# Ryan Martin — Curriculum Vitæ[1]

## Contact Information


Department of Statistics
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## Appointments

Professor — 2020–present
Associate Professor — 2016–2020
Department of Statistics
North Carolina State University

Associate Professor — 2015–2016
Assistant Professor — 2011–2015
Department of Mathematics, Statistics, and Computer Science (MSCS)
University of Illinois at Chicago (UIC)

Assistant Professor — 2009–2011
Department of Mathematical Sciences
Indiana University–Purdue University Indianapolis

## Education

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|---|---|
| Ph.D., Statistics, Purdue University | August 2009 |
| M.S., Statistics, Indiana University–Purdue University Indianapolis | May 2005 |
| B.A., Mathematics, Franklin College | May 2003 |

## Awards, etc

*Sigma Xi, Scientific Research Honor Society*, full member nomination, 2020.

*Thank-a-Teacher Award*, NCSU, 2018.

*Faculty Teaching Award*, MSCS, UIC, 2015.

*Liberal Arts & Sciences Undergraduate Research Initiative Award*, UIC, 2014–2015.

*Junior Faculty Travel Award*, UIC, 2012, 2014.

[1] Updated: October 7, 2020

*I. W. Burr Award*, Dept. of Statistics, Purdue University, 2010.

*Student Paper Competition Winner*, ASA, Bayesian Statistical Science, 2009.

*William J. Studden Publication Award*, Dept. of Statistics, Purdue University, 2009.

*Award for Outstanding Teaching by a Statistics Teaching Assistant*, Dept. of Statistics, Purdue University, 2009.

*Outstanding Poster Award*, First Midwest Statistics Research Colloquium, 2008.

*NSF VIGRE Fellowship*, Dept. of Statistics, Purdue University, 2005–2009.

## Research Grants

*National Science Foundation*, PI, 2018–2021.

*National Science Foundation*, PI, 2016–2019.

*National Science Foundation*, PI, 2015–2018.

*Society of Actuaries Individual Grant*, co-PI, 2016.

*U.S. Army Short Term Innovative Research Award*, PI, 2015–2016.

*Society of Actuaries/Casualty Actuarial Society Individual Grant*, co-PI, 2015.

*National Security Agency, Young Investigator Award*, PI, 2013–2015.

*National Science Foundation*, PI, 2012–2015.

## Research Interests

Asymptotics; Bayes and empirical Bayes analysis; foundations of statistical inference; high-dimensional problems; imprecise probability; mixture models; nonparametrics.

## Research Monographs, etc

R. Martin and C. Liu (2015). *Inferential Models: Reasoning with Uncertainty*, Monographs in Applied Probability and Statistics, Chapman & Hall/CRC Press.

R. Martin (2009). *Fast Nonparametric Estimation of a Mixing Distribution with Application to High Dimensional Inference*, PhD thesis, Purdue University.

## Lecture Notes[2]

*Lecture Notes on Advanced Statistical Theory*, version 01/03/2017, 145 pages.

*Lecture Notes on Statistical Theory*, version 01/08/2015, 117 pages.

[2]Lecture notes available at: `http://www4.stat.ncsu.edu/~rmartin/research.html`. These are based on the Stat 411 and Stat 511/512 courses I taught at UIC between 2011 and 2016. The notes are still "works-in-progress," but they are complete enough to read and use.

## Published Papers[3]

73. J. Cahoon and R. Martin (202x). Generalized inferential models for meta-analyses based on few studies. *Statistics and Applications*, to appear. Special issue in honor of the twin statisticians—Drs. Bikas and Bimal Sinha—on their 75th birthday.

72. L. Hong and R. Martin (202x). Valid model-free prediction of future insurance claims. *North American Actuarial Journal*, to appear.

71. C. Liu, Y. Yang, H. Bondell, and R. Martin (202x). Bayesian inference in high-dimensional linear models using an empirical correlation-adaptive prior. *Statistica Sinica*, to appear.

70. L. Hong and R. Martin (202x). Discussion of "$q$-credibility" by O. Le Courtois, *Variance: Journal of the Casualty Actuarial Society*, to appear.

69. R. Martin and B. Ning (2020). Empirical priors and coverage of posterior credible sets in a sparse normal mean model. *Sankhya A*, volume 82, pages 477–498. Special issue in memory of Professor Jayanta K. Ghosh.

68. S. Tokdar and R. Martin (202x). A Bayesian test of normality versus a Dirichlet process mixture alternative. *Sankhya B*, to appear. Special issue in memory of Professor Jayanta K. Ghosh.

67. R. Martin (202x). A survey of nonparametric mixing density estimation via the predictive recursion algorithm. *Sankhya B*, to appear. Special issue in memory of Professor Jayanta K. Ghosh.

