

# Matthew T. Pratola

## Curriculum Vitae

### Personal Information

*Cell:*

*Address:*

*Email:* mpratola@iu.edu

*Citizenship:*

### Education

- 2003* ▷ B.Sc. Honours Computer Science, Dept. of Computer Science, Brock University
- 2006* ▷ M.Sc. Statistics, Dept. of Statistics and Actuarial Science, Simon Fraser University
- 2010* ▷ Ph.D. Statistics, Dept. of Statistics and Actuarial Science, Simon Fraser University

### Research Interests

- ▷ Computer experiments and uncertainty quantification; Bayesian regression trees
- ▷ Trusted statistics; computational statistics; parallel/scaleable MCMC algorithms; blockchain and decentralization
- ▷ Models and experimental design for environmental processes research; economic impacts of climate change

### Appointments

- 2022-current* ▷ Founder, Eisola Inc.
- 2024-current* ▷ Professor, Dept. of Statistics, Indiana University
- 2019-2024* ▷ Associate Professor, Dept. of Statistics, The Ohio State University
- 2013-2019* ▷ Assistant Professor (tenure-track), Dept. of Statistics, The Ohio State University
- 2010-2012* ▷ Postdoctoral Research Associate, Statistical Sciences Group, Los Alamos National Laboratory
- 2006-2010* ▷ Ph.D. Candidate, Dept. of Statistics and Actuarial Science, Simon Fraser University
- 2007* ▷ Course Lecturer, Department of Statistics and Actuarial Science, Simon Fraser University. Lectured 140+ students of 2nd year mathematical statistics course; wrote all assignments and exams; managed teaching assistants
- 2003-2010* ▷ Teaching and/or Research Assistant, Department of Statistics and Actuarial Science, Simon Fraser University

### Students and Postdocs

- 2026 expected (Postdoc)* ▷ S. Jaiswal, commenced Fall 2023. (Advisor: Furnstahl; co-Advisors: Pratola and Heinz).
- 2024 (Ph.D.)* ▷ J. Yannotty, graduated Spring 2024, Ph.D. student. (Advisor: Pratola; co-Advisor: Santner).
- 2023 (Ph.D.)* ▷ G. Collins, graduated Spring 2023, currently at Sandia National Laboratory. (Advisor: Pratola; co-Advisor: Herbei).
- 2022 (Ph.D.)* ▷ V. Geels, currently at Nationwide. Craig Cooley Memorial prize winner. CGS/ProQuest Award nominee. (Advisor: Pratola; co-Advisor: Herbei).

- 2020 (*Ph.D.*) ▷ A. Horiguchi, currently Postdoc at Duke University (Advisor: Pratola; co-Advisor: Santner).
- 2018 (*Ph.D.*) ▷ S. Nguyen, Data Scientist at JP Morgan Chase (Advisor: Craigmile; co-Advisor: Pratola).
- 2017 (*M.Sc.*) ▷ J. Zeng, Ph.D. at University of Texas (San Antonio), currently Biostatistician in the Department of Medicine at Stanford University (Advisor: Pratola; co-Advisor: Kubatko).

## Grants & Awards

- 2024 ▷ IU FADS award: (project title withheld) [Funds 3 Informatics graduate students for 1 semester] (**awarded**).
- 2020 ▷ NSF: “Bayesian Analysis of Nuclear Dynamics”, Dr. M.T. Pratola [Co-I, OSU, #UT21727, \$584K], Dr. R. Furnstahl [Co-PI, OSU], Dr. U. Heinz [Co-I, OSU], F. Viens [Co-PI, Michigan State University], T. Maiti [Co-I, Michigan State University], W. Nazarewicz [Co-I, Michigan State University], F. Nunes [Co-I, Michigan State University], S. Pratt [Co-I, Michigan State University], S. Wild [Co-PI, Argonne National Laboratory and Northwestern University], M. Plumlee [Co-I, Northwestern University] and D. Phillips [PI, Ohio University] (**awarded**)
- 2020 ▷ Thomas and Jean Powers Teaching Award (Dept. of Statistics, OSU)
- 2019 ▷ NSF DMS: “Innovations for Bayesian Tree Ensemble Methodology”, Dr. M.T. Pratola [PI, OSU, #1916231, \$120K], Dr. R.E. McCulloch [Co-PI, Arizona State University, #1916245, \$150K] and Dr. E.I. George [Co-PI, The University of Pennsylvania, #1916233, \$160K] (**awarded**)
- 2018 ▷ KAUST CRG: “An Advanced Spatio-temporal Statistical Methodology for Impact Studies on Air Quality and Renewable Energy”, Dr. Y. Sun [PI, KAUST, #3800.1], Dr. B. Reich [Co-PI, North Carolina State University, #3800.2] and Dr. M.T. Pratola [Co-PI, OSU, #3800.3, \$185K] (**awarded**)
- 2018 ▷ Frank Wilcoxon award for best practical application paper appearing in the 2017 issues of Technometrics
- 2018 ▷ Awarded Summer 2018 visitorship at the JADS institute in The Netherlands
- 2018 ▷ Isaac Newton Institute Workshop on UQ for Inverse Problems travel award
- 2017 ▷ Awarded Spring 2018 visitorship at the Mathematical Biosciences Institute, The Ohio State University
- 2016 ▷ *Efficient Metropolis-Hastings Proposal Mechanisms for Bayesian Regression Tree Models* was a read paper at ISBA2016
- 2015 ▷ *Parallel Bayesian Additive Regression Trees* named a noteworthy article by the ASA Journal of Computational and Graphical Statistics and included in the ASA’s article collection on Bayesian Statistics
- 2015 ▷ Spring Research Conference Invited Program Scholarship (**awarded**)
- 2014 ▷ College of Public Health Collaborative Postdoc Research Program Grant (**awarded**)
- 2014 ▷ Frank Wilcoxon award for best practical application paper appearing in the 2013 issues of Technometrics
- 2013 ▷ Ohio Supercomputing Center (OSC) Startup Grant (**awarded**, grant #PAS1040-1)

