

## Le Bao

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### Education:

- 2006 – 2011 Ph.D. in Statistics, University of Washington, Seattle, WA  
Doctoral dissertation, “Statistical Models for Estimating and Projecting HIV/AIDS Epidemics,” (advisor: Adrian E. Raftery).
- 2004 – 2005 M.S. in Statistics, Dalhousie University, Canada
- 2000 – 2004 B.S. in Applied Mathematics, Peking University, China

### Research interests:

Bayesian methods, machine learning, mixture models, stochastic modeling, computational methods, infectious diseases dynamics, and bioinformatics.

### Professional position:

- 2017 – present Associate Professor of Statistics (with tenure), The Pennsylvania State University
- 2014 – present Associate Director of Center for Advanced Data Assimilation and Predictability Techniques (ADAPT), The Pennsylvania State University
- 2011 – 2017 Assistant Professor of Statistics, The Pennsylvania State University

### Professional Memberships:

Institute of Mathematical Statistics

American Statistical Association

International Chinese Statistical Association

International Society for Bayesian Analysis

### Editorial position:

- 2013 – 2016 Statistical Adviser for PLOS One

**Funding Support:****Active Research Grants**

Project Title: Statistical Models for Estimating and Projecting HIV/AIDS Epidemics

Funding Agency: NIH National Institute of Allergy and Infectious Diseases – NIAID

Role: Principal Investigator

Amount: \$3,585,943                      Period: 9/25/2017 to 8/31/2022

Project Number: R01 AI136664-01 (P.I.: Le Bao, The Pennsylvania State University)

Project Title: Development of Methods to Produce Fine Scale Estimates of HIV Epidemics

Funding Agency: The Joint United Nations Programme on HIV/AIDS (UNAIDS)

Role: Principal Investigator

Amount: \$353,689                      Period: 7/24/2016 to 3/15/2018

Project Number: OSP 183485              (P.I.: Le Bao, The Pennsylvania State University)

Project Title: Strengthening Capacity for Assessment of HIV- Related Data Needs among Key Populations to Inform Evidence- Based Responses

Funding Agency: John Hopkins University (USAID Prime)

Role: Co- Principal Investigator

Amount: \$59,045                      Period: 07/01/2017 to 06/30/2018

Project Number: OSP 195250              (P.I.: Xiaoyue Niu, The Pennsylvania State University)

Project Title: Quantifying Spatial Representatives and Uncertainty in Antenatal Care Sentinel Surveillance for HIV in Sub-Saharan Africa

Funding Agency: Imperial College of Science, Technology and Medicine (NIH Prime)

Role: Co-Investigator

Amount: \$1,481                      Period: 12/15/2016 – 11/30/2018

Project Number: R03 AI125001-01A1 (P.I.: Jeff Eaton, Imperial College London)

**Completed Research Grants**

Project Title: HWRF Initialization by Comparing with and Adoption of the PSU WRFENKF Method

Funding Agency: National Oceanic and Atmospheric Administration (NOAA)

Role: Co- Principal Investigator

Amount: \$139,500                      Period: 07/01/2016 to 12/31/2017

Project Number: G-00459-1              (P.I.: Fuqing Zhang, The Pennsylvania State University)

Project Title: New Statistical Models for Estimating and Projecting HIV/AIDS Epidemics

Funding Agency: NIH National Institute of Allergy and Infectious Diseases – NIAID

Role: Principal Investigator

Amount: \$383,449

Period: 8/15/2016 to 7/31/2017

Project Number: R56AI120812-01A1 (P.I.: Le Bao, The Pennsylvania State University)

Project Title: Penn State Clinical and Translational Science Institute

Funding Agency: National Center for Research Resources

Role: Investigator

Amount: \$27,000,000

Period: 03/01/2011 to 02/28/2016

Project Number: UL1 TR00127 (P.I.: Lawrence Sinoway, The Pennsylvania State University)

Project Title: Diagnostics Modelling Consortium -- Evaluating Impacts of Incidence Assays

Funding Agency: Imperial College London and Bill & Melinda Gates Foundation

Role: Principal Investigator

Amount: \$30,000

Period: 06/01/2014 to 04/30/2015

Project Number: 161794 AWARD (P.I.: Le Bao, The Pennsylvania State University)

Project Title: Development of Hierarchical Models for Estimating Health Indicators

Funding Agency: World Health Organization (WHO)

Role: Principal Investigator

Amount: \$30,000

Period: 10/20/2014 to 06/19/2015

Project Number: SPHQ14-APW-4034 (P.I.: Le Bao, The Pennsylvania State University)

### **Refereed Publications:**

1. Cheng F.W., Gao X., **Bao L.**, Mitchell D.C., Wood C., Sliwinski M.J., Smiciklas-Wright H., Still C.D., Rolston D.D.K., and Jensen G.L. (2017). Obesity as a risk factor for developing functional limitation among older adults: A conditional inference tree analysis. *Obesity (Silver Spring)*. 25(7):1263-1269.
2. Wu Z., Su X., Sheng H., Chen Y., Gao X., **Bao L.**, Jin W. (2017) Conditional Inference Tree for Multiple Gene-Environment Interactions on Myocardial Infarction Among Chinese Men. *Archives of Medical Research*.  
<https://doi.org/10.1016/j.arcmed.2017.12.001>
3. Eaton J. and **Bao L.** (2017). Accounting for non-sampling error in estimates of HIV epidemic trends from antenatal clinic sentinel surveillance. *AIDS* 31: S61-S68.

4. Niu X., Zhang A., Brown T., Puckett R., Mahy M., **Bao L.** (2017). Incorporation of hierarchical structure into EPP fitting with examples of estimating sub-national HIV/AIDS dynamics. *AIDS* 31: S51-S59.
5. Sheng B., Marsh K., Slavkovic A.B., Simon Gregson, