ROBERT BRANDON GRAMACY

CONTACT INFO

Department of Statistics (MC0439)
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RESEARCH INTERESTS

Bayesian modeling methodology, statistical computing, machine learning, Monte Carlo inference, nonparametric regression, sequential design, and optimization under uncertainty. Application areas include spatial data, computer experiments, ecology, epidemiology, finance and public policy.

EDUCATION

UNIVERSITY OF CALIFORNIA, SANTA CRUZ
Ph.D. Applied Mathematics & Statistics, December 2005, advised by Herbert K.H. Lee
Dissertation: *Bayesian treed Gaussian process models*

UNIVERSITY OF CALIFORNIA, SANTA CRUZ
M.Sc. Computer Science, April 2003, advised by Manfred K. Warmuth
Thesis: *Adaptive Caching by Experts*

UNIVERSITY OF CALIFORNIA, SANTA CRUZ
College Honors; 4.00 GPA
B.Sc. (Highest Honors) Computer Science, June 2001
Honors Thesis: *Shortest Paths and Network Flow Algorithms for ESD Analysis*
B.A. (Honors) Mathematics, June 2001
Project: *Combinatorial Optimization by Matchings*

PROFESSIONAL POSITIONS

Professor of Statistics, Department of Statistics, VIRGINIA TECH	2016 – pres
Associate Professor of Statistics, Booth School of Business, UNIV. OF CHICAGO	2014 – 2016
Fellow, COMPUTATION INSTITUTE Argonne/UChicago	2013 – 2016
Assistant Professor of Statistics, Booth School of Business, UNIV. OF CHICAGO	2010 – 2014
Lecturer of Statistical Science, Statistical Laboratory, UNIV. OF CAMBRIDGE, UK	2006 – 2010
Fellow, JESUS COLLEGE Cambridge	2006 – 2010
Visiting Professor, Dept. of Probability and Statistics, UC SANTA BARBARA	2009
Postdoc, Statistical Laboratory under Steve Brooks, UNIV. OF CAMBRIDGE, UK	2006

HONORS & AWARDS

ASA award for Outstanding Service to the Section on Physical and Engineering Sciences; 2022
Youden Award for best expository paper appearing in Technometrics in 2019; 2020
Elected Fellow of the American Statistical Association; 2020
Facebook Faculty Award; 2016
Robert King Steel Faculty Fellow; 2014-2015
Kemper Family Foundation Scholar; 2011-2012
R in Finance best academic paper prize; 2011
INQUIRE UK/Europe best paper prize, 1 of 2 winners; 2008
Savage Award for best Ph.D. thesis in Bayesian applied methodology; 2006
ASA Statistical Computing & Graphics student paper competition, 1 of 4 winners; 2005
UCSC Applied Math & Stats nomination for UC Presidents Dissertation fellowship; 2005
Huffman Prize, given to the top graduating UCSC Engineering student; 2001
Chancellor's Award, UC Santa Cruz; 2001
Dean's Award, UC Santa Cruz Baskin Engineering School; 2001
UCSC Student Employee of the Year; 2000

PEER-REVIEWED JOURNAL ARTICLES

S. Koermer, J. Loda, A. Noble, R.B. Gramacy. Augmenting a simulation campaign for hybrid computer model and field data experiments (2023) Technometrics, *to appear*; arXiv:2301.10228

R.B. Christianson, R.B. Gramacy. *Robust expected improvement for Bayesian optimization* (2023) IISE Transactions; arXiv:2302.08612

A. Sauer, A. Cooper, R.B. Gramacy. *Vecchia-approximated deep Gaussian processes for computer experiments* (2023) Journal of Computational and Graphical Statistics, 32(3); arXiv:2204.02904

R.B. Christianson, R.M. Pollyea, R.B. Gramacy. *Traditional kriging versus modern Gaussian processes for large-scale mining data* (2023) Statistical Analysis and Data Mining, 16(5), pp. 488–506; arXiv:2207.10138

A. Sauer, R.B. Gramacy, D. Higdon. *Active learning of deep Gaussian process surrogates* (2023) Technometrics, 65(1), pp. 4–18; arXiv:2012.08015

D.A. Cole, R.B. Gramacy, J.E. Warner, G.F. Bomarito, P.E. Leser, W.P. Leser. *Entropy-based adaptive design for contour finding and estimating reliability* (2023) Journal of Quality Technology, 55(1), pp. 70-87; arXiv:2105.11357

N. Wycoff, M. Binois, R.B. Gramacy. *Sensitivity prewarping for local surrogate modeling* (2022) Technometrics, 64(4), pp. 535–547; arXiv:2101.06296

S.M. Hosseini, A. Radmehr, A.H. Ahangarnejad, R.B. Gramacy, M. Ahmadian. *A statistical evaluation of multiple regression models for contact dynamics in rail vehicles using roller rig data* (2022) International Journal of Rail Transportation, 10(6), pp. 717–729.

J. Huang, R.B. Gramacy. *Multi-output calibration of a honeycomb seal via on-site surrogates* (2022) Technometrics, 64(4), pp. 548–563; arXiv:2102.00391

B. Zhang, R.B. Gramacy, L.R. Johnson, K.A. Rose, E.P. Smith. *Batch-sequential design and heteroskedastic surrogate modeling for delta smelt conservation* (2022) Annals of Applied Statistics, 16(2), pp. 816–842; arXiv:2010.06515

D. Austin Cole, R.B. Gramacy, M. Ludkovski. *Large-scale local surrogate modeling of stochastic simulation experiments* (2022) Computational Statistics and Data Analysis, 174; arXiv:2109.05324

E. Baker, P. Barbillon, A. Fadikar, R.B. Gramacy, R. Herbei, D. Higdon, J. Huang, L.R. Johnson, A. Mondal, B. Pires, J. Sacks, V. Sokolov. *Stochastic simulators: An overview with opportunities* (2022) Statistical Science, 37(1), pp. 64–89; arXiv:2002.01321

M. Binois, R.B. Gramacy. `hetGP`*: Heteroskedastic Gaussian Process Modeling and Sequential Design in* R. (2021) Journal of Statistical Software, 98(13); available as a vignette in `hetGP` on CRAN

A. Edwards, R.B. Gramacy. *Precision aggregated local models* (2021) Statistical Analysis and Data Mining, 14, pp. 676–697; arXiv:2005.13375

D.A. Cole, R. Christianson, R.B. Gramacy. *Locally induced Gaussian processes for large-scale simulation experiments* (2021) Statistics and Computing, 31(33); arXiv:2008.12857

B. Zhang, D.A. Cole, R.B. Gramacy. *Distance-distributed design for Gaussian process surrogates*. (2021) Technometrics, 63(1), pp. 40–52; arXiv:1812.02794

C.T. Franck, R.B. Gramacy. *Assessing Bayes factor surfaces using interactive visualization and computer surrogate modeling*. (2020) The American Statistician, 74(4), pp. 359–369; arXiv:1809.05580

R.B. Gramacy. *A shiny update to an old experiment game.* (2020) The American Statistician, 74(1), pp. 87–92; arXiv:1803.00613

J. Huang, R.B. Gramacy, M. Binois, M. Librashi. *On-site surrogates for large-scale calibration* (2019). Applied Stochastic Models in Business and Industry, 36(2), pp. 283–304; arXiv:1810.01903

M.A. Johansson, ..., R.B. Gramacy and 50+ others. *An open challenge to advance probabilistic forecasting for dengue epidemics*. (2019) Proceedings of the National Academy of Sciences, published November 2019

M.J. Heaton, A. Datta, A. Finley, R. Furrer, J. Guinness, R. Guhaniyogi, F. Gerber, R.B. Gramacy, D. Hammerling, M. Katzfuss, F. Lindgren, D.W. Nychka, F. Sun, A. Zammit–Mangion. *Methods for Analyzing Large Spatial Data: A Review and Comparison.* (2019) Journal of Agricultural, Biological and Environmental Statistics, 24(3), pp. 398–425; arXiv:1710.05013

F. Sun, R.B. Gramacy, B. Haaland, S. Lu, Y. Hwang. *Synthesizing simulation and field data of solar irradiance.* (2019) Statistical Analysis and Data Mining, 12(4), pp. 311-324; arXiv:1806.05131

M. Chung, M. Binois, R.B. Gramacy, J.M. Bardsley, D.J. Moquin, A.P. Smith, A.M. Smith. *Parameter and uncertainty estimation for dynamical systems using surrogate stochastic processes.* (2019) SIAM Journal on Scientific Computing, 41(4), pp. A2212–A2238; arXiv:1802.00852

M. Binois, J. Huang, R.B. Gramacy, M. Ludkovski. *Replication or exploration? Sequential design for stochastic simulation experiments.* (2019) Technometrics, 61(1), pp. 7–23; arXiv:1710.03206. Winner of the Youden award in 2020.