## Refereed Publications

- 2024 ▷ M.T. Pratola and J.C. Yannotty: “Bayesian Multi-Model Computer Experiments using Gaussian Processes and Regression Trees” (book chapter).
- 2024 ▷ J.C. Yannotty, T.J. Santner, B. Li and M.T. Pratola: “Bayesian Model Mixing of Computer Simulators with Applications to Climate”, submitted (JMLR).
- 2024 ▷ P.J. Millican, J.A. Melendez, R.J. Furnstahl, D.R. Phillips and M.T. Pratola: *Effective Field Theory Convergence Pattern of Modern Nucleon-Nucleon Potentials*, submitted (Physical Review C)
- 2023 ▷ H. Luo and M.T. Pratola: “Sharded Bayesian Additive Regression Trees”, submitted (JMLR).
- 2023 ▷ A. Horiguchi and M.T. Pratola: “Estimating Shapley effects for moderate-to-large input dimensions”, under revision.
- 2023 ▷ J.C. Yannotty, T.J. Santner, R.J. Furnstahl and M.T. Pratola: “Model Mixing using Bayesian Additive Regression Trees”, *Technometrics*, DOI:10.1080/00401706.2023.2257765.
- 2023 ▷ M.T. Pratola, R.E. McCulloch and E.I. George: “Influential Observations in Bayesian Regression Tree Models”, *Journal of Computational and Graphical Statistics*, DOI:10.1080/10618600.2023.2210180.
- 2022 ▷ H. Luo, G. Nattino and M.T. Pratola. “Sparse Additive Gaussian Process Regression”, *Journal of Machine Learning Research*, vol.23, pp. 1–34.
- 2022 ▷ A. Horiguchi, T.J. Santner, Y. Sun and M.T. Pratola: “Using BART to Perform Pareto Optimization and Quantify its Uncertainties”, *Technometrics*, vol.64, pp. 564–574 (special issue on Industry 4.0).
- 2021 ▷ M.T. Pratola, R.E. McCulloch and E.I. George: “Influential Observations in Bayesian Regression Tree Models”, in proceedings of the NeurIPS workshop “Your Model is Wrong: Robustness and misspecification in probabilistic modeling.”
- 2021 ▷ V. Geels, M.T. Pratola and R. Herbei: “The Taxicab Sampler: MCMC for Discrete Spaces with Application to Tree Models”, *Journal of Statistical Computation and Simulation*, DOI: 10.1080/00949655.2022.2119972.
- 2021 ▷ D.R. Phillips, R.J. Furnstahl, U. Heinz, T. Maiti, W. Nazarewicz, F.M. Nunes, M. Plumlee, M.T. Pratola, S. Pratt, F.G. Viens and S.M. Wild. “Get on the BAND Wagon: A Bayesian Framework for Quantifying Model Uncertainties in Nuclear Dynamics”, *Journal of Physics G: Nuclear and Particle Physics*, vol.48, pp.072001.
- 2020 ▷ A. Horiguchi, M.T. Pratola and T.J. Santner. “Assessing Variable Activity for Bayesian Regression Trees”, *Reliability Engineering and System Safety* (Special Issue on Sensitivity Analysis of Model Outputs), vol.207, pp.107391.
- 2020 ▷ J.A. Melendez, R.J. Furnstahl, H.W. Griebhammer, J.A. McGovern, D.R. Phillips and M.T. Pratola. “Designing Optimal Experiments: An Application to Proton Compton Scattering”, *European Physical Journal A*, vol.57, article 81.
- 2019 ▷ J.A. Melendez, R.J. Furnstahl, D.R. Phillips, M.T. Pratola and S. Wesolowski. “Quantifying Correlated Truncation Errors in Effective Field Theory”, *Physical Review C*, vol.100, pp.044001.
- 2019 ▷ H.T. Nguyen, M.T. Pratola and P.F. Craigmile. “Near-Optimal Design”, revised.
- 2019 ▷ F. Dai, V. Svetnik, A. Liaw, M.T. Pratola and R. Sheridan. “Building Quantitative Structure-Activity Relationship Using Bayesian Additive Regression Trees”, *Journal of Chemical Information and Modeling*, vol.59, pp.2642–2655.

