational Materials, to appear.*

(J39) Bandyopadhyay D., Hilden P., **Pati D.**, Fernandes J., Russell S. L., Fellows J. L., Nagarajan R. (2021). Correlated tooth-level caries status in a Type-2 diabetic Gullah population, *Modern Approaches in Dentistry and Oral Health Care, to appear*.

(J40) Ghosh I.*, Bhattacharya A., **Pati D.** (2022) Statistical optimality and stability of tangent transform algorithms in logit models. [Arxiv], *Journal of Machine Learning Research, to appear*.

(J41) Zhou S*., Ray P., **Pati D.**, Bhattacharya A. (2022) Mass-shifting phenomenon of truncated multivariate normal priors, [Arxiv], *Journal of the American Statistical Association, to appear*.

(J42) Acharyya S.*, Zhang Z., Bhattacharya A., **Pati D.** (2022) Bayesian Hierarchical Modeling on Covariance Valued Data. Winner of SBSS student paper competition. [Arxiv], *Stat, to appear*

(J43) Zhou S.*, Wang T. **Pati D.**, Yang Y., Carroll R.J. (2023) Gaussian processes with Error in Variables: Theory and Computation. [Arxiv], *Journal of Machine Learning Research, to appear*.

(J44) Acharyya S.*, **Pati D.**, Bandyopadhyay D., Sun S (2023) A monotone single index model for missing-at-random longitudinal proportion data, *Journal of Applied Statistics, to appear*.

(J45) Niu Y.*, Ni Y., **Pati D.**, Mallick B.K. (2023) Covariate-Assisted Bayesian Graph Learning for Heterogeneous Data, *Journal of the American Statistical Association, to appear*.

(J46) Karwa V., **Pati D.**, Petrović S., Solus L. et al (2023) Exact tests for stochastic block models. [Arxiv], *Journal of Royal Statistical Society, Series B, to appear*.

PEER REVIEWED CONFERENCE PUBLICATIONS

(C1) Miratrix L. Feller, A. Pillai N. **Pati, D.** (2016) Using Dirichlet Processes for Modeling Heterogeneous Treatment Effects across Sites. Society for Research on Educational Effectiveness.

(C2) Dasgupta S.* **Pati D.**, Jermyn I, Srivastava S. (2018) Shape-Constrained and Unconstrained Density Estimation Using Geometric Exploration, 2018 IEEE Statistical Signal Processing Workshop (SSP), to appear.

(C3) **Pati D.**, Bhattacharya A., Yang Y (2018) On statistical optimality of Variational Bayes. Proceedings of the Twenty-First International Conference on Artificial Intelligence and Statistics (AISTATS), 1579–1588. [link]

(C4) Plummer S.*, Zhou S., Bhattacharya A., Dunson D.B., **Pati D.** (2021) Statistical Guarantees for Transformation Based Models with applications to Implicit Variational Inference. AISTATS 2021, to appear. [Arxiv]

(C5) Chuu E.*, **Pati D.**, Bhattacharya A. (2021) A Hybrid Approximation to the Marginal Likelihood. AISTATS 2021, to appear.

(C6) Guha B.*, Bhattacharya A., **Pati D.** (2021) Statistical Guarantees and Algorithmic Convergence Issues of Variational Boosting, IEEE-ICTAI [Arxiv]

(C7) Wang H.*, Bhattacharya A., Yang Y., **Pati D.** (2022) Structured Variational Inference in Bayesian State-Space Models. AISTATS 2022, to appear.

MANUSCRIPTS SUBMITTED / UNDER REVISION

(R1) Yang Y., **Pati D.** (2018+) Bayesian model selection consistency and oracle inequality with intractable marginal likelihood. [Arxiv]

(R2) Yang Y., Bhattacharya A., **Pati D.** (2018+) Frequentist coverage and sup-norm convergence rate in Gaussian process regression. [Arxiv]

(R3) Bhattacharya A., **Pati D.** (2020+) Nonasymptotic Laplace approximation under model misspecification. [Arxiv]

(R4) Dhara K.*, Hupf B.*, Hajcak G., **Pati D.**, Sinha D. (2020+) Frequentist and Bayesian Analysis of Monotone Single-Index Models.