F. Sun, R.B. Gramacy, B. Haaland, E. Lawrence, A. Walker. *Emulating satellite drag from large simulation experiments.* (2019) SIAM/ASA Journal on Uncertainty Quantification, 7(2), pp. 720–759; arXiv:1712.0018

C-L. Sung, R.B. Gramacy, B. Haaland. *Potentially Predictive Variance Reducing Subsample Locations in Local Gaussian Process Regression.* (2018) Statistica Sinica, 28, pp. 577–600; arXiv:1604.04980

M. Binois, R.B. Gramacy, M. Ludkovski. *Practical heteroskedastic Gaussian process modeling for large simulation experiments.* (2018) Journal of Computational and Graphical Statistics, 27(4), pp. 808–821; arXiv:1611.05902

L.R. Johnson, R.B. Gramacy, J. Cohen, E. Mordecai, C. Murdock, J. Rohr, S.J. Ryan, A.M. Stewart-Ibarra, D. Weikel. *Phenomenological forecasting of disease incidence using heteroskedastic Gaussian processes: a dengue case study.* (2018) Annals of Applied Statistics, 12(1), pp. 27–66; arXiv:1702.00261

T. Graves, R.B. Gramacy, C.L.E. Franzke, N.W. Watkins. *A brief history of long memory: Hurst, Mandelbrot and the Road to ARFIMA, 1951-1980*. (2017) Entropy, 19(9); arXiv:1406.6018

T. Graves, C.L.E. Franzke, N.W. Watkins, R.B. Gramacy, E. Tindale. *Systematic inference of the long-range dependence and heavy-tail distribution parameters of ARFIMA models.* (2017) Physica A, 473, pp. 60–71

R.B. Gramacy, B. Haaland. *Speeding up neighborhood search in local Gaussian process prediction*. (2016) Technometrics, 58(3), pp. 294–303; arXiv:1409.0074

R.B. Gramacy, `laGP`*: Large-scale spatial modeling via local approximate Gaussian processes in* R. (2016) Journal of Statistical Software, 72(1), pp. 1–46; available as a vignette in `laGP` on CRAN

S.W. Malone, R.B. Gramacy, E. ter Horst. *Timing foreign exchange markets*. (2016) Econometrics, 4(1), 15; SSRN:2154035

R.B. Gramacy, G.A. Gray, S. Le Digabel, H.K.H. Lee, P. Ranjan, G. Wells, S. Wild. *Modeling an augmented Lagrangian for improved blackbox constrained optimization* (2016) Technometrics (with discussion), 58(1), pp. 1–11; arXiv:1403:4809

R.B. Gramacy, D. Bingham, J.P. Holloway, M.J. Grosskopf, C.C. Kuranz, E. Rutter, M. Trantham, R.P. Drake. *Calibrating a large computer experiment simulating radiative shock hydrodynamics*. (2015) Annals of Applied Statistics, 9(3); pp. 1141–1168; arXiv:1410.3293

R.B. Gramacy, M. Ludkovski. *Sequential design for optimal stopping problems*. (2015) SIAM Journal on Financial Mathematics, 6(1), pp. 748–775; arXiv:1309.3832

R.B. Gramacy, and D.W. Apley. *Local Gaussian process approximation for large computer experiments*. (2015) Journal of Computational and Graphical Statistics, 24(2), pp. 561–578; arXiv:1303.0383

T. Graves, R.B. Gramacy, C.L.E. Franzke, N.W. Watkins. *Efficient Bayesian inference for natural time series using ARFIMA processes*. (2015) Nonlinear Processes in Geophysics, 22, pp. 679–700; arXiv:1403:2940

R.B. Gramacy, S. Le Digabel. *The mesh adaptive direct search algorithm with treed Gaussian process surrogates.* (2015) Pacific Journal of Optimization, 11(3), pp. 419–447; Les cahiers du GERAD #G-2011-37; OO:2011-07-3090

R.B. Gramacy, S.W. Malone, E. ter Horst. *Exchange rate fundamentals, forecasting, and speculation: Bayesian models in black markets*. (2014) Journal of Applied Econometrics, 29(1), pp. 22–41

R.B. Gramacy, J. Niemi, R. Weiss. *Massively parallel approximate Gaussian process regression*. (2014) SIAM/ASA Journal on Uncertainty Quantification, 2(1), pp. 564–584; arXiv:1310.5182

D.D. Creal, R.B. Gramacy, R.S.Tsay. *Market-based credit ratings*. (2014) Journal of Business and Economic Statistics, 32(3), 430–444; SSRN:2310260

C. Anagnostopoulos, R.B. Gramacy. *Information-Theoretic Data Discarding for Dynamic Trees on Data Streams*. (2013) Entropy, 15(12), 5510–5535; arXiv:1201.5568

H. Chipman, E.I. George, R.B. Gramacy, R. McCulloch. *Bayesian treed response surface models.* (2013) WIREs Data Mining and Knowledge Discovery, 3(4)

Y. Hua, R.B. Gramacy, H. Lian. *Bayesian quantile regression for single-index models.* (2013) Statistics and Computing, 23(4), 437–454; arXiv:1110.0219

R.B. Gramacy, M.A. Taddy, S.M. Wild. *Variable selection and sensitivity analysis via dynamic trees with an application to computer code performance tuning.* (2013) Annals of Applied Statistics, 7(1), pp. 51–80; arXiv:108.4739

R.B. Gramacy, S.T. Jensen, M.A. Taddy. *Estimating player contribution in hockey with regularized logistic regression*. (2013) Journal of Quantitative Analysis in Sports, 9(1), pp. 97–111; arXiv:1209.5026

J.D. Lawrence, R.B. Gramacy, L. Thomas, S.T. Buckland. *The importance of prior choice in model selection: a density dependence example.* (2013) Methods in Ecology and Evolution, 4(1), pp. 25–33; arXiv:1108.4912

R.B. Gramacy, N.G. Polson. *Simulation-based regularized logistic regression*. (2012) Bayesian Analysis, 7(3), pp. 567–590; arXiv:1005.3430

R.B. Gramacy, H.K.H. Lee. *Cases for the nugget in modeling computer experiments.* (2012) Statistics and Computing, 22(3), pp. 713–722; arXiv:1007.4580

R.B. Gramacy, H. Lian. *Gaussian process single-index models as emulators for computer experiments.* (2012) Technometrics, 54(1), pp. 30–41; arXiv:1009.4241

C.L.E. Franzke, T. Graves, N.W. Watkins, R.B. Gramacy, C. Hughes. *Robustness of estimators of long-range dependence and self-similarity under non-Gaussianity.* (2012) Philosophical Transactions of the Royal Society A, 370(1962), pp. 1250–1267; arXiv:1101.5018

M.A. Taddy, R.B. Gramacy, N.G. Polson. *Dynamic trees for learning and design*. (2011) Journal of the American Statistical Association, 106(493), pp. 109–123; arXiv:0912.1586

R.B. Gramacy, N.G. Polson. *Particle learning of Gaussian process models for sequential design and optimization*. (2011) Journal of Computational and Graphical Statistics, 20(1), pp. 102–118; arXiv:0909.5262

T. Broderick, R.B. Gramacy. *Classification and categorical inputs with treed Gaussian process models.* (2011) Journal of Classification, 28(2), 244–270; arXiv:0904.4891

H.K.H. Lee, R.B. Gramacy, C. Linkletter, G.A. Gray. *Optimization Subject to Hidden Constraints via Statistical Emulation*. (2011) Pacific Journal of Optimization, 7(3), pp. 467–478; UCSC-SOE-10-10

D. Merl, L.R. Johnson, R.B. Gramacy, M. Mangel. `amei`*: an* R *package for the Adaptive Management of Epidemiological Interventions*. (2010) Journal of Statistical Software, 36(6)

R.B. Gramacy, E. Pantaleo. *Shrinkage regression for multivariate inference with missing data, and an application to portfolio balancing.* (2010) Bayesian Analysis, 5(2), pp. 1–26; arXiv:0907.2135