- 2019 ▷ R. Mohammadi, M.T. Pratola and M. Kaptein. “Continuous-time Birth-Death MCMC for Bayesian Regression Tree Models”, *Journal of Machine Learning Research*, vol.21, pp.1–26.
- 2019 ▷ M.T. Pratola, C.D. Lin and P.F. Craigmile. “Optimal Design Emulators: a Point Process Approach”, *arXiv:1804.02089*, revised.
- 2018 ▷ M.T. Pratola, H.A. Chipman, E.I. George and R.E. McCulloch. “Heteroscedastic BART Via Multiplicative Regression Trees”, *Journal of Computational and Graphical Statistics*, DOI:10.1080/10618600.2019.1677243.
- 2018 ▷ M.T. Pratola and O. Chkrebtii. “Bayesian Calibration of Multistate Stochastic Simulators”, *Statistica Sinica*, vol.28, pp.693-720 (special issue on Computer Experiments).
- 2017 ▷ M.T. Pratola, O. Harari, D. Bingham and G.E. Flowers. “Design and Analysis of Experiments on Non-Convex Regions”, *Technometrics*, vol.59, pp.36-47.
- 2016 ▷ M.T. Pratola. “Efficient Metropolis-Hastings Proposal Mechanisms for Bayesian Regression Tree Models Rejoinder”, *Bayesian Analysis*, vol.11, pp.949-955.
- 2016 ▷ M.T. Pratola. “Efficient Metropolis-Hastings Proposal Mechanisms for Bayesian Regression Tree Models” (with discussion), *Bayesian Analysis*, vol.11, pp.885-911.
- 2016 ▷ M.T. Pratola and D. Higdon. “Bayesian Additive Regression Tree Calibration of Complex High-Dimensional Computer Models”, *Technometrics*, vol.58, pp.166-179.
- 2014 ▷ M.T. Pratola, R. McCulloch, J. Gattiker, H. Chipman and D. Higdon. “Parallel Bayesian Additive Regression Trees”, *Journal of Computational and Graphical Statistics*, vol.23, pp.830-852
- 2013 ▷ M. T. Pratola, S. Sain, M. Wiltberger, J. Rigler and D. Bingham. “Fast Sequential Computer Model Calibration of Large Non-Stationary Spatial-Temporal Processes”, *Technometrics*, vol.55, pp.232-242
- 2013 ▷ D. Higdon, M.T. Pratola, J. Gattiker, E. Lawrence, S. Habib, K. Heitmann, S. Price, C. Jackson and M. Tobis. “Computer Model Calibration using the Ensemble Kalman Filter”, *Technometrics*, vol.55, pp.488-500.
- 2010 ▷ M. T. Pratola. “Developments in Computer Model Calibration”, *Ph.D. Thesis*, Dept. of Statistics and Actuarial Science, Simon Fraser University
- 2009 ▷ T. Wolf and M. Pratola. “A Library of Eyes in Go II: Monolithic Eyes”, *Games of No Chance 3*, vol.56, pp.249-268
- 2003 ▷ M. Pratola and T. Wolf. “Optimizing GoTools’ Search Heuristics using Genetic Algorithms”, *ICGA Journal 26*, vol.1, pp.28-49

## New Work

- ▷ M.Y.H. Chan, S. Jaiswal, R.J. Furnstahl, U. Heinz and M.T. Pratola: *Accurate Gaussian Process Model Emulators for Heavy-Ion Simulations* (to be submitted)
- ▷ G. Collins, E.I. George, R. McCulloch, R. Herbei and M.T. Pratola: *Bayesian Inference of the Number of Bayesian Additive Regression Trees* (to be submitted)
- ▷ V. Geels, R. Herbei and M.T. Pratola: *Multi-tree Models for Count Data* (to be submitted)