(R5) Bhattacharya A., **Pati D.**, Plummer S.*, (2020+) Evidence bounds in singular models: probabilistic and variational perspectives. [Arxiv]

(R6) Guha B.*, **Pati D.**, (2021+) Adaptive posterior convergence in sparse high dimensional clipped generalized linear models. [Arxiv]

(R7) Lee S., Zhao P.**, **Pati D.**, Mallick B.K. (2021+) Tail adaptive Bayesian shrinkage. [Arxiv]

(R8) Zhao P.**, Bhattacharya A., **Pati D.**, Mallick B.K. (2022+) Structured Optimal Variational Inference for Dynamic Latent Space Models. [Arxiv]

(R9) Chuu E.*, Niu Y. **, Bhattacharya A, **Pati D.** (2022+) EPSOM-Hyb: a general purpose estimator of log-marginal likelihoods with applications to probabilistic graphical models.

(R10) Helwig J.*, Dasgupta S. **, Zhao P.**, Mallick B.K., **Pati D.** (2023) covdepGE: a Covariate-Dependent Approach to Gaussian Graphical Modeling in R.

(R11) Dasgupta S.*, Zhao P., Ghosh P., **Pati D.**, Mallick B.K. (2023) An approximate Bayesian approach to covariate dependent graphical modeling. [Arxiv]

(R12) Chakraborty A.*, Bhattacharya A., **Pati D.** (2023) Robust probabilistic inference via a constrained transport metric. [Arxiv]

(R13) Das S*, Niu Y.*, Ni Y., Mallick B.K, **Pati D.** (2023) Blocked Gibbs sampler for hierarchical Dirichlet processes.[Arxiv]

(R14) Chakraborty A.*, Bhattacharya A., **Pati D.** (2023) Fair Clustering via Hierarchical Fair-Dirichlet Processs.[Arxiv]

(R15) Bhattacharya A., **Pati D.**, Yang Y. (2023) On the Convergence of Coordinate Ascent Variational Inference. [Arxiv]

(R16) Jacob P.M., Patel L., Bhattacharya A., **Pati D.** (2023) Memory Efficient And Minimax Distribution Estimation Under Wasserstein Distance Using Bayesian Histograms. [Arxiv]

PREPRINTS

(P1) Wang L.*, Tang Y.*, Sinha D., **Pati D.**, Lipsitz S.R. (2018+) Bayesian Variable Selection for Skewed Heteroscedastic Response. [Arxiv] Winner of ENAR distinguished student paper award.

(P2) Sabnis G.*, **Pati D.**, Engelhardt B., Pillai N.S. (2018+) A divide and conquer strategy for high dimensional Bayesian factor models. [Arxiv]

(P3) Dasgupta S.**, Niu Y**., Badrinath K.P., Kalathil D., **Pati D.**, Mallick B.K. (2021+) [Arxiv] Off-Policy Evaluation Using Information Borrowing and Context-Based Switching.

INVITED BOOK CHAPTERS

(BC1) Recent theoretical advances with the discrete spike-and-slab priors, contributed by Zhou S. & **Pati D.** in Bayesian Variable Selection, with Chapman & Hall/CRC.

(BC2) Bayesian shape clustering, contributed by **Pati D.** in Nonparametric Bayesian Inference in Biostatistics and Bioinformatics, 57-76, edited by Mitra, R. and Müller, P., Springer-Verlag.

OPEN SOURCE SOFTWARES

(BC1) Helwig J.*, Dasgupta S. **, Zhao P.**, Mallick B.K., **Pati D.** (2022+) covdepGE: Covariate Dependent Graph Estimation, https://cran.r-project.org/web/packages/covdepGE/index.html.

(BC2) Refer to my github page https://github.com/debdeeptamu.