66. L. Hong and R. Martin (2020). Model misspecification, Bayes versus credibility estimation, and Gibbs posteriors. *Scandinavian Actuarial Journal*, volume 2020, pages 634–649.

65. N. Syring and R. Martin (2020). Robust and rate optimal Gibbs posterior inference on the boundary of a noisy image. *The Annals of Statistics*, volume 48, pages 1498–1513.

64. R. Martin and Y. Tang (2020). Empirical priors for prediction in sparse high-dimensional linear regression. *Journal of Machine Learning Research*, volume 21, pages 1–30.

63. Z. Wang and R. Martin (2020). Model-free posterior inference on the area under the receiver operating characteristic curve. *Journal of Statistical Planning and Inference*, volume 209, pages 174–186.

62. Y. Lin, R. Martin, and M. Yang (2019). On optimal designs for non-regular models. *The Annals of Statistics*, volume 47, pages 3335–3359.

61. R. Martin (2019). False confidence, non-additive beliefs, and valid statistical inference. *International Journal of Approximate Reasoning*, volume 113, pages 39–73. Special issue for papers presented at the *BELIEF/SMPS 2018* conference.

[3]Links to all of my papers are available at `http://www4.stat.ncsu.edu/~rmartin/research.html`. More details on the *Researchers.One* platform can be found on page 18 below.

60. M. S. Balch, R. Martin, and S. Ferson (2019). Satellite conjunction analysis and the false confidence theorem. *Proceedings of the Royal Society, Series A*, volume 475, paper 2018.0565.

    M. S. Balch, R. Martin, and S. Ferson (202x). Response to the comment "Confidence in confidence distributions!" by Cunen, Hjort, and Schweder, .....

59. R. Martin (2019). Empirical priors and posterior concentration rates for a monotone density. *Sankhya A*, volume 81, pages 493–509.

58. H. Crane and R. Martin (2019). Rethinking probabilistic prediction: lessons learned from the 2016 U.S. presidential election. *Researchers.One*, `https://www.researchers.one/article/2018-08-12`.

57. R. Martin and S. G. Walker (2019). Data-driven priors and their posterior concentration rates. *Electronic Journal of Statistics*, volume 13, pages 3049–3081.

56. N. Syring, L. Hong, and R. Martin (2019). Gibbs posterior inference on value-at-risk. *Scandinavian Actuarial Journal*, volume 2019, pages 548–557.

55. R. Martin (2019). Discussion of "Nonparametric generalized fiducial inference for survival functions under censoring." *Biometrika*, volume 106, pages 519–522.

54. J. Cahoon and R. Martin (2019). Possibility measures for valid statistical inference based on censored data. In *Proceedings of Machine Learning Research* (2019 International Symposium on Imprecise Probabilities: Theory & Applications; J. De Bock, G. de Cooman, C. de Campos, E. Quaeghebeur, and G. Wheeler, editors), volume 103, pages 49–58.

53. L. Cella and R. Martin (2019). Incorporating expert opinion in an inferential model while retaining validity. In *Proceedings of Machine Learning Research* (2019 International Symposium on Imprecise Probabilities: Theory & Applications; J. De Bock, G. de Cooman, C. de Campos, E. Quaeghebeur, and G. Wheeler, editors), volume 103, pages 68–77.

52. R. Martin and N. Syring (2019). Validity-preservation properties of rules for combining inferential models. In *Proceedings of Machine Learning Research* (2019 International Symposium on Imprecise Probabilities: Theory & Applications; J. De Bock, G. de Cooman, C. de Campos, E. Quaeghebeur, and G. Wheeler, editors), volume 103, pages 286–294.

51. R. Martin (2019). On valid uncertainty quantification about a model. In *Proceedings of Machine Learning Research* (2019 International Symposium on Imprecise Probabilities: Theory & Applications; J. De Bock, G. de Cooman, C. de Campos, E. Quaeghebeur, and G. Wheeler, editors), volume 103, pages 295–303.

50. M. Chae, R. Martin, and S. G. Walker (2019). On an algorithm solving Fredholm equations of the first kind. *Statistics and Computing*, volume 29, pages 645–654.

49. N. Syring and R. Martin (2019). Calibrating general posterior credible regions. *Biometrika*, volume 106, pages 479–486.

48. L. Hong and R. Martin (2019). Real-time Bayesian nonparametric prediction of solvency risk. *Annals of Actuarial Science*, volume 13, pages 67–79.

47. H. Crane and R. Martin (2018). Academia's case of Stockholm syndrome. *Quillette*, `https://quillette.com/2018/11/29/academias-case-of-stockholm-syndrome/`

46. H. Crane and R. Martin (2018). The RESEARCHERS.ONE mission. *Researchers.One*, `https://www.researchers.one/article/2018-07-1`.