## Invited Talks

- 2025 ▷ World Statistics Congress (WSC 2025): *Bayesian Model Mixing with Applications in Nuclear Physics and Climate*
- 2025 ▷ Joint Statistical Meetings (JSM 2025): *Emulation and Model Mixing with Random Path Bayesian Additive Regression Trees*
- 2024 ▷ Information and Statistics in Nuclear Experiment and Theory (ISNET v10): *Bayesian Model Mixing with applications in Nuclear Physics*
- 2024 ▷ Joint Research Conference (JRC 2024): *Bayesian Model Mixing with applications in Nuclear Physics and Climate*
- 2024 ▷ SIAM UQ 2024: *Bayesian Model Mixing with applications in Nuclear Physics and Climate*
- 2023 ▷ Spring Research Conference (SRC 2023)
- 2022 ▷ IMS International Conference on Statistics and Data Science (ICSIDS 2022): *Making Bayesian Tree Models Robust and Interpretable*
- 2022 ▷ ICSA Applied Statistics Symposium: *Bayesian Calibration and Model Mixing*
- 2022 ▷ Spring Research Conference (SRC 2022): *Making Bayesian Tree Models Robust and Interpretable*
- 2021 ▷ Monie A. Ferst Award Symposium, Georgia Tech: *Influential Observations in Bayesian Regression Tree Models*
- 2021 ▷ Michigan State University, Department of Statistics: *Influential Observations in Bayesian Regression Tree Models*
- 2021 ▷ McGill University, Department of Epidemiology, Biostatistics, & Occupational Health: *Bayesian Additive Regression Trees for Statistical Learning*
- 2020 ▷ Information and Statistics in Nuclear Experiment and Theory (ISNET v8): *Early Directions in Bayesian Model Mixing*
- 2020 ▷ Fall Technical Conference (FTC 2020): *Assessing Variable Activity for Bayesian Regression Trees*
- 2020 ▷ Joint Statistical Meetings (JSM 2020): *Sparse Additive Gaussian Process Regression*
- 2020 ▷ Spring Research Conference (SRC 2020): *Assessing Variable Activity for Bayesian Regression Trees*
- 2020 ▷ Department of Statistics and Actuarial Science, The University of Waterloo: *Bayesian Additive Regression Trees*
- 2020 ▷ Eastern North American Region International Biometric Society Conference (ENAR 2020): *Heteroscedastic Bayesian Additive Regression Trees*
- 2019 ▷ Department of Mathematics and Statistics, Queen's University: *Bayesian Additive Regression Trees*
- 2019 ▷ International Conference on Statistical Distributions and Applications (ICOSDA 2019): *Adaptive Splitting Bayesian Regression Tree Models*
- 2019 ▷ Joint Statistical Meetings (JSM 2019): *Adaptive Splitting Bayesian Regression Tree Models*
- 2019 ▷ Spring Research Conference (SRC 2019): *Sparse Additive Gaussian Process and Its Applications*
- 2019 ▷ University of Western Ontario, Department of Statistics: *Optimal Design Emulators and Near-Optimal Designs*
- 2019 ▷ Los Alamos National Laboratories: *Optimal Design Emulators and Near-Optimal Designs*

- 2018 ▷ Information and Statistics in Nuclear Experiment and Theory Workshop: *Bayesian Calibration of Stochastic Simulators*
- 2018 ▷ Statistical Sciences Group, Los Alamos National Laboratory: *Bayesian Calibration of Stochastic Simulators*
- 2018 ▷ ISBA2018: *Some Thoughts on Model Discrepancy After Hanging Out with Physicists*
- 2018 ▷ The JADS Institute: *Bayesian Statistical Uncertainty Quantification: Inference and Prediction with Computational Models and Big Data*
- 2018 ▷ UQ for Inverse Problems in Complex Systems, The Isaac Newton Insitute: *A Comparison of Approximate Bayesian Computation and Stochastic Calibration of Computationally Expensive Weather Simulators*
- 2018 ▷ The Mathematical Biosciences Institute, The Ohio State University : *Bayesian Statistical Uncertainty Quantification: Inference and Prediction with Computational Models and Big Data*
- 2017 ▷ School of Industrial and Systems Engineering, Georgia Institute of Technology: *A Stochastic Process Approach to Generating Designs: Optimal Design Emulators*
- 2017 ▷ Joint Statistical Meetings (JSM) 2017: *Residuals and Influence in Bayesian Ensemble Models*
- 2017 ▷ Design and Analysis Conference (DAE 2017): *A Stochastic Process Approach to Generating Designs: Optimal Design Emulators*
- 2017 ▷ Department of Methodology and Statistics, Tilburg University: *Heteroscedastic BART Using Multiplicative Regression Trees*
- 2017 ▷ King Abdullah University of Science and Technology: *A Comparison of Approximate Bayesian Computation and Stochastic Calibration of Computationally Expensive Weather Simulators*
- 2016 ▷ ISBA2016: *Efficient Metropolis-Hastings Proposal Mechanisms for Bayesian Regression Tree Models*
- 2016 ▷ SIAMUQ2016: *Bayesian Calibration of Stochastic Simulators*
- 2015 ▷ BNP Workshop, NIPS2015: *Modeling Heteroscedasticity with Bayesian Multiplicative Trees* (spotlight presentation)
- 2015 ▷ INFORMS2015: *Empirical Orthogonal Function Calibration with Simulator Uncertainty*
- 2015 ▷ SRC2015: *Parallel Bayesian Additive Regression Trees*
- 2014 ▷ ERCIM2014: *Bayesian Regression Trees, Nonparametric Heteroscedastic Regression Modeling and MCMC Sampling*
- 2014 ▷ King Abdullah University of Science and Technology: *Bayesian Regression Trees, Nonparametric Heteroscedastic Regression Modeling and MCMC Sampling*
- 2014 ▷ JSM: *Spatial-Temporal Modeling of Rain Rates using Approximate Bayesian Computation*
- 2014 ▷ STATMOS Talk, The University of Chicago: *Statistical Uncertainty Quantification*
- 2014 ▷ SIAM Conference on Uncertainty Quantification: *Model Calibration with Simulator Uncertainty and Differential Equation Constraints: An Empirical Orthogonal Functions Approach*
- 2014 ▷ MCMSki Conference: *Efficient Metropolis-Hastings Proposal Mechanisms for Bayesian Regression Tree Models*
- 2013 ▷ JSM: *Quantifying Uncertainty in CO2 Emissions with a Restricted Number of Remote Sensors*