FUNDING

A Ongoing grants

(G1) NTESS, LLC - National Technology & Engineering Solutions of Sandia, (PI: Debdeep Pati, co-PI: Anirban Bhattacharya), $221,628, 05/01/2023 - 9/30/2024, Fast statistical learning of anomalous behavior on streaming data, Effort: Dr. Pati - 1 month (Year 1), 2 months (Year 2).

(G2) NIH 1R21DE031879-01A1, (PI: Dipankar Bandyopadhyay, co-I : Debdeep Pati), $174,115, 09/1/22-08/31/24, pragmatic risk index evaluating the elderly with comorbidity for oral health event times, Effort: Dr. Pati - 1 month

(G3) NIH 1R01DE031134-01A1 (PI: Dipankar Bandyopadhyay, co-PI (MPI): Debdeep Pati), $2,060,431, 09/1/22-08/31/26, Sex/Gender influences on periodontal disease and diabetes: A population science approach, with software, Effort: Dr. Pati - 1.5 months

(G4) NSF-DMS 2210689, (PI: Anirban Bhattacharya, co-PI: Debdeep Pati), $ 199, 338, Collaborative Research: Theoretical and Algorithmic Foundations of Variational Bayesian Inference, Effort: Dr. Pati - 0.25, 0.75, 1 months.

B Completed Grants

(G6) NSF CCF 1934904 (PI: Bani Mallick, Senior Personnel: Debdeep Pati), $1,416,522, 11/1/19-10/31/21, HDR Tripods: Texas A&M Research Institute for Interdisciplinary Foundations of DATA Science (TRIFECDAS), Effort: Dr. Pati - 0%.

(G7) NSF DMS - CDS&E-MSS PD 18-8069 (PI: Debdeep Pati, co-PI: Anirban Bhattacharya), $279,330. 06/14/2019-06/30/2023, Enhanced statistical learning of physical systems exploiting non-standard constraints. Effort: Dr. Pati - Effort: Dr. Pati - 1, 2, 1 person-months.

(G8) The College of Science Strategic Transformative Research Program (STRP) for FY2020B (PI: Debdeep Pati), $53,640, 09/01/2020-08/31/2021, Understanding nuclear force using probabilistic machine learning.

(G9) NSF DMS PD 18-1269 (PI: Debdeep Pati, co-PI: Anirban Bhattacharya), $ 107,000, 08/14/2019-07/30/2022, Prior calibration and algorithmic guarantees under parameter restrictions. Effort: Dr. Pati - 0.1, 0.2, 0.2 person-months.

(G10) Texas A&M Triads for Transformation 3rd round (PI: Debdeep Pati), $32,000. 01/01/2020-12/31/2020, Probabilistic Machine Learning For Uncertainty Quantification Of Neutron Star Radius.

(G11) General Motors (PI: Theodora Chaspari, Co-PI: Debdeep Pati), $ 395,840, 09/01/21-05/31/22, Causes of Ghost Alarms in GM Paint Shops, Effort: Dr. Pati - $177,260.

(G12) NSF PD 08-1269 (PI: Debdeep Pati), $127,059, 06/30/16-6/29/20, Collaborative proposal: Scalable Bayesian methods for complex data with optimality guarantees.

(G13) Office of Naval Research (PI: Debdeep Pati), $106,835, 7/1/14-6/30/17, Bayesian shrinkage priors for high-dimensional parametric and nonparametric models.

(G14) FSU-FYAP (PI: Debdeep Pati), $20,000, 5/10/13 - 8/1/13, Bayesian shrinkage in high-dimensions: new developments

INVITED TALKS

(T1) Adaptive finite-element type decomposition of Gaussian random fields, Approximation Methods in Bayesian Analysis, Centre International de Rencontres Mathématiques, Luminy, France, June 2023

(T2) Adaptive finite-element type decomposition of Gaussian random fields, IISA 2023, Golden, CO, June 2023

(T3) Robust probabilistic inference via a constrained transport metric, Virgina Commonwealth University, April 2023 (Virtual Seminar)