45. L. Hong, T. Kuffner, and R. Martin (2018). On predicting future insurance claims when the model is uncertain. *Variance: Journal of the Casualty Actuarial Society*, volume 12, pages 90–99.

44. P. R. Hahn, R. Martin, and S. G. Walker (2018). On recursive Bayesian predictive distributions. *Journal of the American Statistical Association*, volume 113, pages 1085–1093.

43. M. Chae, R. Martin, and S. G. Walker (2018). Convergence of an iterative algorithm to the nonparametric MLE of a mixing distribution. *Statistics & Probability Letters*, volume 140, pages 142–146.

42. L. Hong, T. Kuffner, and R. Martin (2018). On overfitting and post-selection uncertainty assessments. *Biometrika*, volume 105, pages 221–224.

41. R. Martin, C. Ouyang, and F. Domagni (2018). 'Purposely misspecified' posterior inference on the volatility of a jump diffusion process. *Statistics & Probability Letters*, volume 134, pages 106–113.

40. L. Hong and R. Martin (2018). Dirichlet process mixture models for insurance loss data. *Scandinavian Actuarial Journal*, volume 2018, pages 545–554.

39. R. Martin (2018). On an inferential model construction using generalized associations. *Journal of Statistical Planning and Inference*, volume 195, pages 105–115; special issue on Confidence Distributions and Related Themes.

38. R. Martin (2017). Invited comment on the article ("Uncertainty quantification for the horseshoe") by van der Pas, Szabó, and van der Vaart. *Bayesian Analysis*, volume 12, pages 1254–1258.

37. R. Martin, R. Mess, and S. G. Walker (2017). Empirical Bayes posterior concentration in sparse high-dimensional linear models. *Bernoulli*, volume 23, pages 1822–1847.

36. N. Syring and R. Martin (2017). Gibbs posterior inference on the minimum clinically important difference. *Journal of Statistical Planning and Inference*, volume 187, pages 67–77.

35. R. Martin (2017). A statistical inference course based on p-values. *The American Statistician*, volume 71, pages 128–136.

34. R. Martin (2017). Inferential models. *Wiley StatsRef: Statistics Reference Online*.

33. L. Hong and R. Martin (2017). A review of Bayesian asymptotics in general insurance applications. *European Actuarial Journal*, volume 7, pages 231–255.

32. L. Hong and R. Martin (2017). A flexible Bayesian nonparametric model for predicting future insurance claims. *North American Actuarial Journal*, volume 21, pages 228–241.

31. C. Liu, R. Martin, and N. Syring (2017). Efficient simulation from a gamma distribution with small shape parameter. *Computational Statistics*, volume 32, pages 1767–1775.

30. R. Martin (2017). Prior-free probabilistic inference for econometricians. In *Robustness in Econometrics*, Kreinovich, Sriboonchitta, and Huynh, Eds. Springer International, Studies in Computational Intelligence, volume 692, pages 169–186.

29. R. Martin, J. Stufken, and M. Yang (2016). A conversation with Samad Hedayat. *Statistical Science*, volume 31, pages 637–647.

28. R. Martin and R. Lingham (2016). Prior-free probabilistic prediction of future observations. *Technometrics*, volume 58, pages 225–235.

27. R. Martin and Y. Lin (2016). Exact prior-free probabilistic inference in a class of non-regular models. *Stat*, volume 5, pages 312–321.

26. L. Hong and R. Martin (2016). Discussion on "Credibility estimation of distribution functions with applications to experience rating in general insurance." *North American Actuarial Journal*, volume 20, pages 95–98.

25. R. Martin and Z. Han (2016). A semiparametric scale-mixture regression model and predictive recursion maximum likelihood. *Computational Statistics and Data Analysis*, volume 94, pages 75–85.

24. R. Martin (2015). Plausibility functions and exact frequentist inference. *Journal of the American Statistical Association*, volume 110, pages 1552–1561.

23. R. Martin and C. Liu (2015). Marginal inferential models: prior-free probabilistic inference on interest parameters. *Journal of the American Statistical Association*, volume 110, pages 1621–1631.

22. R. Martin and C. Liu (2015). Conditional inferential models: combining information for prior-free probabilistic inference. *Journal of the Royal Statistical Society, Series B*, volume 77, pages 195–217.

21. R. V. Ramamoorthi, K. Sriram, and R. Martin (2015). On posterior concentration in misspecified models. *Bayesian Analysis*, volume 10, pages 759–789.

20. C. Liu and R. Martin (2015). Frameworks for prior-free posterior probabilistic inference. *WIREs Computational Statistics*, volume 7, pages 77–85.

19. R. Martin (2015). Asymptotically optimal nonparametric empirical Bayes via predictive recursion. *Communications in Statistics–Theory & Methods*, volume 44, pages 286–299.