- 2013 ▷ Department of Mathematics, University of Alabama: *Efficient Metropolis-Hastings Proposal Mechanisms for Bayesian Regression Tree Models*
- 2013 ▷ Department of Statistics, University of Manitoba: *Efficient Metropolis-Hastings Proposal Mechanisms for Bayesian Regression Tree Models*
- 2013 ▷ Department of Statistics, The Ohio State University: *Efficient Metropolis-Hastings Proposal Mechanisms for Bayesian Regression Tree Models*
- 2012 ▷ Department of Mathematics and Statistics, Acadia University: *Efficient Metropolis-Hastings Proposal Mechanisms for Bayesian Additive Regression Trees*
- 2012 ▷ Spring Research Conference: *Parallel Bayesian Additive Regression Trees*
- 2012 ▷ SIAM Conference on Uncertainty Quantification: *Parallel Bayesian Additive Regression Trees*
- 2012 ▷ SIAM Conference on Uncertainty Quantification: *Bayesian Calibration via Additive Regression Trees with Application to the Community Ice Sheet Model*
- 2011 ▷ Accelerating Industrial Productivity via Deterministic Computer Experiments and Stochastic Simulation Experiments, Sir Isaac Newton Institute DAE program: *A Fully Bayesian and Data Efficient Approach to Model Calibration and Uncertainty Quantification*
- 2011 ▷ JSM: *Combining Multiple Computer Models for Posterior Predictive Inference*
- 2011 ▷ 16th Annual CESM Workshop: *Calibration and Uncertainty Quantification of the GLIMMER-CISM Ice Sheet Model: An Initial Investigation*
- 2010 ▷ INFORMS: *Fast Calibration of Complex Computer Models*
- 2010 ▷ Los Alamos National Laboratory: *Fast Calibration of Complex Computer Codes*
- 2009 ▷ University of British Columbia Oakanagan, Dept. of Mathematics, Statistics and Physics: *Fast Calibration of Complex Computer Codes*
- 2005 ▷ High Performance Computing Symposium: *Monolithic Eyes in the Game of Go*
- 2005 ▷ Brock Institute for Scientific Computation, SGI Lecture Series: *Monolithic Eyes in the Game of Go*
- 2004 ▷ Statistical Horizons Graduate Student Seminar Series: *R Code Optimization*
- 2003 ▷ Brock Institute for Scientific Computation, SGI Lecture Series: *Parallel Programming with MPI*

## Posters and Other Contributions

- 2023 ▷ K. Beyer, L. Buskirk, M. Y-H. Chan, T.H. Chang, R.J. DeBoer, R.J. Furnstahl, P. Giuliani, K. Godbey, K. Ingles, D. Liyanage, F.M. Nunes, D. Odell, D.R. Phillips, M. Plumlee, M.T. Pratola, A.C. Sempowski, O. Sürer, S. M. Wild and J. C. Yannotty: BANDFramework: An Open-Source Framework for Bayesian Analysis of Nuclear Dynamics, <https://bandframework.github.io>.
- 2022 ▷ H. Chipman, E.I. George, R. Hahn, R.E. McCulloch, M.T. Pratola and R. Sparapani: *Computational Approaches to Bayesian Additive Regression Trees*, in *Computational Statistics in Data Science*, Editors W.W. Piegorsch, R.A. Levine, H.H. Zhang and T.C.M. Lee, John Wiley & Sons.
- 2021 ▷ M.T. Pratola, R.E. McCulloch and E.I. George: *Influential Observations in Bayesian Regression Tree Models*, NeurIPS Workshop: Your Model is Wrong: Robustness and misspecification in probabilistic modeling.
- 2020 ▷ Organizer: *Technometrics Special Issue on Industry 4.0*

- 2020 ▷ Lead and Co-Organizer: *Conversations on the Politics and Science of Climate Change in the Buckeye State*
- 2020 ▷ JSM Roundtable Chair: *Computational Developments for Bayesian Regression Tree Methods*
- 2017 ▷ JSM Session Chair and Organizer: *New Directions in Computer Experiments*
- 2016 ▷ JSM Session Chair and Organizer: *Advances in Bayesian Regression Tree Modeling*
- 2016 ▷ Book Review: *Parallel Computing for Data Science with examples in R, C++ and CUDA* (by N. Matloff), The American Statistician, to appear.
- 2015 ▷ JSM Session Chair: *Bayesian Modeling in Physical Sciences and Engineering*
- 2015 ▷ BNP Workshop, NIPS2015: *Modeling Heteroscedasticity with Bayesian Multiplicative Trees*
- 2014 ▷ JSM Session Chair: *Environmental Monitoring Using Networks of Sensors*
- 2014 ▷ M.T. Pratola, T. Aldemir, R. Denning, A. Ferketich and E. Klein: *Scalable Statistical Methodology for the Analysis of Exposure to Second Hand Smoke in Multiunit Dwellings from Localized Outdoor Sources*, OSU Biostatistics Symposium
- 2012 ▷ M.T. Pratola, D. Higdon, J. Gattiker and C. Jackson: *Computer Model Calibration using the Ensemble Kalman Filter*, *Conference on Data Analysis*
- 2011 ▷ M.T. Pratola, R. McCulloch, J. Gattiker, H. Chipman and D. Higdon: *Parallel Bayesian Additive Regression Trees*, NIPS Annual Workshop
- 2011 ▷ M.T. Pratola, J. Reisner, D. Higdon and M.K. Dubey: *Quantifying Uncertainty in CO<sub>2</sub> Emissions with a Restricted Number of Remote Sensors: A Comparison of Model Calibration and Kalman Filtering Techniques*, AGU Fall Meeting
- 2009 ▷ M.T. Pratola: *An Overview of Computer Model Calibration Experiments with Application to a Space-Weather Model*, presentation at the Joint UBC/SFU Graduate Student Workshop
- 2009 ▷ M.T. Pratola, S. Sain and D. Bingham: *Fast Calibration of Complex Computer Models*, contributed poster, presented at DAE
- 2009 ▷ M.T. Pratola, S. Sain and D. Bingham: *Fast Calibration of Complex Computer Models*, contributed paper presented at JSM
- 2009 ▷ R. Bhattacharya, M.T. Pratola and W. Thompson: *Design of Experiments for Statistical Models of Dynamical Systems*, poster project presentation, STAT890: Statistics for Dynamic Systems Models with Dr. Dave Campbell
- 2009 ▷ M.T. Pratola: *Kriging, Computer Models and Prometheus*, contributed talk, MITACS/GEOIDE Summer School on the Mathematical and Statistical Descriptions of Forest Fire Spread: Spatial Statistics and Level Set Method
- 2009 ▷ M.T. Pratola, S. Sain and D. Bingham: *Fast Calibration of Complex Computer Models*, contributed poster, Workshop on Statistical Methods for Dynamic Systems Models
- 2009 ▷ M.T. Pratola, S. Sain and D. Bingham: *Fast Calibration of Complex Computer Models*, contributed poster, session on the Design and Analysis of Computer Experiments and Variable Selection for Complex Systems, SSC
- 2009 ▷ M.T. Pratola, S. Sain and D. Bingham: *Fast Calibration of Complex Computer Models*, contributed talk, session on Analysis of Computer Experiments and Variable Selection, SRC
- 2007 ▷ M.T. Pratola and D. Bingham: *Design on Non-Convex Regions: Optimal Experiments for Spatial Process Prediction with Applications to Industrial Processes*, JSM



## Workshops and Applied Research Experience

- 2014 ▷ SIAM Conference on Uncertainty Quantification Minisymposium: *Gaussian processes modelling uncertainty layers, from forward simulation to calibration*, with D. Campbell, O. Chkrebtii and J. Bryansdottir.
- 2009 ▷ Lab Instructor, MITACS/GEOIDE Summer School on the Mathematical and Statistical Descriptions of Forest Fire Spread: Spatial Statistics and Level Set Method, Hinton Training Centre
- 2008 ▷ Invited Collaborator, Institute for Mathematics Applied to Geosciences, National Center for Atmospheric Research
- 2007 ▷ Organizer, Fall 2007 Joint UBC/SFU Graduate Student Workshop, Dept. of Statistics and Actuarial Science, Simon Fraser University
- 2007 ▷ Statistical and Applied Mathematical Sciences Institute's Theme of the Year Workshop III: Application of Statistics to Numerical Models, National Center for Atmospheric Research
- 2006 ▷ Statistical and Applied Mathematical Sciences Institute: Summer School on the Design and Analysis of Computer Experiments, Simon Fraser University
- 2006 ▷ Pacific Institute for the Mathematical Sciences: Industrial Problem Solving Workshop, Simon Fraser University

## Service

- ▷ Associate Editor: *Technometrics*, 2016-current.
- ▷ Reviewer: *Technometrics*; *Journal of the American Statistical Association*; *Bayesian Analysis*; *Journal of Computational and Graphical Statistics*; *Statistics and Computing*; *Annals of Applied Statistics*; *Statistica Sinica*; *Journal of Uncertainty Quantification*; *Statistical Science*; *Stat*; *Canadian Journal of Statistics*; *Computational Statistics and Data Analysis*; *Statistical Analysis and Data Mining*; *Journal of Agricultural, Biological and Environmental Statistics*; *Journal of Forecasting*; *Applied Stochastic Models in Business and Industry*
- ▷ Education chair: *Section on Physical & Engineering Sciences, American Statistical Association*, 2015-2023
- ▷ Publicity Chair: *Section on Physical & Engineering Sciences, American Statistical Association*, 2012-2015
- ▷ Member of the American Statistical Association (ASA), the Statistical Society of Canada (SSC) and the International Society for Bayesian Analysis (ISBA)
- ▷ Member of the Central Ohio Energy and Air Quality Working Group, 2018-current.
- ▷ Organizer: *Fall 2007 Joint UBC/SFU Graduate Student Workshop*

## Teaching

Note: I was on sabbatical for the 2020-2021 school year.