(T4) Approximate Bayes inference with soft distributional constraint, Bayescomp2023, March 2023 (Virtual Seminar)

(T5) Robust probabilistic inference via a constrained transport metric, IISA 2022, December 2022 (Virtual Seminar)

(T6) An approximate Bayesian approach to covariate dependent graphical modeling, JSM 2022, August 2022, Washington DC

(T7) An approximate Bayesian approach to covariate dependent graphical modeling, CM Statistics 2021, December 2021 (Virtual Seminar)

(T8) Variational inference: recent theoretical developments, December 2021, University of Washington seminar series (Virtual Seminar)

(T9) An approximate Bayesian approach to covariate dependent graphical modeling, September 2021, ICSA, 2021 (Virtual Seminar)

(T10) Statistical and algorithmic convergence guarantees for tangent transforms, Joint Statistical meetings, May 2021, IISA, 2021 (Virtual Seminar)

(T11) Variational inference: recent theoretical developments, Ohio State University, March 2021 (Virtual seminar)

(T12) Variational inference: recent theoretical developments, Applied Probability and Risk Seminar Series, Columbia University, Feb 2021 (Virtual seminar)

(T13) Variational inference: recent theoretical developments, University of Maryland, Baltimore County, Nov 2020 (Virtual seminar)

(T14) Statistical and algorithmic convergence guarantees for tangent transforms, Joint Statistical meetings, August 2020.

(T15) Computational Aspects of Variational Inference in Ising models, BayesComp 2020, Gainesville, USA (January 2020).

(T16) Computational Aspects of Variational Inference in Ising models, IISA, Mumbai, India (December 2019).

(T17) Nonparametric Bayes model selection, JSM 2019, Denver, Colorado (July 2019)

(T18) Prior choice in constrained Bayesian inference, ISBA-EAC, Kobe, Japan (July 2019)

(T19) Prior choice in constrained Bayesian inference, Banff International Research Station for Mathematical Innovation and Discovery, (April 2019)

(T20) Coverage aspects of Gaussian processes with an application to particle Physics, Department of Statistics and Data Science, UT Austin, (October 2018)

(T21) Real-time tumor tracking using a novel mixture of auto-regressive processes, Medical College of Wisconsin, (October 2018)

(T22) Coverage aspects of Gaussian processes with an application to particle Physics, Ecosta 2018, Hong Kong, (June 2018)

(T23) Coverage aspects of Gaussian processes with an application to particle Physics, IISA 2018, Hyderabad, India (December 2017)

(T24) Bayesian community detection and goodness of fit tests in network models, ERCIM 2018, London (December 2017)

(T25) Bayesian community detection and goodness of fit tests in network models, 11th workshop on Bayesian nonparametrics, Paris, France (June 2017)

(T26) Bayesian community detection and goodness of fit tests in network models, Texas A&M University, Texas (December 2016)

(T27) Bayes theory and methods for large networks, Latent variables 2016 Conference, University of South Carolina (October 2016)

(T28) Bayesian community detection and goodness of fit tests in network models, Department of Statistics, University of South Carolina (September 2016)

(T29) Bayes theory and methods for large networks, Institute of Mathematical Statistics Asia Pacific Rim Meeting (4th IMS-APRM), Hong Kong (June 2016)

(T30) Bayes theory and methods for large networks, SRCOS 2016 Summer Research Conference, Arkansas (June 2016)

(T31) Bayes theory and methods for large networks, Bayesian Statistics Seminar, NCSU, Raleigh, NC (March 2016)

(T32) Bayesian shape clustering, IISA 2015, Pune, India (December 2015)

(T33) Bayes theory and methods for large networks, IASC-ARS 2015, Singapore (December 2015)

(T34) Default variable selection using shrinkage priors, JSM 2015, Seattle, WA (August 2015)

(T35) Real-time tumor tracking using a novel mixture of auto-regressive processes, WSC 2015, Rio de Janiero, Brazil (July 2015)