18. Q. Cheng, X. Gao, and R. Martin (2014). Exact prior-free probabilistic inference on the heritability coefficient in a normal linear mixed model. *Electronic Journal of Statistics*, volume 8, pages 3062–3076.

17. R. Martin and S. G. Walker (2014). Asymptotically minimax empirical Bayes estimation of a sparse normal mean vector. *Electronic Journal of Statistics*, volume 8, pages 2188–2206.

16. R. Martin (2014). Random sets and exact confidence regions. *Sankhya A*, volume 76, pages 288–304.

15. R. Martin and C. Liu (2014). A note on p-values interpreted as plausibilities. *Statistica Sinica*, volume 24, pages 1703–1716.

14. R. Martin and C. Liu (2014). Discussion: Foundations of statistical inference, revisited. *Statistical Science*, volume 29, pages 247–251. (Invited discussion of the paper "On the Birnbaum argument for the strong likelihood principle," by D. Mayo.)

13. R. Martin and C. Liu (2013). Inferential models: A framework for prior-free posterior probabilistic inference. *Journal of the American Statistical Association*, volume 108, pages 301–313. (Correction, ibid., pages 1138–1139.)

12. R. Martin (2013). An approximate Bayesian marginal likelihood approach for estimating finite mixtures. *Communications in Statistics–Simulation & Computation*, volume 42, pages 1533–1548.

11. R. Martin and S. T. Tokdar (2012). A nonparametric empirical Bayes framework for large-scale multiple testing. *Biostatistics*, volume 13, pages 427–439.

10. R. Martin and O. Tilak (2012). On $\varepsilon$-optimality of the pursuit learning algorithm. *Journal of Applied Probability*, volume 49, pages 795–805.

9. R. Martin (2012). Convergence rate for predictive recursion estimation of finite mixtures. *Statistics & Probability Letters*, volume 82, pages 378–384.

8. R. Martin and S. T. Tokdar (2011). Semiparametric inference in mixture models with predictive recursion marginal likelihood. *Biometrika*, volume 98, 567–582.

7. Z. Zhang, H. Xu, R. Martin, and C. Liu (2011). Inferential models for linear regression. *Pakistan Journal of Statistics and Operations Research*, volume 7, pages 413–432.

6. O. Tilak, R. Martin, and S. Mukhopadhyay (2011). A decentralized indirect method for learning automata games. *IEEE Transactions on Systems, Man, and Cybernetics, Series B*, volume 41, pages 1213–1223.

5. R. Martin, J. Zhang, and C. Liu (2010). Dempster–Shafer theory and statistical inference with weak beliefs. *Statistical Science*, volume 25, pages 72–87.

4. R. Martin and S. T. Tokdar (2009). Asymptotic properties of predictive recursion: Robustness and rate of convergence. *Electronic Journal of Statistics*, volume 3, pages 1455–1472.

3. S. T. Tokdar, R. Martin and J. K. Ghosh (2009). Consistency of a recursive estimate of mixing distributions. *The Annals of Statistics*, volume 37, pages 2502–2522.

2. R. Martin and J. K. Ghosh (2008). Stochastic approximation and Newton's estimate of a mixing distribution. *Statistical Science*, volume 23, pages 365–382.

1. J. K. Ghosh and R. Martin (2008). On two fast algorithms for estimating the mixing distribution in mixture models. In *Frontiers in Applied and Computational Mathematics*, Blackmore, Bose, and Petropoulos, Eds. World Scientific, Hackensack, NJ, pages 154–161.

## Working Papers, Tech Reports, etc

– C. Liu and R. Martin. Inferential models and possibility measures.

– C. Liu, R. Martin, and W. Shen. Empirical priors and posterior concentration in a piecewise polynomial sequence model.

– Y. Yang and R. Martin. Variational approximations of empirical Bayes posteriors in high-dimensional linear models.

– H. Mao, R. Martin, and B. Reich. Valid model-free spatial prediction.

– I. Bhattacharya and R. Martin. Gibbs posterior inference on multivariate quantiles.

– L. Cella and R. Martin. Valid distribution-free inferential models for prediction.

– C. Liu and R. Martin. An empirical $G$-Wishart prior for sparse high-dimensional Gaussian graphical models; winner, ASA–SBSS student paper competition.

– J. Cahoon and R. Martin. Generalized inferential models for censored data.

– V. Dixit and R. Martin. Permutation-based uncertainty quantification about a mixing distribution.

– Y. Yang, R. Martin, and H. Bondell. Variational approximations using Fisher divergence.

– H. Crane and R. Martin. In peer review we (don't) trust: How peer review's filtering poses systemic risk to science.

– H. Crane and R. Martin. Is statistics meeting the needs of science?

– R. Martin. A mathematical characterization of confidence as valid belief.

– R. Martin, H. Xu, Z. Zhang, and C. Liu. Valid uncertainty quantification about the model in linear regression.