R.B. Gramacy, M.A. Taddy. *Categorical inputs, sensitivity analysis, optimization and importance tempering with* `tgp` *version 2, an* R *package for treed Gaussian process models*. (2010) Journal of Statistical Software, 33(6)

R.B. Gramacy, R.J. Samworth, R. King. *Importance tempering*. (2010) Statistics and Computing, 20(1), pp. 1–7; arXiv:0707.4242

D. Merl, L.R. Johnson, R.B. Gramacy, M.S. Mangel. *A statistical framework for the adaptive management of epidemiological interventions*. (2009) PLoS ONE 4(6): e5087

R.B. Gramacy, H.K.H. Lee. *Adaptive design and analysis of supercomputer experiments*. (2009) Technometrics, 51(2), pp. 130–145; arXiv:0805.4359

M.L. Cule, R.B. Gramacy, R.J. Samworth. `LogConcDEAD`*: an* R *package for maximum likelihood estimation of a multivariate log-concave density*. (2009) Journal of Statistical Software, 29(2)

R.B. Gramacy, H.K.H. Lee. *Bayesian treed Gaussian process Models with an application to computer modeling*. (2008) Journal of the American Statistical Association, 103(483), pp. 1119–1130; arXiv:0710.5837

R.B. Gramacy, H.K.H. Lee. *Gaussian Processes and Limiting Linear Models*. (2008) Computational Statistics and Data Analysis, 53, pp. 123–136; arXiv:0804.4685 (full version of JSM06)

R.B. Gramacy. `tgp`*: an* R *package for Bayesian nonstationary, semiparametric nonlinear regression and design by treed Gaussian process models*. (2007) Journal of Statistical Software, 19(9)

PEER-REVIEWED CONFERENCE PROCEEDINGS

A. Sauer, R.B. Gramacy, A. Renganathan. *Actively learning deep Gaussian process models for failure contour and probability estimation*. (2024) AIAA 2024-0577 SCITECH Forum

R.B. Gramacy, A. Sauer, N. Wycoff. *Triangulation candidates for Bayesian Optimization*. (2022) 36th Conference on in Neural Information Processing Systems (NeurIPS); arXiv:2112.07457

V. Picheny, R.B. Gramacy, S.M. Wild, S. Le Digabel. *Bayesian optimization under mixed constraints with a slack-variable augmented Lagrangian*. (2016) Advances in Neural Information Processing Systems (NIPS), 29, pp. 1435–1443; arXiv:1605.09466

P. Balaprakash, K. Rupp, A. Mametjanov, R.B. Gramacy, P.D. Hovland, S.M. Wild. *Empirical performance modeling of GPU kernels using active learning*. (2014) ParCo 2013 proceedings in Parallel Computing: Accelerating Computational Science and Engineering (CSE) vol. 25, pp. 646–655; ANL/MCS-P4097-0713

P. Balaprakash, R.B. Gramacy, S. Wild. *Active-Learning-Based Surrogate Models for Empirical Performance Tuning*. (2013) in IEEE Cluster 2013 proceedings; ANL/MCS-P4073-0513

R. Silva, R.B. Gramacy. *Gaussian Process Structural Equation Models with Latent Variables*. (2010) in Proceedings of the 26th Conference on Uncertainty in Artificial Intelligence (UAI 2010), Catalina Island, California, 8-11 July. P. Grunwald, P. Spirte, editors

T. Broderick, R.B. Gramacy. *Treed Gaussian Process Models for Classification*. (2010) Hermann Locarek-Junge, Claus Weihs (Eds.): *Classification as a Tool for Research*. in Proc, of the International Federation of Classification Societies (IFCS-09), University of Dresden, Germany, 13-18 March, 2009. Springer-Verlag, Heidelberg-Berlin, pp. 101–108

R. Silva, R.B. Gramacy. *MCMC Methods for Bayesian Mixtures of Copulas*. (2009) In D. van Dyk and M. Welling (Eds.), Proceedings of the Twelfth International Conference on Artificial Intelligence and Statistics (AISTATS), Clearwater Beach, Florida, April 16-18. JMLR: W&CP 5:512-519

G.A. Gray, M. Martinez-Canales, M.A. Taddy, H.K.H. Lee, and R.B. Gramacy, *Enhancing Parallel Pattern Search Optimization with a Gaussian Process Oracle*, SAND2006-7946C. (2006) Proceedings of the 14th NECDC

R.B. Gramacy, H.K.H. Lee, W.G. MacReady. *Parameter Space Exploration with Gaussian Process Trees*. (2004) ICML Proceedings, Banff, AB (Omnipress, pp. 353–360)

R.B. Gramacy, M.K. Warmuth, S.A. Brandt, I. Ari. *Adaptive Caching by Refetching*. (2003) Advances in Neural Information Processing Systems 15, (MIT Press, pp. 1465–1472)

I. Ari, A. Amer, R.B. Gramacy, E.L. Miller, S.A. Brandt, D.D.E. Long. *ACME: Adaptive Caching using Multiple Experts*. WDAS 2002, (Carlton Scientific); 2002

BOOKS

R.B. Gramacy. *Surrogates: Gaussian process modeling, design and optimization for the applied sciences* (2020). Chapman Hall/CRC, Boca Raton, FL.

CHAPTERS & INVITED PAPERS

C. Anderson–Cook, L. Lu, R.B. Gramacy, A.L. Jones–Farmer, D.C. Montgomery, W.H. Wodall. *Publishing an Applied Statistics Paper: Guidance and Advice from Editors* (2024) Quality and Reliability Engineering International; DOI: 10.1002/qre.3501

A. Sauer, A. Cooper, R.B. Gramacy. *Non-stationary Gaussian process surrogates* (2023) chapter in *Handbook of Uncertainty Quantification*, to appear; arXiv:2305.19242

R.B. Gramacy. *Massive parallelization* (2022); In Piegorsch, W.W., Levine, R.A., Zhang, H.H., and Lee, T.C.M. (eds.). Computational Statistics in Data Science, pp. 537–557. Chichester: John Wiley & Sons. ISBN: 978-1-119-56107-1.

R.B. Gramacy, M. Taddy, S. Tian. "Hockey player performance via regularized logistic regression." (2016) chapter in *Handbook of Statistical Methods for Design and Analysis in Sports*. J. Albert, M. Glickman, R. Koning, and T. Swartz, editors; CRC Press; arXiv:1510.02172

R.B. Gramacy. "Gibbs sampling for ordinary, robust and logistic regression with Laplace priors." (2013) chapter in *Bayesian Theory and Applications* honoring Adrian Smith. P. Damien, P. Dellaportas, N.G. Polson and D.A. Stephens, editors; pp. 466-482, Oxford University Press

R.B. Gramacy, H.K.H. Lee. "Optimization under unknown constraints", with discussion. (2011) in *Bayesian Statistics 9.* J.M. Bernardo, M.J. Bayarri, J.O. Berger, A.P. Dawid, D. Heckerman, A.F.M. Smith, M. West, editors; Oxford University Press

H.K.H. Lee, M.A. Taddy, R.B. Gramacy, G.A. Gray. "Designing and analyzing a circuit device experiment using treed Gaussian processes." (2010) in *Handbook of Applied Bayesian Analysis.* A. O'Hagan and M. West, editors; Oxford University Press

IN REVIEW

N. Wycoff, J.W. Smith, A.S. Booth, R.B. Gramacy. Voronoi candidates for Bayesian Optimization (2024); arXiv:2402.04922

A.S. Booth, S.A. Renganathan, R.B. Gramacy. *Contour location for reliability in airfoil simulation experiments using deep Gaussian processes* (2023); arXiv:2308.04420

C. Park, R. Waelder, B. Kang, B. Maruyama, S. Hong, R.B. Gramacy. *Active learning of piecewise Gaussian process surrogates* (2023); arXiv:2301.08789

OTHER PUBLICATIONS

R.B. Gramacy. *How to write a* Technometrics *paper* (2022).

A. Sauer, R.B. Gramacy. *Discussion of paper by Marmin & Filippone*. An invited discussion of "Deep Gaussian Processes for Calibration of Computer Models" by S. Marmin and M. Filippone (2022) Bayesian Analysis, pp. 1-30.