(T36) Bayesian shrinkage in high-dimensions, University of California, Berkeley, CA (February 2015)

(T37) Bayesian multi-scale modeling of closed curves in point clouds, JSM 2014 (August 2014)

(T38) Nonparametric Bayes clustering of functional data, ISBA 2014, Cancun, Mexico (July 2014)

(T39) Bayesian shrinkage in high-dimensions, IISA 2014, Riverside, California (July 2014)

(T40) Bayesian partial linear model for skewed longitudinal data, KISS/ ICSA 2014, Portland, OR (June 2014)

(T41) Bayesian shrinkage in high-dimensions, ISBIS/ SLDM 2014, Durham, NC (June 2014)

(T42) Bayesian shape clustering, Texas A&M University, College Station, Texas (March 2014)

(T43) Real-time tumor tracking using a novel mixture of auto-regressive processes, Purdue University, West Lafayette, Indianapolis (February 2014)

(T44) Nonparametric Bayes clustering of functional data, FSU Computer Science Dept, Tallahassee, Florida (November 2013)

(T45) On shrinkage priors in high dimensions, JSM 2013, Montreal, Canada (August 2013)

(T46) Posterior contraction in sparse Bayesian factor models for massive covariance matrices, ISBA Regional Meeting, Varanasi, India (January 2013)

(T47) On shrinkage priors favoring sparsity in high dimensions, Fox School of Business, Temple University, Friday Seminar, Philadelphia (October 2012)

(T48) Bayesian fitting of closed surfaces through tensor products, Joint Statistical Meetings, San Diego (August 2012)

(T49) Nonparametric Bayesian learning of low dimensional structure in higher dimensional data, Wharton Statistics Seminar, Pennsylvania (March 2012)

(T50) Nonparametric Bayesian learning of low dimensional structure in higher dimensional data, FSU Statistics Colloquium, Florida (February 2012)

(T51) Nonparametric Bayesian learning of low dimensional structure in higher dimensional data, Data Seminar, Duke University, Durham (January 2012)

(T52) Nonparametric Bayesian learning of low dimensional structure in higher dimensional data, UChicago Statistics Colloquium, Chicago (January 2012)

(T53) Nonparametric Bayesian learning of low dimensional structure in higher dimensional data, UFlorida Statistics Seminar, Florida (January 2012)

(T54) Bayesian closed surface fitting through tensor products, IISA Conference on Probability, Statistics, and Data Analysis, NCSU, Raleigh (April 2011)

(T55) Posterior consistency in conditional distribution estimation, Session on Bayesian nonparametrics, 3rd ERCIM WG Conference on Computing & Statistics, London (December 2010)

(T56) Nonparametric Bayes mean regression and conditional density estimation: theory & some applications, Carlo Alberto Stochastics Workshop, Moncalieri, Italy (June 2010)

TEACHING EXPERIENCE

- Introductory Probability I, STA4442/5440, FSU, Fall 2012, Fall 2013
- Fundamentals of Biostatistics, STA5172, FSU, Spring 2013, Spring 2014
- Nonparametric Bayes methods, STA5934, FSU, Fall 2014, Fall 2016
- Statistical Inference, STA5327, FSU, Spring 2015, Spring 2016
- Advanced Probability and Inference II, STA6448, FSU, Spring 2016
- Principles of Statistics I, STA211, TAMU, Fall 2017
- Statistical Methodology I, STA613, TAMU, Spring 2018, Spring 2019, Spring 2020, Spring 2021, Spring 2022
- Advanced Statistical Computation, STA605, TAMU, Fall 2018, Fall 2020, Fall 2021, Fall 2022
- Contraction theory for posterior distributions and their variational approximations, STAT 689 (Spring 2019, 1 credit course, co-taught with Dr. Anirban Bhattacharya)
- Advanced algorithms in Bayesian computing, STAT 695 (Fall 2019, 1 credit course)
- Undergraduate Bayesian Statistics, STAT 438 (Spring 2020, Spring 2021)
- Undergraduate Mathematical Statistics II, STAT 415 (Spring 2023)