– L. Hong, R. Martin, and S. Walker. On Bayesian convergence rates under local prior support conditions.

– R. Martin, D. Ermini Leaf, and C. Liu. Optimal inferential models for a Poisson mean.

– L. Hong and R. Martin. On convergence rates of Bayesian predictive densities and posterior distributions.

## Software

My collaborators and I have statistical software to go along with our papers. For the most part, these are in the form of raw R scripts and available for download on my website; some may eventually be turned into R packages. So far, there is:

`ebreg` — empirical priors for sparse high-dimensional linear regression (by Yiqi Tang)

## Presentations

⋆ *Seminar/Colloquium talks at universities:*

Department of Data Science and Operations
*Empirical priors for inference on structured high-dimensional problems*
University of Southern California (virtual), 10/2020.

Institute for Risk and Uncertainty Seminar
*False confidence, non-additive beliefs, and valid statistical inference*
University of Liverpool (virtual), UK, 06/2020.

School of Mathematical and Statistical Sciences Colloquium
*Gibbs posteriors for direct, model-free inference on interest parameters*
Clemson University, 11/2019.

Department of Mathematics and Statistics Colloquium
*Empirical priors and posterior concentration rates*
University of Maryland Baltimore County, 09/2019.

ACMS Department Colloquium
*False confidence, non-additive beliefs, and valid statistical inference*
University of Notre Dame, 02/2019.

Department of Statistics Seminar
*Empirical priors and target posterior concentration rates*
Penn State University, 10/2018.

Department of Statistics Seminar
*Empirical priors and target posterior concentration rates*
University of Georgia, 10/2018.

Foundations of Probability Seminar
*Probability dilution, false confidence, and non-additive beliefs*
Rutgers University, 04/2018.

Department of Mathematics, Statistics Seminar
*On valid prior-free probabilistic inference*
Washington University at St. Louis, 04/2017.

Department of Statistics Seminar
*Posterior inference without (really) using Bayes*
North Carolina State University, 12/2016.

Department of Statistics and Biostatistics Seminar
*Valid prior-free probabilistic inference*
Rutgers University, 12/2015.

Department of Statistics Colloquium
*Inferential models: a framework for prior-free probabilistic inference*
North Carolina State University, 11/2015.

MSCS Department Colloquium
*What is statistical inference?*
University of Illinois at Chicago, 10/2015.

Department of Statistics Colloquium
*High-dimensional posterior inference via double empirical Bayes*
Texas A&M University, 02/2015.

Division of Statistics Colloquium
*Plausibility functions and exact frequentist inference*
Northern Illinois University, 03/2014.

MSCS Graduate Student Recruitment Day Talk
*Bayesian inference on infinite-dimensional parameters*
University of Illinois at Chicago, 03/2014.

Department of Statistics Seminar
*Asymptotically minimax empirical Bayes estimation of a sparse normal mean*
University of Illinois at Urbana–Champaign, 09/2013.

MSCS Department Colloquium
*New foundations of statistical inference—an application of random sets*
University of Illinois at Chicago, 04/2013.

Department of Statistics Seminar
*A Bayesian test of normality versus a Dirichlet process mixture alternative*
Northwestern University, 01/2013.

Department of Statistical Sciences Seminar
*Inferential models: a framework for prior-free probabilistic inference*
Duke University, 11/2012.

Statistics & Probability Department Colloquium
*Plausibility functions and exact frequentist inference*
Michigan State University, 10/2012.

Applied Math Department Colloquium
*A nonparametric empirical Bayes framework for large-scale multiple testing*
Illinois Institute of Technology, 01/2012.

Statistics Department Research Colloquium
*A Bayesian test of normality versus a Dirichlet process mixture alternative*
Purdue University, 11/2011.

ACMS Department Colloquium
*Predictive recursion marginal likelihood and large-scale simultaneous testing*
University of Notre Dame, 01/2011.

MSCS Department Colloquium
*Predictive recursion marginal likelihood and large-scale simultaneous testing*
University of Illinois at Chicago, 01/2011.

Department of Mathematics Colloquium
*Testing thousands of hypotheses simultaneously*
Franklin College, 10/2010.

MSCS Department Colloquium
*Recursive nonparametric estimation of mixing distributions*
University of Illinois at Chicago, 02/2010.

Joint Biostatistics Seminar
*A nonparametric empirical Bayes framework for large-scale multiple testing*
Indiana University–Purdue University Indianapolis, 12/2009.

⋆ *Conference/Workshop talks:*

Joint Statistical Meetings
*Empirical priors for inference on structured high-dimensional problems*
Virtual, 07/2020.

SIPTA Summer School (short course)
*Postponed – COVID-19*
Institute of Risk & Uncertainty, University of Liverpool, 07/2020

7th African International Conference on Statistics
*Postponed – COVID-19*
University of Cape Coast, Ghana, 05/2020.