R.B. Gramacy. *Discussion of paper by Bhadra, et al.* An invited discussion of "Horseshoe regularization for machine learning in complex and deep models" by A. Bhadra, J. Datta, Y. Li, N.G. Polson. (2020) International Statistical Review, 88 (2), pp. 236–329

R.B.Gramacy. *A review of "Computer age statistical inference: Algorithms, evidence, and data science", by Bradley Efron and Trevor Hastie.* (2019) Bulletin of the American Mathematical Society, 56(1), pp. 137–142

I. Crandell, A.J. Millican, R. Vasta, S. Leman, E. Smith, N. Alexander, W. Devenport, R.B. Gramacy, M. Binois. *Anomaly detection in large-scale wind tunnel tests using Gaussian processes* (2017) 33rd AIAA Aerodynamic Measurement Technology and Ground Testing Conference.

R.B. Gramacy, G.A. Gray, S. Le Digabel, H.K.H. Lee, P. Ranjan, G. Wells, S. Wild. *Rejoinder (to Modeling an augmented Lagrangian for improved blackbox constrained optimization)*. (2016) Technometrics, 58(1), pp. 26–29

R.B. Gramacy. *Comment on article by Pratola*. An invited discussion of "Efficient Metropolis–Hastings Proposal Mechanisms for Bayesian Regression Tree Models" by M. Pratola. (2016) Bayesian Analysis, 11(3), pp. 913-919.

G.A. Gray, J-P. Watson, C. Silva, R. Gramacy, *Quantifiably secure power grid operation, management and evolution: a study of uncertainties affecting the grid integration of renewables*. (2013) Technical Report SAND2013-7886

R.B. Gramacy. *Comment: on advances in expected improvement.* An invited discussion of "Quantile-Based Optimization of Noisy Computer Experiments with Tunable Precision" by V. Picheny, D. Ginsbourger and G. Caplin. (2013) Technometrics, 55(1), pp. 19–20.

J. Gerakos, R.B. Gramacy. *Regression-based earnings forecasts*. (2012); SSRN:2112137

C. Anagnostopoulos, R.B. Gramacy. *Dynamic trees for online analysis of massive data*. (2011) NIPS workshop on Bayesian Optimization, Experimental Design and Bandits (Granada, Spain)

R.B. Gramacy `tgp`*: an* R *package for nonlinear regression by treed Gaussian processes*. (2009) ISBA Bulletin, Software Spotlight; September 16(3)

R.B.Gramacy. *A review of "Ecological Models and Data in* R*" by Benjamin Bolker*. (2009) The American Statistician, August, 63 (3), pp. 281–282

R.B. Gramacy, J.H. Lee, R. Silva. *On estimating covariances between many assets with histories of highly variable length*. (2007) arXiv:0710.5837

M.L. Martinez-Canales, L.P. Swiler, P.D. Hough, G.A. Gray, M.L. Chiesa, R. Heaphy, S.W. Thomas, T.G. Trucano, H.K.H. Lee, M. Taddy, R.B. Gramacy. *Penetrator Reliability Investigation and Design Exploration: From Conventional Design Processes to Innovative Uncertainty-Capturing Algorithms*. (2006) Sandia Report SAND2006-7669

R.B. Gramacy, H.K.H. Lee. *Gaussian Processes and Limiting Linear Models*. (2006) Proceedings of the Joint Statistical Meetings of the ASA, Section on Bayesian Statistical Science, Seattle, WA

R.B. Gramacy, H.K.H. Lee, W.G. MacReady. *Adaptive exploration of computer experiment parameter spaces*. (2004) ISBA Bulletin, Applications; December 11(4), pp. 3–6

P. Ngan, D. Oliver, T. Smedes, R.B. Gramacy, C-K Wong. *Automatic Layout Based Verification of Electrostatic Discharge Paths*. (2001) EOS/ESD Symposium, Portland OR (pp. 96)

THESES

Ph.D. Thesis, Department of Applied Math & Statistics. *Bayesian treed Gaussian process models*. (2005) UC Santa Cruz; UCSC S&E Library: GRAD COMPSCI 2005 G73

Masters Thesis, Department of Computer Science. *Adaptive Caching by Experts*. (2003) UC Santa Cruz; UCSC S&E Library: Q325.5 .G73 2003

Honors Senior Thesis, Department of Computer Science. *Shortest paths and network flow algorithms for Electrostatic Discharge analysis* (2001) UC Santa Cruz

OPEN SOURCE SOFTWARE

`liGP`: An R–package for locally induced Gaussian process regression; with Austin Cole and Ryan Christianson. *http://cran.r-project.org/web/packages/liGP/index.html*

`laGP`: An R–package for local approximate Gaussian process regression.
http://cran.r-project.org/web/packages/laGP/index.html

`reglogit`: An R–package for regularized logistic regression by Gibbs sampling.
http://cran.r-project.org/web/packages/reglogit/index.html

`dynaTree`: An R–package for dynamic tree regression and classification modeling for learning and design; with M.A. Taddy. *http://cran.r-project.org/web/packages/dynaTree/index.html*

`plgp`: An R–package for particle learning of Gaussian process regression and classification models, facilitating sequential design and constrained optimization under uncertainty.
http://cran.r-project.org/web/packages/plgp/index.html

`BART`: An R–package for Bayesian Additive Regression Trees; with R. McCulloch, R. Sparapani, M. Pratola, J–S. Roy, M. Matsumoto, T. Nishimura.
http://cran.r-project.org/web/packages/BART/index.html

`tgp`: An R–package for Bayesian nonstationary, nonlinear regression and design with treed Gaussian processes; with M.A. Taddy. *http://cran.r-project.org/web/packages/tgp/index.html*

`monomvn`: An R–package for shrinkage regression and multivariate normal/Student–t inference with monotone missingness. *http://cran.r-project.org/web/packages/monomvn/index.html*

`LogConcDEAD`: An R–package for maximum likelihood estimation of nonparametric log-concave densities in arbitrary dimension; with M. Cule and R.J. Samworth.
http://cran.r-project.org/web/packages/LogConcDEAD/index.html

`maximin`: An R–package sequential space-filling design under the criterion of maximin distance; with F. Sun. *http://cran.r-project.org/web/packages/maximin/index.html*

`amei`: An R–package for the Adaptive Management of Epidemiological Interventions; with D. Merl, L.R. Johnson, and M. Mangel. *http://cran.r-project.org/web/packages/amei/index.html*

`geometry`: An R–package for mesh generation and surface tessellation; with D.C. Sterratt, and R. Grassman. *http://cran.r-project.org/web/packages/geometry/index.html*

`maptree`: An R–package for mapping, pruning, and graphing tree models; with D. White.
http://cran.r-project.org/web/packages/maptree/index.html

GRANTS

National Science Foundation (NSF), Collaborative Research: URoL:ASC: *Applying rules of life to forecast emergent behavior of phytoplankton and advance water quality* [co-PI] Awarded in August 2023 for 4 years, with PI Cayelan Carey (VT) and others. Total award is $2,076,344. $330,565.

National Science Foundation (NSF), Collaborative Research: *Local Gaussian Process Approaches for Predicting Jump Behaviors of Engineering Systems.* [PI] Awarded in July 2022 for 3 years, collaborative with [PI] Chiwoo Park (Florida State). Total award is $474,602. $181,366.

Subaward from NASA. *Estimating probability of failure with expensive, high-fidelity models*. [PI] Awarded in September 2020 for 12 months. $47,547

Subaward from Argonne National Laboratory. *Deep learning with nature-inspired neuron networks*. [PI] Awarded in August 2019 for 12 months. $53,560

National Science Foundation (NSF), CDS&E-MSS/Collaborative Research: *GP Frameworks for Modeling and Control of Stochastic Systems*. [PI] Awarded in September 2018 for 3 years, collaborative with [PI] Mike Ludkovski (UCSB). Total award is $300,000. $150,000

Socially Determined health analytics project. [Co-PI] Awarded for Summer 2018. 10% credit of total award $96,905. $9,691

DOE LAB 17-1697 subaward from Argonne National Laboratory for SciDAC/DOE Office of Science ASCR and High Energy Physics: *Accelerating HEP Science: Inference and Machine Learning at Extreme Scales*. [Co-PI] under PI David Higdon (VTBI), awarded in Jan 2018 for 5 years. 41% credit of total award $950,000. $389,500

Socially Determined health analytics project. [Co-PI] Awarded for Summer 2017. 20% credit of total award $44,484. $8,897

Facebook Faculty Award, 2016, unrestricted gift via host institution. $25,000

National Science Foundation (NSF), CDS&E-MSS/Collaborative Research: *Local Approximation for Large Scale Spatial Modeling*. [PI] Awarded in August 2016 for 3 years, collaborative with [PI] Ben Haaland (GA Tech). Total award is $225,000. $150,000

National Science Foundation (NSF), CDS&E-MSS/Collaborative Research: *Sequential Design for Stochastic Control: Active Learning of Optimal Policies*. [PI] Awarded in September 2015 for 3 years, collaborative with [PI] Mike Ludkovski (UCSB). Total award is $449,889. $228,497

American Institute for Mathematics (AIM) SQuaRE for *Robustness for black-box optimization*. [PI] Funds travel/subsistence for 6 people to visit AIM in Palo Alto: three one week trips in 2011–2013.