MENTORING

A PhD student advising

A.1 Florida State University

- Yuanyuan Tang, PhD, Florida State University, (Senior Biostatistician at Elli Lily; Graduated Summer 2013), jointly co-advised with Dr. Debajyoti Sinha. Winner of R.A. Bradley Award for best dissertation in the department of statistics in 2013.
- Gautam Sabnis, Florida State University, (Biostatistician at the Jackson Laboratory, Maine; Graduated Summer 2017)
- Junxian Geng, Florida State University, (Biostatistician at Boehringer Eingelheim; Graduated Summer 2017), co-advised with Dr. Elizabeth Slate. Winner of R.A. Bradley Award for best dissertation in the department of statistics in 2017.
- Hanning Li, Florida State University, (Data Scientist at SnapChat; Graduated Fall 2017).
- Kumaresh Dhara, Florida State University, co-advised with Dr. Debajyoti Sinha. (Mathematical Statistician, FDA Graduated Summer 2018)
- Sutanoy Dasgupta, Florida State University, (2014 - 2019), co-advised with Dr. Anuj Srivastava. (Visiting Assistant Professor at Texas A&M University, Graduated Summer 2019).

A.2 Texas A&M University

- Sean Plummer, Texas A&M University, (2017 - 2021), (Assistant Professor, University of Arkansas, Fayetteville, Graduated Summer 2021).
- Yabo Niu, Texas A&M University, (2017 - 2019), co-advised with Dr. Bani Mallick. (Assistant Professor, University of Houston, Graduated Summer 2019)
- Shuang Zhou, Texas A&M University, (2016 - 2020), co-advised with Dr. Anirban Bhattacharya. (Assistant Professor at Arizona State University, Graduated Summer 2020).
- Satwik Acharya, Texas A&M University, (2017 - 2020), co-advised with Dr. Anirban Bhattacharya. (Postdoctoral Fellow at University of Michigan, Graduated Summer 2020)
- Biraj Subhra Guha, Texas A&M University, (2017 - 2021), co-advised with Dr. Anirban Bhattacharya, (Postdoctoral fellow at University of Rochester and University of North Carolina, Chapel Hill).
- Daniel Zilbur, Texas A&M University, (2018 - 2021), co-advised with Dr. Matthias Katzfuss, (Postdoctoral fellow at NIH).
- MuhammadReza Armandpour, Texas A&M University, (2018 - 2022), co-advised with Dr. Jianhua Huang, (Senior Machine Learning Scientist at Apple).
- Eric Chuu, Texas A&M University, (2018 - 2022), co-advised with Dr. Anirban Bhattacharya, (Data Scientist at Quantifind).
- Patrick Ding, Texas A&M University, (2018 - 2022), (Data Scientist at Microsoft).
- Indrajit Ghosh, Texas A&M University, (2017 - 2022), co-advised with Dr. Anirban Bhattacharya, (Biostatistician at Eli Lilly).
- Abhisek Chakraborty, Texas A&M University, (2020 - present), co-advised with Dr. Anirban Bhattacharya.
- Snigdha Das, Texas A&M University, (2021 - present).

- Niladri Kal, Texas A&M University, (2022 - present), co-advised with Dr. Rajarshi Guhaniyogi.
- Sakul Mahat, Texas A&M University, (2023 - present), co-advised with Dr. Anirban Bhattacharya.
- Nilson Chapagain, Texas A&M University, (2023 - present), co-advised with Dr. Dileep Kalathil.