7th Bayes, Fiducial, and Frequentist (BFF) Conference
*Postponed – COVID-19*
University of Toronto, 05/2020.

BayesComp 2020
*Gibbs posterior distributions*
University of Florida, 01/2020.

Joint Statistical Meetings
*Permutation-based uncertainty quantification about a mixing distribution*
(Invited session in memory of Professor J. K. Ghosh)
Denver, 08/2019.

11th International Symposium on Imprecise Probability (ISIPTA 2019)
— *On uncertainty quantification about a model*
— *Incorporating expert opinion in an inferential model while retaining validity*
— *Possibility measures for valid statistical inference based on censored data*
Ghent University, Belgium, 07/2019.

O'Bayes 2019
*Objective data-dependent distributions*
(Invited one-hour talk, with discussion)
University of Warwick, UK, 07/2019.

6th African International Conference on Statistics
— *False confidence, non-additive beliefs, and valid statistical inference* (keynote)
— *Construction, concentration, and calibration of Gibbs posteriors* (keynote)
Arsi University, Ethiopia, 05/2019.

SAMSI Working Group: Foundations of Model Uncertainty
*On valid uncertainty quantification about a model*
My office (electronic), 11/2018.

BELIEF/SMPS-2018
*Belief functions and valid statistical inference* (plenary)
Compiègne, France, 09/2018

IMS Annual Meeting
*Construction, concentration, and calibration of Gibbs posteriors*
(Also presented in the session on "Developing an open-access e-journal.")
Vilnius, Lithuania, 07/2018

ISBA World Meeting
*Empirical priors for wranglin' with structured high-dimensional problems*
(Editor's Choice Session: "Lassos and horseshoes for the sparse Bayesian cowboy")
Edinburgh, UK, 06/2018

IISA International Conference on Statistics
*Fast nonparametric estimation of a smooth mixing density*
(Memorial session for Professor J. K. Ghosh)
University of Florida, 05/2018.

5th Bayesian, Fiducial, and Frequentist (BFF) Conference

*Probability dilution, false confidence, and non-additive beliefs*
University of Michigan, 05/2018.

Probability and Statistics Day 2018
*Fast nonparametric estimation of a smooth mixing density* (keynote)
(Memorial session for Professor J. K. Ghosh)
University of Maryland Baltimore County, 04/2018.

10th International Conference: CMStatistics 2017
*Posterior concentration rates using new empirical priors*
London, UK, 12/2017.

2nd Workshop of Higher-order Asymptotics and Post-Selection Inference
*On valid post-selection prediction in regression*
Washington University of St. Louis, 08/2017.

Joint Statistical Meetings
*Discussant: Session on Data Integration*
Baltimore, MD, 08/2017

11th Conference on Bayesian Nonparametrics
*Model misspecification on purpose*
Paris, France, 06/2017

4th Bayesian, Fiducial, and Frequentist (BFF) Conference
*Confidence, probability, and plausibility*
(Also presented in the "Views from Rising Stars" panel discussion)
Harvard University, 05/2017.

10th International Conference of the Thailand Econometric Society
*Valid prior-free probabilistic inference*
Chiang Mai, Thailand, 01/2017.

Latent Variables Conference
*A double empirical Bayes approach for high-dimensional problems*
University of South Carolina, 10/2016.

Workshop of Higher-order Asymptotics and Post-Selection Inference
*A double empirical Bayes approach for high-dimensional problems*
Washington University of St. Louis, 09/2016.

ICSA Applied Statistics Symposium
*A new double empirical Bayes approach for high-dimensional problems*
Atlanta, GA, 06/2016.

Fusion Learning, "BFF," and Statistical Foundations Conference
*Beliefs, validity, and the foundations of statistics*
Rutgers University, 04/2016.

Joint Statistical Meetings
*Prior-less probabilistic inference with double empirical Bayes*
Seattle, WA, 08/2015.

Int'l Conference on Advances in Interdisciplinary Statistics & Combinatorics
*Empirical Bayes posterior concentration in sparse high-dimensional linear models*
University of North Carolina Greensboro, 10/2014.

Joint Statistical Meetings
*Optimal prior-free probabilistic variable selection in regression*
Boston, MA, 08/2014.

ICSA Applied Statistics Symposium
*Generalized inferential models*
Portland, OR, 06/2014.

American Statistical Association–Northeastern Illinois Chapter Meeting
*A nonparametric empirical Bayes framework for large-scale multiple testing*
Northbrook, IL, 10/2012.

Joint Statistical Meetings
*A nonparametric empirical Bayes framework for large-scale multiple testing*
San Diego, CA, 08/2012.