INstitute for QUantitative Investment REsearch (INQUIRE) UK 2009/05 for *Fast, robust, and dynamic Bayesian updating of large scale between–asset covariances for balancing portfolios*. [PI] Awarded in October 2009 for 2 years. £8,190

UK Engineering and Physical Sciences Research Council (EPSRC) EP/D065704/1 for *Trans-dimensional Markov Chain Simulation for both Bayesian and Classical Model Determination* [PI] Awarded in October 2006 for 3 years. £286,881

TALKS & SEMINARS

Key: **S** $\equiv$ Seminar $<$ 60m; **IT** $\equiv$ Invited Talk $<$ 35m; **RT** $\equiv$ Refereed Talk $<$ 35m; **P** $\equiv$ Plenary

Gaussian processes: a surrogate modeling journey

S	Apr 2024	**George Mason University**, Fairfax, VA, USA
P	Mar 2024	**Stu Hunter Conference**, London, UK
S	Mar 2024	**University of Padue**, Padova, Italy
P	Mar 2024	**SIAM Uncertainty Quantification**, Trieste, Italy

Deep Gaussian process surrogates

IT	Sep 2023	**EnviBayes Meeting**, Fort Collins, CO, USA
P	May 2023	**(Bio) Statistics Research Day at McGill Uni.**, Montreal, QC, Canada
S	Apr 2023	**Clemson University**, Clemson, SC, USA
S	Mar 2023	**NASA Langley**, Hampton, VA, USA
S	Feb 2023	**Texas A&M University**, College Station, TX, USA
S	Jan 2023	**Carnegie Mellon STAMPS Webinar**, Pittsburg, PA, USA
P	Nov 2022	**Conf. of the South African Statistical Association**, George, South Africa
S	Nov 2022	**Sandia National Laboratory**, Albuquerque, NM, USA
S	Oct 2022	**AISC, UNC Greensboro**, NC, USA
S	Sep 2022	**University of Cincinnati**, OH, USA
S	Sep 2022	**Los Alamos National Laboratory**, Los Alamos, NM, USA
S	Aug 2022	**IMSI Workshop on Gaussian processes**, Chicago, IL, USA
P	June 2022	**CIRQUO Workshop**, Lyon, France
RT	Aug 2021	***(Invited Poster)*** **Joint Statistical Meetings**, Seattle, WA, USA

Entropy-based contour finding for reliability

IT	Oct 2023	**Fall Technical Conference**, Raleigh, NC, USA
IT	Aug 2023	**Joint Statistical Meetings**, Toronto, ON, Canada
S	Dec 2022	**North-West University**, Potchefstroom, South Africa
IT	June 2022	**European Network for Business & Industrial Stats**, Trondheim, Norway
S	Mar 2022	**University of Calgary**, Alberta, Canada
S	Mar 2022	**Aachen University**, Germany
IT	Jan 2022	**RSS Automatic Experimentation**, Southampton, England, UK
RT	Aug 2021	**Joint Statistical Meetings**, Seattle, WA, USA

Bayesian optimization under blackbox constraints

S	June 2022	(tricands) **INRIA**, Sophia–Antipolis, France
IT	May 2019	**Uber Science Symposium**, San Francisco, CA, USA
IT	July 2018	**International Symposium on Mathematical Programming**, Bordeaux, France
S	Dec 2017	**UC Santa Barbara** Dept. of Probability & Statistics, Santa Barbara, CA, USA
IT	Oct 2016	**Virginia Tech** Department of Mathematics, Blacksburg, VA, USA
IT	Jan 2016	**University of Florida** Informatics Institute, Gainesville, FL, USA
IT	Nov 2015	**INFORMS Meeting**, Philadelphia, PA USA
IT	Oct 2015	**Conference on Applied Statistics in Defense**, Fairfax, VA, USA
IT	Jun 2015	**Quality & Productivity Research Conference**, NCSU, Raleigh, NC, USA
S	Apr 2015	**University of South Florida** IDSC, Tampa, FL, USA
IT	Mar 2015	**SIAM Computer Science & Engineering**, Salt Lake City, UT, USA
S	Feb 2015	**Arizona State University**, Tempe, AZ, USA
IT	Dec 2014	**NIPS Workshop on Bayesian Optimization**, Montreal, QC, Canada
IT	Oct 2012	**Design & Analysis of Experiments Conference**, Athens, GA
IT	Jun 2011	**Statistical Society of Canada Meeting**, Wolfville, NS, Canada
IT	Apr 2011	**Optimization Days**, Montreal, QC, Canada
IT	Nov 2010	**INFORMS Meeting**, Austin, TX, USA
IT	Aug 2010	**IMS Meeting**, Gothenburg, Sweden

Replication or exploration? Sequential design for stochastic simulation experiments

IT	June 2021	**Statistical Society of Canada Meeting**, St. John's, NF, Canada
S	Mar 2021	**Lawrence Livermore National Laboratory**, Livermore, CA, USA
S	Mar 2021	**University of Glasgow**, Scotland, UK
IT	Mar 2021	**SIAM Computer Science & Engineering**, Fort Worth, TX, USA
S	Nov 2020	**Purdue University**, West Lafayette, IN, USA
P	Nov 2020	**Fall Technical Conference**, Covid Webinar/Youden Prize talk
S	Oct 2020	**Los Alamos National Laboratory**, Los Alamos, NM, USA
S	Oct 2020	**University of Southampton**, UK
S	Aug 2020	**Duke University**, Durham, NC, USA
P	Jul 2020	**Data Science, Statistics & Visualization (DSSV)**, Durham, NC, USA
IT	Mar 2020	**SIAM Uncertainty Quantification**, Munich, Germany
IT	Feb 2020	**Facebook Adaptive Experimentation Workshop**, New York, NY, USA
S	Nov 2019	**University of Texas**, Austin, TX, USA
IT	Oct 2019	**Design & Analysis of Experiments Conference**, Knoxville, TN, USA
S	Sep 2019	**University of Michigan**, Ann Arbor, MI, USA
IT	Aug 2019	**Joint Statistical Meetings**, Denver, CO, USA
P	Jun 2019	**BISP11**, Madrid, Spain
S	Mar 2019	**Arizona State University**, Tempe, AZ, USA

Replication or exploration? (continued)

IT	Mar 2019	**SAMSI Agent-Based Models Workshop**, Durham, NC, USA
P	Feb 2019	**Workshop on Stat. & Prob. Methods**, USP/UF São Carlos, SP, Brazil
S	Feb 2019	**Insper**, Statistics & Econometrics, São Paulo, SP, Brazil
S	Nov 2018	**UC Los Angeles**, Dept. of Biostatistics, Los Angeles, CA, USA
S	Nov 2018	**George Washington University**, Dept. of Statistics, Washington DC, USA
S	Oct 2018	**Virginia Commonwealth Univ**, Dept. of Biostatistics, Richmond, VA, USA
IT	Oct 2018	**ENVIR Workshop**, Asheville, NC, USA
IT	Oct 2018	**SAMSI Webinar**, Research Triangle Park, NC, USA
IT	Jun 2018	**Joint Research Conference**, Santa Fe, NM, USA
IT	Apr 2018	**SIAM Uncertainty Quantification**, Orange County, CA, USA
S	Feb 2018	**Isaac Newton Institute**, Cambridge, UK
IT	Nov 2017	**Joint Statistical Meetings**, Baltimore, MD, USA
S	Mar 2017	**Virginia Tech** Dept. of Industrial & Systems Eng, Blacksburg, VA, USA
S	Feb 2017	**Virginia Commonwealth Univ** Dept. of Math & Stat, Richmond, VA, USA

Simulation-based regularized logistic regression (for performance in hockey)

IT	Aug 2014	**Joint Statistical Meetings**, Boston, MA, USA
S	Sep 2013	**Bowling Green State University**, OH, USA
IT	Jun 2013	**Classification Society Meeting**, Milwaukee, WI, USA
IT	Jan 2013	**ISBA Regional Meeting**, Varanasi, India
IT	Aug 2012	**Joint Statistical Meetings**, San Diego, CA, USA
S	Apr 2011	**Northwestern University**, Evanston, IL, USA
S	Apr 2011	**University of Pennsylvania** (Wharton School), Philadelphia, PA, USA

Local approximate Gaussian processes for large computer experiments

IT	Apr 2022	(OSS) **SIAM Uncertainty Quantification**, Atlanta, GA, USA
IT	Sep 2019	(OSS) **ASQ Fall Technical Conference**, NIST, Gaithersburg, MD, USA
IS	Aug 2018	**Jump Trading**, Chicago, IL, USA
IS	May 2017	**University College London**, London, UK
P	Mar 2017	**Institute for Statistical Mathematics**, Tokyo, Japan
IT	Feb 2017	**SIAM Computer Science & Engineering Meeting**, Atlanta, GA, USA
IT	Sept 2016	**European Network for Business & Industrial Stats**, Sheffield, UK
IT	May 2016	**Spring Research Conference**, IIT, Chicago, IL, USA
S	Jan 2016	**Northwestern Univesity**, Evanston, IL, USA
S	Jan 2016	**Notre Dame University**, South Bend, IN, USA
IT	Dec 2015	**DEMA Confernence**, Sydney, NSW, Australia
S	Dec 2015	**Virginia Tech**, Blacksburg, VA, USA
S	Nov 2015	**North Carolina State University**, Raleigh, NC, USA
S	Nov 2015	**University of Florida**, Gainesville, FL, USA
S	Nov 2015	**Georgia Tech**, Atlanta, GA, USA
IT	Jul 2015	**ISI World Meeting**, Rio De Janeiro, Brazil
IT	Nov 2014	**INFORMS Meeting**, San Francisco, CA, USA
IT	Oct 2014	**Conference on Applied Statistics in Defense**, Washington DC, USA
S	Oct 2014	**Arizona State University**, Tempe, AZ, USA
IT	Jul 2014	**ISBA World Meeting**, Cancun, Mexico
S	May 2014	**University of Wisconsin**, Madison, WI, USA
S	Feb 2014	**Harvard University**, Cambridge, MA, USA
S	Jan 2014	**Los Alamos National Labratory**, Los Alamos, NM, USA

Local approximate Gaussian processes for large computer experiments (continued)

IT	Dec 2013	**Conference of the Intl. Chinese Statistical Assoc.**, Hong Kong
S	Oct 2013	**The Ohio State University**, Columbus, OH, USA
S	Jul 2013	**Computation Institute** – Argonne/UChicago, IL, USA
S	Jun 2013	**UC Santa Cruz**, CA, USA
S	Apr 2013	**Rutgers University**, Piscataway, NJ, USA
S	Mar 2013	**Simon Fraser University**, Burnaby, BC, Canada

Cases for the nugget in computer experiments

IT	Dec 2012	**Spatial Statistics Conference**, Miami, FL, USA
IT	Jun 2012	**Spring Research Conference**, Cambridge, MA, USA

Dynamic trees for optimization, variable selection and online learning

S	Jan 2014	**Los Alamos National Labratory**, Los Alamos, NM, USA
S	Sep 2012	**University of Texas**, Austin, TX, USA
S	Apr 2012	**Illinois Institute of Technology**, Chicago, IL, USA
IT	Apr 2012	**SIAM Uncertainty Quantification Meeting**, Raleigh, NC, USA
S	Mar 2012	**Brigham Young University**, Provo, UT, USA
IT	Nov 2011	**INFORMS Meeting**, Charlotte, NC, USA
S	Oct 2011	**University of Iowa**, Iowa City, IA, USA
S	Aug 2011	**Lawrence Livermore National Labs**, Livermore, CA, USA
IT	Jun 2011	**Classification Society Meeting**, Pittsburgh, PA, USA
S	Apr 2011	**Argonne National Labs**, Argonne, IL, USA

Sequential Monte Carlo for sequential design and optimization

S	Aug 2011	**University of Texas**, Austin, TX, USA
S	Apr 2010	**University of Lancaster**, UK
S	Apr 2010	**Northwestern**, Evanston, IL, USA
S	Apr 2010	**Virginia Tech**, Blacksburgh, VA, USA
S	Mar 2010	**London School of Economics**, UK
S	Feb 2010	**University of Kent**, Canterbury, UK
S	Dec 2009	**Duke**, Durham, NC, USA
S	Oct 2009	**UC Santa Cruz**, CA, USA
IT	Oct 2009	**Design & Analysis of Experiments Conference**, Columbia, MO, USA
IT	Oct 2009	**INFORMS Conference**, San Diego, CA, USA
S	Oct 2009	**UC Santa Barbara**, CA, USA
IT	Jun 2009	**BISP6**, Brixen, Italy

On estimating covariances between many assets with histories of highly variable length

IT	Apr 2011	R **in Finance**, Chicago, IL
S	Apr 2011	**INQUIRE Europe/UK Conference**, Cambridge, UK
IT	Aug 2009	**Joint Statistical Meetings**, Washington DC, USA
S	Mar 2009	**University of Chicago** (Booth School of Business), USA
S	Mar 2009	**University of Cambridge** (Engineering), UK
S	Mar 2009	**University of Bath**, UK
S	Mar 2009	**University College London**, UK
IT	Jun 2008	**Isaac Newton Institute**, Cambridge, UK
S	Apr 2008	**INQUIRE Europe/UK Conference**, Zurich, Switzerland
S	Dec 2007	**European Quantitative Forum**, State Street, London, UK

Importance Tempering

S	Mar 2008	**University of Bristol**, UK
S	Mar 2008	**University of Sheffield**, UK
S	Jan 2008	**University of Warwick**, UK
IT	Jan 2008	**Joint Meeting of IMS & ISBA (MCMSki II)**, Bormio, Italy
S	Dec 2007	**University of Southampton**, UK
S	Mar 2007	**University of Nottingham**, UK
S	Apr 2006	**University of Oxford**, UK
S	Mar 2006	**Queen Mary, University of London**, UK
IT	Oct 2005	**Design & Analysis of Experiments Conference**, Santa Fe, NM
IT	Jun 2005	**Classification (CSNA) & Interface Meeting**, St. Louis, MO

Bayesian treed Gaussian process models

S	May 2009	**Tilburg University**, The Netherlands
S	Apr 2009	**2nd OPUS Workshop, CAE Paris**, France
S	Feb 2008	**RSS & S3RI joint meeting on computer experiments**, Southampton, UK
RT	Aug 2007	**SBSS *Award talk*, Joint Statistical Meetings**, Salt Lake City, UT, USA
S	Dec 2006	**Fidelity Intl. Bank**, London, England, UK
IS	Jun 2006	**University of Cambridge**, England, UK
IT	May 2006	**Statistical Society of Canada Meeting**, London, ON, Canada
S	May 2006	**Acadia University**, Wolfville, NS, Canada
RT	Aug 2005	***Award talk*, Joint Statistical Meetings**, Minneapolis, MN, USA
RT	Jul 2004	**Intl. Conf. on Machine Learning**, Banff, AB, Canada
RT	May 2004	**Meeting of the ISBA**, Viña del Mar, Chile

Adaptive caching by refetching

RT	Dec 2002	***Poster Spotlight,* NIPS Conference**, Vancouver, BC, Canada

Invited discussions

Aug 2023, Joint Statistical Meetings, Toronto, ON, Canada

MEDIA COVERAGE & PRESS RESEASES

- FSU Engineeting article promoting Jump GP Active Learning NSF, Nov 2022.
- Chicago Booth Magazine article by Mohit Bashin, June 2021.
- UChicago Research Computing Center (RCC) coverage of local approximate Gaussian process (`laGP`) application to predicting satellite drag, Spring 2016.
- Long Memory review with Graves, Watkins & Franzke featured in *Capital Ideas*, Winter 2014
- Hockey research with Taddy & Jensen was written up in *Capital Ideas*, 35(2), Summer 2013; *Capital Ideas*, Spring 2014; and Seib & Wessel (Wall Street Journal) April 2, 2013
- Credit rating work with Creal & Tsay was written up in *Capital Ideas*, 35(4), Winter 2013/14
- Earnings forecast work with Gerakos was written up in *Capital Ideas*, 35(3), Fall 2013
- Variable selection and sensitivity analysis paper with Taddy & Wild was featured as a *science highlight* at Argonne National Labs on June 10, 2013

OTHER RESEARCH EXPERIENCE

FIDELITY INTERNATIONAL BANK. Contractor for Joo Hee Lee, portfolio manager, investment strategies group—Dec 2006 – July 2008. Projects include classification and regression trees (CART), estimating covariances with monotone missing data, and forecasting with the Kalman filter.