- 2024 ▷ STAT-S301: Applied Statistical Methods for Business (Fall 2024, 79 students)
- 2024 ▷ STAT3303: Statistical Decision Making (Spring 2024, 31 students)
- 2024 ▷ STAT8999: PhD Research (Spring 2024, 1 student)
- 2023 ▷ STAT3301: Statistical Modeling for Discovery 1 (Fall 2023, 44 students)
- 2023 ▷ STAT3301: Statistical Modeling for Discovery 1 (Fall 2023, 46 students)
- 2023 ▷ STAT8999: PhD Research (Fall 2023, 1 student)
- 2023 ▷ STAT5302: Intermediate Data Analysis II (Spring 2023, ?? students)
- 2023 ▷ STAT8998: PhD Research Pre-Candidacy (Spring 2023, 1 student)

2023 ▷ STAT8999: PhD Research (Spring 2023, 1 student)  
 2022 ▷ STAT3301: Statistical Modeling for Discovery I (Fall 2022, 45 students)  
 2022 ▷ STAT8193: Individual Studies (Fall 2022, 1 student)  
 2022 ▷ STAT8998: PhD Research Pre-Candidacy (Fall 2022, 1 student)  
 2022 ▷ STAT8999: PhD Research (Fall 2022, 1 student)  
 2022 ▷ STAT8193: Individual Studies (Summer 2022, 2 students)  
 2022 ▷ STAT8998: PhD Research Pre-Candidacy (Summer 2022, 1 student)  
 2022 ▷ STAT8999: PhD Research (Summer 2022, 1 student)  
 2022 ▷ STAT3303: Statistical Decision Making (Spring 2022, 3 credit hours, 55 students)  
 2022 ▷ STAT8998: Ph.D. Research (pre-candidacy) (Spring 2022, 3 credit hours, 2 students)  
 2022 ▷ STAT8999: Ph.D. Research (Spring 2022, 1 credit hour, 1 student)  
 2021 ▷ STAT4620: Introduction to Statistical Learning (Fall 2021, 2 credit hours, 50 students)  
 2021 ▷ STAT8998: Ph.D. Research (pre-candidacy) (Fall 2021, 3 credit hours, 2 students)  
 2021 ▷ STAT8999: Ph.D. Research (Fall 2021, 2 credit hours, 1 student)  
 2021 ▷ STAT8193: Individual Studies (Summer 2021, 3 credit hours, 1 student)  
 2021 ▷ STAT8999: Ph.D. Research (Summer 2021, 1 credit hours, 1 student)  
 2021 ▷ STAT8193: Individual Studies (Spring 2021, 2 credit hours, 2 students)  
 2021 ▷ STAT8998: Ph.D. Research (pre-candidacy) (Spring 2021, 3 credit hours, 1 student)  
 2021 ▷ STAT8999: Ph.D. Research (Spring 2021, 2 credit hours, 1 student)  
 2020 ▷ STAT8193: Individual Studies (Fall 2020, 3 credit hours, 1 student)  
 2020 ▷ STAT8999: Ph.D. Research (Fall 2020, 3 credit hours, 1 student)  
 2020 ▷ STAT8999: Ph.D. Research (Fall 2020, 1 credit hours, 1 student)  
 2020 ▷ STAT8999: Ph.D. Research (Summer 2020, 2 credit hours, 1 student)  
 2020 ▷ STAT8999: Ph.D. Research (Summer 2020, 3 credit hours, 1 student)  
 2020 ▷ STAT6193: Individual Studies (Summer 2020, 3 credit hours, 7 students)  
 2020 ▷ STAT8999: Ph.D. Research (Spring 2020, 2 credit hours, 1 student)  
 2020 ▷ STAT8999: Ph.D. Research (Spring 2020, 3 credit hours, 1 student)  
 2020 ▷ STAT6193: Individual Studies (Spring 2020, 1 credit hour, 1 student)  
 2020 ▷ STAT6193: Individual Studies (Spring 2020, 1 credit hour, 1 student)  
 2020 ▷ STAT6950: Applied Statistics II (Spring 2020, 4 credit hours, 23 students)  
 2020 ▷ STAT3303: Statistical Decision Making (Spring 2020, 3 credit hours, 32 students)  
 2019 ▷ STAT8999: Ph.D. Research (Fall 2019, 7 credit hours, 1 student)  
 2019 ▷ STAT8999: Ph.D. Research (Fall 2019, 2 credit hours, 1 student)  
 2019 ▷ STAT8999: Ph.D. Research (Fall 2019, 2 credit hours, 1 student)  
 2019 ▷ STAT4620: Introduction to Statistical Learning (Fall 2019, 2 credit hours, 54 students)  
 2019 ▷ STAT8999: Ph.D. Research (Summer 2019, 2 credit hours, 1 student)  
 2019 ▷ STAT8999: Ph.D. Research (Summer 2019, 4 credit hours, 1 student)  
 2019 ▷ STAT6193: Individual Studies (Summer 2019, 3 credit hours, 2 students)  
 2019 ▷ STAT6950: Applied Statistics II (Spring 2019, 4 credit hours, 19 students)  
 2019 ▷ STAT8999: Ph.D. Research (Spring 2019, 6 credit hours, 1 student)  
 2018 ▷ STAT8999: Ph.D. Research (Fall 2018, 3 credit hours, 1 student)  
 2018 ▷ STAT5301: Intermediate Data Analysis (Fall 2018, 4 credit hours, 62 students)  
 2018 ▷ STAT4620: Introduction to Statistical Learning (Fall 2018, 2 credit hours, 36 students)  
 2018 ▷ STAT8999: Ph.D. Research (Spring 2018, 1 credit hour, 1 student)  
 2018 ▷ STAT8750.02: Research Group in Design of Physical and Computer Experiments  
 (Spring 2018, 1 credit hour, 4 students)  
 2018 ▷ STAT4193: Individual Studies (Spring 2018, 1 credit hour, 1 student)