International Statistics Symposium
*Inferential models: a framework for prior-free probabilistic inference*
Purdue University, 07/2012.

Joint Statistical Meetings
*Predictive Recursion: convergence theory, extensions, and applications*
Vancouver, BC, 08/2010.

ICSA Applied Statistics Symposium
*On probabilistic inference without priors*
Indianapolis, IN, 06/2010.

Joint Statistical Meetings
*A nonparametric empirical Bayes framework for large-scale multiple testing*
Washington D.C., 08/2009.

Joint Statistical Meetings
*Stochastic approximation and Newton's estimate of a mixing distribution*
Denver, CO, 08/2008.

## Student Mentoring

Ph.D. dissertation committee chairmanship:

Mr. Leonardo Cella
*In progress*

Ms. Vaidehi Dixit
*In progress*

Mr. Wenli Shi
*In progress*
Co-chair: S. Ghosal, Statistics, NCSU

Ms. Yiqi (Annie) Tang
*In progress*

Ms. Zhe (April) Wang
*In progress*

Ms. Pei-Shien (Candace) Wu
*In progress*

Ms. Joyce Cahoon (2020)
*Generalized Inferential Models: New Developments and Applications*

Mr. Chang Liu (2020)
*Empirical Priors for High-Dimensional Structure Learning Problems*

Ms. Yue Yang (2020)
*Topics in Bayesian Computation for High-Dimensional Problems*

Ms. Yi Lin (2017).
*Hellinger Information and Optimal Designs for Non-regular Models.*
Co-chair: M. Yang, Statistics, UIC.

Mr. Nicholas Syring (2017).
*Gibbs Posterior Distributions: New Theory and Applications.*

Ph.D. dissertation committee membership:

Ms. Indrabati Bhattacharya (2020)
*Bayesian Inference on Multivariate Medians and Quantiles*
Chair: S. Ghosal, Statistics, NCSU.

Ms. Yuan Tian (2020)
*Bayesian Semi-parametric Models in Extreme Value Analysis*
Chair: B. Reich, Statistics, NCSU.

Ms. Xingqui Lou (2020)
*Fashion Design and Development Deciphered*
Chair: T. Little, Textiles, NCSU.

Ms. Marlee Trandel (2020)
*Cell Wall Polysaccharides in Grafted and Non-grafted Watermelon with Hollow Heart*
Chair: P. Perkins-Veazie, Horticultural Science, NCSU.

Ms. Rui Zhu (2019)
*Bayesian Semi-Supervised Learning with Application to ROC Surface Estimation.*
Chair: S. Ghosal, Statistics, NCSU.

Mr. Seonghyun Jeong (2019)
*Frequentist Properties of Bayesian Procedures for High-Dimensional Sparse Regression.*
Chair: S. Ghosal, Statistics, NCSU.

Mr. Zhou Lan (2019)
*Spatial Modeling of Positive Definite Matrices and Its Applications...*
Chair: B. Reich, Statistics, NCSU.

Ms. Moumita Chakraborty (2019)
*Bayesian Inference Under Shape Constraints.*
Chair: S. Ghosal, Statistics, NCSU.

Mr. Prasenjit Ghosh (2017).
*Some Theoretical and Methodological Aspects of Simultaneous Inference.*
Chair: A. Chakrabarti, Statistics, ISI–Kolkata.

Mr. Andrew Swanlund (2016).
*Correcting for Rater Bias in the Presence of Non-Ignorable Missing Ratings.*
Chair: G. Karabatsos, Educational Psychology, UIC.

Ms. Jennifer Padja–De La O (2016).
*On the Law of Iterated Logarithm for Brownian Motion on a Compact Manifold.*
Chair: C. Ouyang, Statistics, UIC.

Mr. Alessandro Panella (2015).
*Multiagent Stochastic Planning with Bayesian Policy Recognition.*
Chair: P. Gmytrasiewicz, Computer Science, UIC.

Mr. Ting Yuan (2015).
*On Structured Matrix Optimization with Two Applications in Statistics.*
Chair: S. Hedayat, Statistics, UIC.

Ms. Jing Wang (2015).
*Two Applications of Topic Models.*
Chair: C. Yu, Computer Science, UIC.

Mr. Ken Fujimoto (2014).
*Dependent Dirichlet Process Mixture Modeling of Rating Category Usage.*
Chair: G. Karabatsos, Educational Psychology, UIC.

Ms. Zhifan Zhang (2014).
*Portfolio Choice with General Pricing Kernel.*
Chair: J. Yang, Statistics, UIC.

Mr. Tu Xu (2013).
*New Developments of Minimum Clinically Important Difference.*
Chair: S. Hedayat, Statistics, UIC.

M.S. dissertation committee membership:

Jay Gilenwater (2020)
*Quantitative Trait Loci Mapping of Seed Composition Traits and Assessment of Yield*

*in Two Soybean Populations*
Chair: R. Mian, Crop Science, NCSU.