STATISTICAL LABORATORY, UNIVERSITY OF CAMBRIDGE. Postdoc under Steve Brooks. Studied approximations and automation of Reversible–Jump MCMC algorithms, with applications to problems in statistical ecology.

RAND CORPORATION. Summer Associate under John Shank. Joint High Speed Vessel Analysis of Alternatives and Logistics Analysis for the Littoral Combat Ship: data collection, analysis, model development, logistics & support, and optimal decisions; 2005

APPLIED MATH & STATISTICS, UC SANTA CRUZ. Graduate Student Researcher (GSR) under Herbie Lee. Developed R code for the text *Multiscale Modeling: A Bayesian Perspective* by Herbert K.H. Lee and Marco A.R. Ferreira; 2004

APPLIED MATH & STATISTICS, UC SANTA CRUZ in collaboration with NASA AMES RESEARCH CENTER. GSR under Herbie Lee. Adaptive exploration of computer experiment parameter spaces. 2003–2006

MACHINE LEARNING GROUP, UC SANTA CRUZ. GSR under Manfred K. Warmuth. On-line learning in the Expert Framework applied to caching and speech recognition. 2002–2003

OTHER EMPLOYMENT

ANTRIM DESIGN SYSTEMS: Contractor. Scripting support for database migration; April 2002

PHILIPS SEMICONDUCTORS: Software & CAD Engineer. Summer internship led to senior thesis and extended position; June 1999 – September 2002

UC SANTA CRUZ: Chancellors Undergraduate Intern: Multicultural Engineering Participation (MEP) Student Coordinator; 1999–2000

LECTURING

CMDA 2006 INTEGRATED QUANTITATIVE SCIENCE II: second undergraduate course in statistics emphasizing software and the interface between simulation-based inference and closed form computation. A double-credit (6) course taught in tandem with mathematical modeling topics. 30 75-minute lectures in 2020, 2024.

CS/STAT 5525 DATA ANALYTICS, VIRGINIA TECH: graduate course covering supervised and unsupervised learning from fundamentals to clustering, trees, and Gaussian process and neural networks. 30 75-minute lectures in 2019

CMDA/CS/STAT 4564 INTERMEDIATE DATA ANALYTICS AND MACHINE LEARNING, VIRGINIA TECH: upper-level undergraduate course covering supervised and unsupervised learning from fundamentals to clustering, trees, and Gaussian processes and neural networks. 30 75-minute lectures in 2017, 2018(x2), 2020, 2021(x2), 2022

STAT 6544 SURROGATE MODELING, VIRGINIA TECH: graduate course covering a modern approach to the synthesis of computer model and field experiment data. 30 75-minute lectures in 2016, 2019, 2020, 2023; given as a 12-hour short course at the BYU Summer Institute of Applied Statistics in 2017; 7.5-hour version to Lawrence Livermore Labs in 2017, the 2017 and 2023 Fall Technical Conference, and 2018 DataWorks, 2020 JSM/ASA (Covid) webinar-based short course, 2022 and 2023 in-person short course; 3-hour version to 2020 ETICS (France) Research School, 2021, 2022 and 2023 Computational Physics School for Fusion Research, 2022 South African Statistical Association; 2-hour version for NASA Langley in 2023; 90-minute webinar for ASA/SPES in 2017, 2020 DataWorks, 2021 ASA/SDNS; 60-minute seminar for JPL/Sandia QUAD in 2021, and CIRQUO Workshop (France) in 2022.

STAT 3504 NONPARAMETRIC STATISTICS, VIRGINIA TECH: undergraduate course on quantile, sign, rank tests, etc. 30 75-minute lectures in 2016, 2017, 2019

STATISTICAL FOUNDATIONS: short course covering statistical inference from fundamentals to linear and generalized linear models: 5 4-hour lectures at JUMP TRADING in 2016, 2017, 2018, 2019

STATISTICAL COMPUTING IN R: graduate course covering R fundamentals, plotting, and modeling, and advanced topics like Monte Carlo inference, C-in-R, and parallel programming: 10 2-hour lectures at CITADEL LLC in 2013; Given as STAT 6986 ADVANCED STATISTICAL COMPUTING, VIRGINIA TECH with added Unix training, 30 75-minute lectures in 2017, 2020, 2021, 2023

ADVANCED TOPICS IN STATISTICAL LEARNING: graduate course covering nonparametric regression, missing data, dimension reduction, etc.: 5 3-hour lectures at CITADEL LLC in 2011

BUS41000 APPLIED REGRESSION ANALYSIS, UNIVERSITY OF CHICAGO: MBA course in regression; 10 3-hour lectures: 2010(2), 2011(3), 2012(2), 2013(3)

BAYESIAN INFERENCE: graduate course on Bayesian methods and MCMC inference; 20 lectures: 2009 (UCSB); 2014, 2015 (Booth). Also taught at CITADEL LLC as 10 3-hour lectures: 2011, 2014; a 2-day short course for the 2015 Conference on Applied Statistics in Defense (CASD); and a 1-day short course for the 2016 Knowledge Exchange Workshop and 2019 DataWorks

PART IIC STATISTICAL MODELLING, UNIVERSITY OF CAMBRIDGE: undergraduate course in generalized linear models; 24 lectures: 2007, 2008, 2009

PART III/MPHIL MONTE CARLO INFERENCE, UNIVERSITY OF CAMBRIDGE: graduate course in classical and Bayesian inference by simulation; 16 lectures: 2007, 2008, 2009, 2010

PART III/MPHIL TIME SERIES, UNIVERSITY OF CAMBRIDGE: graduate course in time series theory and inference; 8 lectures: 2007, 2008, 2010

OTHER TEACHING EXPERIENCE

JESUS COLLEGE DIRECTOR OF STUDIES (DOS) IN PART II MATHEMATICS: 2008, 2009, 2010

CAMBRIDGE MATHEMATICAL TRIPOS TUTORIALS/SUPERVISIONS: Part 1A Probability, 2007, 2008, 2009, 2010; Part 1B Markov chains, 2007, 2008; Part 1B Statistics, 2008, 2009, 2010

APPLIED MATH & STATISTICS 131, UC SANTA CRUZ: Undergraduate introduction to Probability Theory (with calculus). Teaching Assistant under Raquel Prado; Spring 2005

APPLIED MATH & STATISTICS 007, UC SANTA CRUZ: Undergraduate course in biostatistics. Teaching Assistant under Raquel Prado; Winter 2005

COMPUTER SCIENCE 201, UC SANTA CRUZ: Graduate course in analysis of algorithms. Teaching Assistant under Allen van Gelder; Winter 2002

COMPUTER SCIENCE 102, UC SANTA CRUZ: Undergraduate course in analysis of algorithms. Teaching Assistant under Suresh Lodha; Fall 2001, & Course Assistant under David Helmbold; Fall 2000; *Course Assistant is the undergraduate equivalent of a Teaching Assistant.*

TUTOR, UC SANTA CRUZ: courses in Mathematics and Engineering. Founded a tutoring service aimed specifically at students who are ethnically underrepresented in Engineering.