- 2017 ▷ STAT8810: Special Topics in Uncertainty Quantification via Tree-based Models and Approximate Computations (Fall 2017; 3 credit hours)
- 2017 ▷ STAT4620: Introduction to Statistical Learning (Fall 2017; 2 credit hours)
- 2017 ▷ STAT6950: Applied Statistics II (Spring 2017; 4 credit hours)
- 2017 ▷ STAT6450: Applied Regression Analysis (Spring 2017; 4 credit hours)
- 2017 ▷ STAT7999: M.Sc. Research (Spring 2017; 1 student)
- 2017 ▷ STAT8999: Ph.D. Research (Spring 2017; 1 student)
- 2016 ▷ STAT8193: Design and Spatial Point Processes (Fall 2016; 1 credit hour)
- 2016 ▷ STAT4620: Introduction to Statistical Learning (Fall 2016; 2 credit hours)
- 2016 ▷ STAT7999: M.Sc. Research (Fall 2016; 1 student)
- 2016 ▷ STAT8999: Ph.D. Research (Fall 2016; 1 student)
- 2016 ▷ STAT3450: Basic Statistics for Engineers (Spring 2016; 2 credit hours)
- 2016 ▷ STAT6950: Applied Statistics II (Spring 2016; 4 credit hours)
- 2016 ▷ STAT8999: Ph.D. Research (Spring 2016; 1 student)
- 2016 ▷ STAT8750.02: Research Group in Design of Physical and Computer Experiments (Spring, 2016) [Organizer]
- 2016 ▷ STAT8750.04: Research Group on Quantitative Consumer “SPAM” (Spring, 2016) [Participant]
- 2015 ▷ STAT5301: Intermediate Data Analysis I (Fall 2015; 4 credit hours)
- 2015 ▷ STAT8999: Ph.D. Research (Fall 2015; 1 student)
- 2015 ▷ STAT8750.02: Research Group in Design of Physical and Computer Experiments (Fall, 2015) [Organizer]
- 2015 ▷ STAT8750.06: Research Group in Spatial Statistics and Environmental Statistics (Fall, 2015) [Participant]
- 2015 ▷ Independent Studies Course (Summer, 2015; 3 credit hours equivalent)
- 2015 ▷ STAT6950: Applied Statistics II (Spring 2015; 4 credit hours)
- 2015 ▷ STAT6450: Applied Regression Analysis (Spring, 2015; 4 credit hours)
- 2015 ▷ Independent Studies Course: Modern Regression Methods (Spring, 2015; 3 credit hours equivalent)
- 2015 ▷ STAT8750.02: Research Group in Design of Physical and Computer Experiments (Spring, 2015) [Organizer]
- 2015 ▷ STAT8750.06: Research Group in Spatial Statistics and Environmental Statistics (Spring, 2015) [Participant]
- 2014 ▷ STAT8750.02: Research Group in Design of Physical and Computer Experiments (Fall, 2014) [Participant/presenter]
- 2014 ▷ STAT8750.06: Research Group in Spatial Statistics and Environmental Statistics (Fall, 2014) [Participant/Faculty mentor for student group]
- 2014 ▷ STAT8750.02: Research Group in Design of Physical and Computer Experiments (Spring, 2014) [Participant/presenter]
- 2014 ▷ STAT6950: Applied Statistics II (Spring, 2014; 4 credit hours)
- 2014 ▷ STAT8750.02: Research Group in Design of Physical and Computer Experiments (Fall, 2013) [Participant/presenter]
- 2014 ▷ STAT8750.02: Research Group in Spatial Statistics (Spring, 2013) [Participant]
- 2013 ▷ STAT8460: Special Topics in Design of Experiments (Fall, 2013; 3 credit hours)
- 2013 ▷ STAT8750.02: Research Group in Design of Physical and Computer Experiments (Fall, 2013) [Participant/presenter]
- 2007 ▷ Course Lecturer: Introduction to Probability and Statistics (STAT270, SFU)