Ms. Brandy Benz (2020)
*Ground-Layer Vegetation Response to Silvicultural Treatments for Oak Regeneration in Southern Appalachian Forests*
Chair: J. Forrester, Forestry & Environmental Resources, NCSU.

Ms. Kathryn Hayes (2019)
*Analysis and Improvement of the Medical Textile Supply Chain in North Carolina.*
Chair: B. Godfrey, Textiles, NCSU.

Graduate student research/independent study course: 5 times (at UIC)

Undergraduate student research/independent study:
Bayesian estimation in autoregressive models, N. Rogers (at UIC).

Chair and creator, UIC Graduate Statistics Seminar, 2013–2014.

## Student Awards

Ms. Yiqi Tang: B. B. Bhattacharyya Graduate Student Excellence Award, 2020.

Ms. Vaidehi Dixit: Accepted presentation, Statistics and Data Science Symposium, 2020.

Mr. Chang Liu: ASA–SBSS Student Paper Competition, Joint Statistical Meetings, 2020.

Ms. Joyce Cahoon: Invited submission, *International Journal of Approximate Reasoning* special issue for papers presented at ISIPTA 2019.

Ms. Yiqi Tang: Travel Award, Women in Statistics & Data Science Conference, 2019.

Mr. Nathan Rogers: Best Paper Award, Rose–Hulman Undergrad Math Conference, 2015.

## Teaching

@ North Carolina State University:
ST503—*Fundamentals of Linear Models and Regression* (3 times, online too)
ST512—*Experimental Statistics for Biological Science II* (3 times)
ST701—*Statistical Theory I* (formerly ST521, 2 times)
ST810—*Special Topics* (Valid Probabilistic Inference)

@ University of Illinois at Chicago:
Stat 401—*Introduction to Probability*
Stat 411—*Statistical Theory* (3 times)
Stat 451—*Computational Statistics* (2 times)
Stat 511—*Advanced Statistical Theory I* (4 times)
Stat 512—*Advanced Statistical Theory II*

Stat 591—*Advanced Topics in Statistics* (Bayesian Analysis)
Stat 591—*Advanced Topics in Statistics* (Prior-free Probabilistic Inference)

@ Indiana University–Purdue University Indianapolis:
Stat 350—*Introduction to Statistics* (4 times)
Stat 511—*Statistical Methods I*
Stat 521—*Statistical Computing*
Stat 628—*Advanced Statistical Inference*

@ Purdue University:
Stat 225—*Introduction to Probability Models* (6 times)
Stat 301—*Elementary Statistical Methods*

## Professional Service

Co-founder (with H. Crane) of *Researchers.One*,[4] an online peer-review/publication platform and the associated 501(c)(3) non-profit organization. How this platform differs from existing journals or archives is that papers can be submitted, peer-reviewed, revised, published, and made freely available to the public all on one site, and the authors—rather than an editorial board—control the entire process.

Led creation of an undergraduate major in Statistics at UIC (Started Fall 2014)

Editorial work:
Associate Editor, *Bayesian Analysis*, 2016–2018.
Reviewed lots of papers for many journals.

Grant proposal reviewer/panel member:
NSF–MMS, NSF–DMS, NSERC (Canada)

Reviewer of textbooks/monographs:
Chapman & Hall/CRC Press (twice); Cambridge University Press

ASA–SBSS Student Paper Competition committee, 2015.

Conference administration:
Program Committee member, BELIEF 2020, Shanghai, China, October 2020.

Program Committee member, International Symposium on Imprecise Probabilities: Theories and Applications, Ghent, Belgium, July 2019.

Chair and Organizer of an invited session, "The state of peer review and publication in statistics and science," Joint Statistical Meetings, August 2018.

Organizing Committee member, BFF4, Harvard University, May 2017.

Program Committee member, Spring Research Conference, Chicago, May 2016.

Departmental Committee Service:

[4]See `https://www.researchers.one` and `http://www.twitter.com/ResearchersOne`

@ NCSU:

Tenure-track Faculty Search Committee (2018; 2019, chair)
Course and Curriculum Committee (2018–)
Seminar Committee (2017–2018, chair)
Qualifying Exam Committee (Aug 2017, 2018; Jan 2018; chair once)

@ UIC:

Admissions and Fellowship Committee (2012–2013; 2014–2015)
Department Advisory Committee (2012–2014, secretary)
Department Colloquium Chair (2013–2014);
Masters Exam Committee (2012–2013)
Research Assistant Professor Search Committee (2015–2016)
Statistics Seminar Chair (2014–2015)
Undergraduate Awards Committee (2012–2013);
Undergraduate Studies Committee (2012–2015)
Visitor Fund Committee (2012–2014)