

July 24, 2018

Radu Herbei

Department of Statistics, The Ohio State University, Columbus, OH 43210

herbei@stat.osu.edu

<http://academics.rherbei.com/>

PROFESSIONAL PREPARATION:

West University, Timisoara, Romania	Mathematics	B.S.	1993 – 1997
West University, Timisoara, Romania	Finance	B.S.	1995 – 1999
Florida State University, Tallahassee, FL	Statistics	Ph.D.	2001 – 2006

APPOINTMENTS:

2013–present Associate Professor of Statistics, Department of Statistics, The Ohio State University.

2006–2013 Assistant Professor of Statistics, Department of Statistics, The Ohio State University.

2001–2006 Graduate Teaching Assistant, Department of Statistics, Florida State University.

1997–2001 Assistant Professor of Statistics, Economics Department, West University, Timisoara, Romania.

TEACHING

- STAT 529 – Data Analysis II (Summer, 2007);
- STAT 673 – Monte Carlo Techniques (Autumn 2006, 2007, 2009, 2010);
- STAT 722 – Probability Theory I (Autumn 2007, 2008, 2009, 2010, 2011);
- STAT 723 – Probability Theory II (Winter 2010, 2011, 2012);
- STAT 832 – Stochastic processes (Winter 2010, 2012);
- STAT 882 – Advanced Probability: Statistical Inference for Stochastic Differential Equations (Spring 2009, 2012 - co-taught with Dr. Laura Kubatko);
- STAT 6201 – Mathematical Statistics (Autumn 2015, 2016);
- STAT 6540 – Applied Stochastic Processes (Autumn, 2014);
- STAT 6802 – Statistical Theory II (Spring 2017, 2018);
- STAT 7201 – Probability Theory (Autumn, 2012, 2014, 2017);
- STAT 7301 – Advanced Statistical Theory I : Hypothesis Testing (Autumn, 2013);
- STAT 7540 – Stochastic Processes (Spring 2016);
- STAT 8540 – Advanced Stochastic Processes (Spring, 2013, 2015, 2016);
- STAT 8310 – Large Sample Theory (Spring 2009, 2011, 2014, 2016);

AWARDS

- Thomas E. & Jean D. Powers Award for Excellence in the Teaching of Statistics, 2009, Department of Statistics, The Ohio State University
- Thomas E. & Jean D. Powers Award for Excellence in the Teaching of Statistics, 2015, Department of Statistics, The Ohio State University

SYNERGISTIC ACTIVITIES:

Service to the profession:

- Associate Editor, *SIAM Journal of Uncertainty Quantification*, 2018-2020;
- Publication Officer for the ASA Section on Statistical Computing, 2017 - 2019;
- Co-organized (with Peter Craigmile) a workshop on “Spatially-Varying Stochastic Differential Equations with Applications to Biological Sciences” at MBI, The Ohio State University (July 2015)

<http://academics.rherbei.com/8-teaching/19-mbi-workshop>

Refereeing:

Journal of the American Statistical Association; Journal of Geophysical Research; Journal of Computational and Graphical Statistics; Computational Statistics and Data Analysis; IEEE Transactions on Knowledge and Data Engineering; Annals of Statistics, Biometrics; Journal of Statistical Computing and Simulation; Journal of Atmospheric and Oceanic Technology; Bayesian Analysis, Proceedings of the Royal Statistical Society A, Systematic Biology, IEEE Transactions on Information Theory, Journal of Quaternary Science.

Invited seminars:

Program on Data Assimilation for Geophysical Systems, SAMSI, February, 2005; Florida State University, April, 2005; California State University, February, 2006; Ohio State University, February, 2006; Lamont-Doherty Earth Observatory, Columbia University, March 2006; University of Montana, March, 2006; Air Force Institute of Technology, Dayton, January 2007; Ohio State University, October, 2006; Brigham-Young University, February 2009; Ohio State University, February 2009; Univ. of Minnesota, October 2009; Univ. of Florida, November 2009; Western Michigan Univ., November 2009; UC Riverside, January 2010; Univ. of Missouri, November 2010 ; Ohio State Univ. September 2012; Purdue Univ., November 2012; Univ of Kentucky, October, 2013; Pennsylvania State University, October, 2015; Case Western Reserve University, April, 2016; DePaul University, November, 2016; Colorado State University, September, 2017.

