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**Radu Herbei**

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**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