PROFESSIONAL MEMBERSHIP

American Statistical Association (ASA), 2004–pres.
International Society for Bayesian Analysis (ISBA), 2004–pres.
Institute of Mathematical Statistics (IMS), 2006–pres.
Society for Industrial and Applied Mathematics (SIAM), 2010–pres.
Institute for Operations Research and the Management Sciences (INFORMS), 2008–2018.
Royal Statistical Society (RSS), 2006–2016
Classification Society (CS), 2006–2010

PROFESSIONAL SERVICE

Editorial:
Editor, Technometrics; 2023–2025
Editorial Board Member, Data Science in Science, 2022–present
Associate Editor, Annals of Applied Statistics; 2019–2021
Moderator, arXiv `stat.ME` (Statistical Methodology); 2018–2021
Associate Editor, SIAM/ASA Journal on Uncertainty Quantification; 2018–2021
Associate Editor, Bayesian Analysis; 2010–2021
Associate Editor, Technometrics; 2008–2021
Associate Editor, Technometrics special issue on Industry 4.0; 2020–2021
Associate Editor, Statistical Analysis and Data Mining special issue for CoDA; 2016, 2018, 2020
Associate Editor, Statistica Sinica special issue on Uncertainty Quantification; 2015–2016
Associate Editor, Technometrics special issue on Big Data; 2014–2015
Associate Editor, ISBA Bulletin Student Corner; January 2005–June 2006

In addition to AE services I referee about 10-12 papers/year for:
Technometrics; Journal of Uncertainty Quantification; Journal of the American Statistical Association; Journal of the Royal Statistical Society; Biometrika; Annals of Statistics; Annals of Applied Statistics; Journal of Statistical Planning and Inference; Statistics and Computing; Spatial Statistics; Journal of Computational and Graphical Statistics; Entropy; Communications in Statistics; Computational Statistics; Computational Statistics and Data Analysis; Brazilian Journal of Probability and Statistics; Journal of Machine Learning Research; Machine Learning; AISTATS; NIPS; Medical Decision Making; TEST; Information and Inference; IEEE Transactions on Knowledge and Data Engineering; IEEE Transactions on Pattern Analysis and Machine Intelligence; (continued overleaf)

Information Systems and Operational Research; Quality and Reliability Engineering International; Reliability Engineering and System Safety; Journal of Quality Technology; SIAM Journal of Scientific Computing; Structural and Multidisciplinary Optimization; ACM Transactions on Modeling and Computer Simulation; American Political Science Review; The R Journal; Optimization and Engineering; Institute of Industrial Engineers (IIE) Transactions; Bioinformatics; Biostatistics; Oecologia; Applied Sciences; Environmetrics; Weather, Climate, and Society (WCAS); Statistics in Medicine; Artificial Intelligence in Medicine; Statistica Sinica; Journal of Computational Physics; International Journal of Approximate Reasoning; Journal of Statistical Computation and Simulation; Books/Chapters for Princeton University Press; Cambridge University Press; Springer

I organized sessions at the following meetings:
Design and Analysis of Experiments (DAE), 2024, Blacksburg, VA, USA
Fall Technical Conference (FTC), 2023, Raleigh, NC, USA
Spring Research Conference (SRC), 2023, Banff, AB, Canada
Design and Analysis of Experiments (DAE), 2021, Hosted Virtually
Joint Statistical Meetings (JSM) Invited Session, 2021, Seattle (Virtual), WA, USA
SIAM Conference on Uncertainty Quantification, 2020, Munich, Germany
Design and Analysis of Experiments (DAE), 2019, Knoxville, TN, USA
European Netowrk for Business and Industrial Statistics (ENBIS), 2017, Napels, Italy
Spring Research Conference (SRC), 2017, Rutgers, New Brunswick, NJ, USA
Joint Statistical Meetings (JSM) Invited Session, 2016, Chicago, IL, USA
International Conference on Design of Experiments, 2016, University of Memphis, TN, USA
International Society for Bayesian Analysis (ISBA) World Meeting, 2016, Sardinia, Italy
Joint Statistical Meetings (JSM) Invited Session, 2015, Seattle, WA, USA
MCMSki IV, 2014, Chamonix, France
Classification Society Meeting, 2013, UM Milwaukee, WI, USA
Spring Research Conference (SRC), 2011, Northwestern University, Evanston, IL, USA

I have served on panels and provided ad hoc reviews for the following funding organizations.
DMS, DMREF and CDS&E-MMS, National Science Foundation (NSF)
Natural Sciences and Egineering Research Council of Canada (NSERC)
INCITE Program, US Department of Energy's Leadership Computing Facility (LCF)

I have served on the following paper prize committees.
2017 ASA section on Statistical Computing & Graphics student paper competition.
2017 & 2018 Classification Society dissertation award.

I held the following offices and/or served on the following committees:
Editor Search Committee for Data Science in Science
Advisory Committee for the 6th Int. Conference on Design of Experiments (ICODOE 2022)
Chair (Elect), Uncertainty Quantification Interest Group, ASA, 2021 (2020)
President (Elect), Section on Physical and Engineering Sciences, ASA, 2020 (2019)
Local Org. and Program Comm. chair(s) for Spring Research Conf. (SRC), Virgina Tech 2019
Conference on Data Analsys (CoDA) organizing committee, Santa Fe NM 2018
(continued overleaf)

Program Chair (Elect), Section on Bayesian Statistical Science, ASA, 2019 (2018)
Treasurer, International Society for Bayesian Analysis (ISBA), 2017–2019
Program Chair (Elect), Section on Statistics in Defense and National Security, ASA, 2018 (2017)
ISBA Finance Committee, 2015–2019
ISBA Industrial Statistics Section Program Chair, 2016–2018
Spring Research Conference (SRC) Management Committee, 2012–2016
Program Chair (Elect), Intl. Society for Bayesian Analysis (ISBA), JSM, 2016 (2015)
Joint Research Conference (JRC; SRC and QPRC) program committee, 2014
Artificial Intelligence and Statistics (AISTATS) senior program committee, 2013
UseR program committee, 2011
International Statistical Ecology Conference (ISEC) program committee: 2008, 2010
Project management committee member, National Centre for Statistical Ecology, 2007–2010
Secretary, IEEE UCSC Student Branch, elected position, 2000–2001
UCSC Student Leadership, Chancellors Undergrad Internship Program, 1999–2000
Webmaster, Intl. Workshop on Bayesian Data Analysis, UC Santa Cruz, CA; 2003

INVITED WORKSHOPS ATTENDED

Aug 2022, one week: Institute for Mathematical and Statistical Innovation (IMSI) on Expressing and Exploiting Structure in Modeling, Theory, and Computation with Gaussian Processes, Chicago, IL, USA

Feb 2018, one week: Isaac Newton Institute (INI) on Surrogate models for UQ in complex systems, Cambridge, UK

Sept 2011 & 2012, and Feb 2014: three one-week (small working group) meetings; American Institute of Mathematics (AIM) on Robustness for black-box optimization, Palo Alto, CA, USA

Sept 2008, one week; AIM on Derivative-Free Hybrid Optimization Methods for Solving Simulation-Based Problems in Hydrology, Palo Alto, CA, USA

MENTORSHIP

	Field	Location	Date(s)
Postdocs			
Mickaël Binois	Stats	U. of Chicago	2016–2018
Ioana Cosma	Stats	U. of Cambridge	2009–2010
Ricardo Silva	Stats	U. of Cambridge	2007–2008
Ph.D. Students			
Parul Patil	Stats	Virginia Tech	2024–pres
Anna Flowers	Stats	Virginia Tech	2023–pres
Steven Barnett	Stats	Virginia Tech	2023–pres
Andrew Cooper	Stats	Virginia Tech	2022–pres
Annie Sauer Booth	Stats	Virginia Tech	2019–2023
Ryan Christianson	Stats	Virginia Tech	2019–2023
Nathan Wycoff	Stats	Virginia Tech	2019–2021
Austin Cole	Stats	Virginia Tech	2018–2021
Boya Zhang	Stats	Virginia Tech	2018–2020
Adam Edwards	Stats	Virginia Tech	2017–2020
Jiangeng Huang	Stats	Virginia Tech	2017–2019
Furong Sun	Stats	Virginia Tech	2017–2019
Anne Sutkoff	Econom/Stats	Chicago Booth	2012–2014
Adam Bull	Stats	U. of Cambridge	2009–2010
Timothy Graves	Stats	U. of Cambridge	2009–2013
James Lawrence	Stats	U. of Cambridge	2008–2012
Masters–level Students			
Justin Loda	Stats	Virginia Tech	2019–2020
Timothy Graves	Mphil Stats	U. of Cambridge	2008–2009
Tamara Broderick	Part III Maths	U. of Cambridge	2007–2008
James Keough	Mphil Stats	U. of Cambridge	2007–2008
Donal Moore	Mphil Stats	U. of Cambridge	2006–2007
Ph.D. Viva/Committee			
Yanran Wei	Statistics	Virginia Tech	2022
Scott Koermer	Mining	Virginia Tech	2022
Shuning Huo	Stats	Virginia Tech	2021
Li Xu	Stats	Virginia Tech	2021
Nathan Sandholtz	Stats	Simon Fraser U.	2021
Arindam Fadikar	Stats	Virginia Tech	2019
Valeria Quevedo	Stats	Virginia Tech	2019
Thomas Metzger	Stats	Virginia Tech	2019
JT Fry	Stats	Virginia Tech	2017
Ian Crandell	Stats	Virginia Tech	2017
Ning Zhang	IEMS	Northwestern U.	2013
Paul Birrell	Stats	U. of Cambridge	2010
Richard Wilkinson	Comp Bio	U. of Cambridge	2007