B Postdoc advising

- Prasenjit Ghosh, (2018-2020), Instructional Assistant Professor, TAMU.
- Sutanoy Dasgupta, (2019-2021), Visiting Assistant Professor, TAMU.
- Peng Zhao, (2020 - 2023), Assistant Professor, University of Delaware.
- Prateek Jaiswal (2021 - Present).
- Qingyang (Kevin) Liu (2023 - Present)

C Membership in Masters Thesis committee

- Charles Martin, MS, Texas A&M University (graduated 2019)
- Novin Ghaffari, University of Texas at Austin (Statistics and Data Sciences), (graduated 2019)

D Undergraduate student mentoring

- Carlos Johnson, Texas A&M University (summer 2020)
- Corina Ramont, Texas A&M University (Fall 2022)
- Ethan McDonald, Texas A&M University (Fall 2022)
- Irene Jun, Clairemont McKenna College (Summer 2023, Biomedical Informatics and Behavioral Sciences (BIBS) Summer Research Program)
- Noah Joseph, Texas A&M University (Summer 2023, Biomedical Informatics and Behavioral Sciences (BIBS) Summer Research Program)

E Doctoral Dissertation committee

E.1 Florida State University

- Felicia Williams, PhD, Florida State University (graduated 2013)
- Michael Rosenthal, PhD, Florida State University (graduated 2014)
- Zhengwu Zhang, PhD, Florida State University (graduated 2015)
- Danisha Baker, Florida State University, (graduated 2017)
- Mark Orndorff, Florida State University, (2015 - 2017)
- Ruite Guo, Florida State University, (graduated 2017)
- Cherry Gupta, Florida State University, (graduated 2016)
- Garret Vo, Florida State University (Industrial Engineering), (2014 - 2017)
- Kangwei Xing, Florida State University (Math), (2015 - 2017)
- Xin Li, Florida State University (Industrial Engineering), (2015 - 2017)

E.2 Texas A&M University

- Jingjie Zhang, Texas A&M University (Statistics), (2017 - 2020)
- Sandipan Pramanik, Texas A&M University (Statistics), (2018 -)
- Pallavi Ray, Texas A&M University (Statistics), (2018 -)
- Naveed Merchant, Texas A&M University (Statistics), (2019 -)
- Zhao Tang Luo, Texas A&M University (Statistics), (2019 -)
- Honggang Wang, Texas A&M University (Statistics), (2019 -)
- James Dole, Texas A&M University (Statistics), (2019 -)
- Fei Ding, Texas A&M University (Statistics), (2019 -)
- Brittany Alexander, Texas A&M University (Statistics), (2020 -)
- Shuya Yu, Texas A&M University (Math), (2019 -)
- Vamsi Amalladinne, Texas A&M University (ECE), (2020 -)
- Felix Jimenez, Texas A&M University (Statistics), (2022 -)
- Issac Ray, Texas A&M University (Statistics), (2022 -)
- Cameron Parker, Texas A&M University (Physics), (2022 -)
- Donald Turner, Texas A&M University (Statistics), (2022 -)
- Xingchi Li, Texas A&M University (Statistics), (2022 -)
- Changwoo Lee, Texas A&M University (Statistics), (2022 -)
- Bowen Lei, Texas A&M University (Statistics), (2022 -)
- Honggang Wang, Texas A&M University (Statistics), (2022 -)
- Jiangyuan Li, Texas A&M University (Statistics), (2022 -)
- Jiyoung Park, Texas A&M University (Statistics), (2022 -)
- Shurui Gui, Texas A&M University (CECN), (2023 -)

DEPARTMENTAL / COLLEGE COMMITTEE SERVICE

A Departmental committee

- Colloquium chair for FSU Statistics, 2013-2014
- Promotion & Tenure Committee, TAMU Statistics, 2017 - 2020; 2023 - present
- Graduate Program Committee, TAMU Statistics, 2018 - present
- Ph.D. Student Evaluation Committee, TAMU Statistics, 2018 - present
- Parzen Graduate Research Fellowship Committee, TAMU Statistics, 2018
- Raymond Carroll Young Investigator award committee, TAMU Statistics, 2019
- Member of SETCASA student paper award committee, TAMU Statistics, 2019
- Graduate student recruiting committee, 2019

- Head Search Committee, TAMU Statistics, 2019.
- Member of TAMU-RUC program Advisory Board, 2019 - present
- Faculty Search Committee, TAMU, 2020-2021.
- Chair of Search Committee, Faculty investment hire, TAMU, 2019-2020
- Director of PhD program, TAMU, 2021-