Conference talks:

IUGG Conference on Mathematical Geophysics - Frontiers in Theoretical Earth Sciences, Columbia Univ., June 2004; SAMSI/NCAR/IMAGE – Fusing Geophysical Models with Data, Boulder, June 2005; Ocean Sciences Meeting, Hawaii, February, 2006; SIAM Conference of Data Mining, April, 2007; Conference on Applied Inverse Problems 2007: Theoretical and Computational Aspects, Minisymposia on Computational Inference in Inverse Problems, Vancouver, June 2007; Tenth Meeting of New Researchers in Statistics and Probability, Salt Lake City, August, 2007. Joint Statistical Meeting, Denver, August 2008; ENVR Meeting, 2008, Boulder, Colorado; EPSRC Symposium in Markov Chain Monte Carlo, March 2009, Warwick, UK; Joint Mathematical Meetings 2010, San Francisco, CA; Joint Statistical Meeting, 2011, Miami, FL; Monte Carlo, Quasi Monte Carlo Methods in Scientific Computing, 2012, Sydney, Australia; Inverse Problems Symposium, Michigan State University, June, 2012; ISBA 2012 World Meeting, Kyoto, June, 2012; Joint Statistical Meetings, Montreal, 2013; ISBA MCMSki, Chamonix, France, January 2014; MBI Workshop “Spatially-Varying Stochastic Differential Equations and Applications to Biological Sciences”, July, 2015; JSM, Seattle, WA, August 2015; ISBA MCMSki, Lenzerheide, Switzerland, January 2016; SIAM UQ Meeting, Lausanne, Switzerland, April, 2016.

Curriculum Development:

- I have developed and taught (together with Dr. Laura Kubatko) a course in *Statistical and Inference for Stochastic Differential Equations* during the Spring 2009 and Spring 2012 quarters.
- I organized and lead a working group on GPU computing at in the Department of Statistics, OSU.

PUBLICATIONS:

Journal articles

1. Gory, J., R. Herbei, and L. Kubatko, (2018). Bayesian inference of selection in the Wright-Fisher diffusion model, *Statistical Applications to Genetics and Molecular Biology*, 17.
2. Lu, Y., Herbei, R., Kurtek, S. (2017) Bayesian Registration of Functions with a Gaussian Process Prior. *JCGS*, 26, 894–904, DOI: 10.1080/10618600.2017.1336444
3. Herbei, R., Rajib, P., Berliner, L.M. (2017) Applying Diffusion-Based Markov Chain Monte Carlo, *PLOS ONE*, DOI : <http://dx.doi.org/10.1371/journal.pone.0173453>.
4. White, S. A. and Herbei, R. (2017) A Monte Carlo approach to quantifying discrepancies between intractable posterior distributions. *Journal of Statistical Computation and Simulation*, 87, 1666-1683. DOI : <http://dx.doi.org/10.1080/00949655.2017.1281277>.
5. Schneider, G., Craigmile, P. F. and Herbei, R. (2017) Maximum likelihood estimation for stochastic differential equations using sequential kriging-based optimization. *Technometrics*, 59, 178–188. DOI: 10.1080/00401706.2016.1153522.
6. Herbei, R., Rytel, A.L., Lyons, W.B., McKnight, D.M., Jaros, C., Priscu, J.C. (2016) Hydrological Controls on Ecosystem Dynamics in Lake Fryxell, Antarctica. *PLOS ONE*, DOI : <http://dx.doi.org/10.1371/journal.pone.0159038>.
7. Kubatko, L., Shah, P., Herbei, R., Gilchrist, M. (2016) A codon model of nucleotide substitution that includes the effects of selection related to codon usage and protein production rates, *Molecular Phylogenetics and Evolution*, 94, 290 – 297.
8. Spade, D., Herbei, R., Kubatko, L. (2015) Geometric ergodicity of a hybrid sampler for Bayesian inference of phylogenetic branch lengths, *Mathematical Biosciences*, 268, 9–21.
9. White, S. A. and Herbei, R. (2015) A Monte Carlo approach to quantifying model error in Bayesian parameter estimation. *Computational Statistics and Data Analysis*, 83, 168—181.
10. Chen, N., Giannakis, D., Herbei, R., Majda, A. (2014) An MCMC algorithm for parameter estimation for signals with hidden intermittent instability. *SIAM/ASA J. Uncertainty Quantification*, 2, 647—669.
11. Herbei, R. and Berliner, L. M., (2014). Estimating ocean circulation : an MCMC approach using approximated likelihoods and the Bernoulli factory. *JASA – A&CS*, 109, 944-954.
12. Spade, D., Herbei, R., Kubatko, L. (2014) A Note on the Relaxation Time of Two Markov Chains on Rooted Phylogenetic Tree Spaces. *Statistics and Probability Letters*, 84, 247–252.
13. Milliff, R., Fiechter, J., Leeds, W., Herbei, R., Wikle, C., Hooten, M., Moore, A., Powell, T., Brown, J. (2013) Uncertainty Management in Coupled Physical-Biological Lower-Trophic Level Ocean Ecosystem Models, *Oceanography* 26, 98–115.
14. Wikle, C., Milliff, R., Herbei, R., Leeds, W. (2013) Modern Statistical Methods in Oceanography: A Hierarchical Perspective. *Statistical Science*, 28, 466–486.