B College committee

- Member of Executive committee of Foundations of Interdisciplinary Data Science Institute (FIDS), TAMU, 2019 - present
- At large representative for College of Science Faculty Advisory Council, TAMU, 2019 - 2021 (March)

PROFESSIONAL ACTIVITIES

A Editorial Service

- Associate Editor (Action Editor) of *Journal of Machine Learning Research*, (Dec 2021 - present)
- Associate Editor of *Sankhya, Series A* (Mathematical Statistics and Probability) (December 2015 - present)

B Referee service

- Reviewer for *Journal of the American Statistical Association*, *Biometrika*, *Journal of the Royal Statistical Society, Series B*, *The Annals of Statistics*, *Bernoulli*, *The Annals of Applied Statistics*, *Journal of Econometrics*, *Bayesian Analysis*, *Journal of Machine Learning Research*, *Journal of Statistical Planning and Inference*, *Journal of Nonparametric Statistics*, *Electronic Journal of Statistics*, *Biometrics*, *Metrika*, *IEEE Transactions in Signal processing*.
- Invited Reviewer of AISTATS 2014, AISTATS 2015, NIPS 2015, NeurIPS 2019
- Invited Reviewer of Mathematical Reviews

C Reviewer / committee member of national student paper competitions and other awards

- Reviewer for SBSS Student paper competition, 2015, 2019, 2021
- Reviewer for IISA Student paper competition, 2021
- Savage Award Committee (Theory and Methods Section), 2021
- IISA Young Researcher Award Committee (Theory and Methods Section), 2021, 2022

D Adhoc grant panel member

Army research Office & NSF proposals

E Chairing sessions / Discussant / Program committee member at conferences

- Session chair at JSM 2012 on *Topics in Bayesian Statistics*
- Invited Discussant for ISBIS / SLDM 2014, Durham, NC (June 2014)
- Invited Discussant at OBayes 2017, Austin, TX.
- Scientific Program Committee member, Ecosta 2019, June 25-29, 2019, Taiwan.
- Scientific Program Committee member, EAC-ISBA conference 2023, Qingdao University, China.
- Scientific Program Committee member, "Basu-Bahadur Conference", April 19-21, Florida State University, Tallahassee, Florida.
- Co-chair of Local Organizing committee, "Bayes Comp 2027", TBA, Texas A&M University, College Station.

F Organizing sessions / workshops at conferences

- "Bayesian asymptotics in big models" Invited Session, JSM 2013
- Invited session in ISBIS/SLDM Meeting on June 9-11, 2014
- "High-dimensional inference: classical and Bayesian perspectives", Invited Session, IISA 2014, Colombo, Sri Lanka, December, 2014.
- "Modern advancements in longitudinal data analysis" Invited Session, ISI World Statistics Congresses at Rio de Janeiro, Brazil from 26-31 July 2015.
- Invited Session in ICSA 2016, Atlanta on June 12-15, 2016, Atlanta
- "Bayesian methods for complex data" Invited Session, IISA 2018, Gainesville, FL.
- "Theoretical advances in variational inference", Ecosta 2019, June 25-29, 2019, Taiwan.
- "Bayesian data integration of complex objects", CFE 2020, Virtual conference.
- "Algebraic and geometric methods in inference", JSM 2023, Toronto.
- "Bayesian statistics and statistical learning: new directions in algebraic statistics", Dec 11-16, IMSI 2023 Workshop.

TECHNICAL SKILLS

MATLAB experience: statistics, linear algebra and nonlinear numerical methods
MATLAB toolboxes: statistics, neural network, signal processing
R toolboxes: mcmc, coda, spbayes, tgp, bart
Programming: C, C++
Applications: TEX, LATEX, BIBTEX, Microsoft Office, and other common productivity packages for Windows, OS X, and Linux platforms
Operating Systems: MAC-OSX, Microsoft Windows XP/2000, Linux, Solaris, and other UNIX variants