15. Fiechter, J., Herbei, R., W. Leeds, Brown, J., Milliff, R., Wikle, C., Powel, T., Moore, A. (2013). A Bayesian parameter estimation method applied to a marine ecosystem model for the coastal Gulf of Alaska. *Ecological Modelling*, 258, 122–133.
16. Herbei, R. and Kubatko, L. (2013) Monte Carlo estimation of total variation distance of Markov chains on large spaces, with application to phylogenetics *Statistical Applications to Genetics and Molecular Biology*, 12, 39–48.
17. Flegel, J. and Herbei, R. (2012). Exact sampling for intractable probability distributions via a Bernoulli factory. *Electronic Journal of Statistics*, 6, 10–37.
18. Herbei, R., Lyons, W., Laybourn-Perry, J., Gardner, C., Priscu, J., McKnight, D. (2010) Physiochemical properties influencing biomass and production in Lake Hoare, Antarctica. *Ecological Modeling*, 221, 1184–1193.
19. Herbei, R., McKeague, I. W. (2009) Hybrid samplers for ill posed inverse problems, *Scandinavian Journal of Statistics*, 36, 839–853.
20. Herbei, R., McKeague, I. W., Speer, K. (2008) Gyres and Jets: inversion of tracer data for ocean circulation structure, *Journal of Physical Oceanography*; 38, 1180–1202.
21. Herbei, R. Wegkamp, M., (2006) Classification with reject option, *Canadian Journal of Statistics*, 34, No. 4, pp. 709-721.
22. McKeague, I.W., Nicholls, G., Speer, K., Herbei, R. (2005). Statistical inversion of South Atlantic circulation in an abyssal neutral density layer; *J. Mar. Research*, 63, 683-704.

Bulletins

- Herbei, R. (2009) A Bayesian Approach to Inverse Problems: An Introduction with Examples. The Annals of West University Timisoara. Romania. XLVII, 3, 37–52.
- Herbei, R. (2007) Bayesian Inversion of Oceanographic Tracer Data. ISBA Bulletin 14(1).

UNIVERSITY SERVICE

- Abstract Judge for the “Edward F. Hayes Graduate Research Forum”
Feb. 2008, Feb. 2009;
- Judge for the “Richard J. & Martha D. Denman Undergraduate Research Forum”
May 2008, 2009, 2010, 2012, 2015, 2016.
- University Graduate Fellowship Committee Member
February 2017, 2018.
- September 2017 - present: co-Vice Chair for Administration and Undergraduate Studies, Department of Statistics, The Ohio State University.

EXTERNAL FUNDING

- ONR “Bayesian Hierarchical Model Characterization of Model Error in Ocean Data Assimilation and Forecasts”.
Duration: 09/2009 - 08/2013. Role – co-PI.

- NSF DMS : “Bayesian Inference via Markov Chains, Diffusion Processes and Distributed Computing” .
Duration: 06/2012- 05/2017. Role – PI.
- NSF DMS : “Statistical inference for space-time models involving stochastic differential equations” .
Duration: August 2014 - July 2018. Role – co-PI (co-PI: Dr. Peter Craigmile)

ADVISORS, PAST AND PRESENT STUDENTS

Ph.D. Advisors: Ian W. McKeague (Columbia University) and Kevin Speer (Florida State University)

Ph.D. Committee member of: Zhenhuan Cui, Lei Kang, Yushi Liu, Prasenjit Kapat, John Draper, Rui Wang, Eric Taylor, Aritra Sengupta, John Draper, Katherine Thompson, Hang Fan, Sivaranjani Vaidyanathan, Ke Jiang(CSE), Weiyi Xie;

Ph.D. Candidacy Examination Committee member of: David George, Dinakar Gade, Stephen Bamattre, Matthias Katzfuss, Yunwei Qi , John Draper, Shi Shan, Aritra Sengupta, Katherine Thompson, Hang Fan, Vaidyanathan, Sivaranjani, Robert Finn, Weiyi Xie.

MS Committee member of: Joy Zeng.

Former Ph.D. Students

- David Spade (2013) (with Dr. L. Kubatko); Asst. Prof., University of Wisconsin, Milwaukee;
- Grant Schneider (2014) (with Dr. P. Craigmile); Upstart Inc.;
- Staci A. White (2015); Asst. Prof., Wake Forrest Univ.
- Andrew N. Olsen (2015); Apple, Inc.;
- Yi Lu (2017) (with Dr. S. Kurtek); Asst. Prof., Drew University;
- Corey Smith (2018); Asst. Prof., St. Cloud State University.

Former MS Students

- Victor Gendre (2015)

Current Ph.D. Students:

- Ge Liu (with Dr. P. Craigmile).

Current MS Students:

- Achal Awasthi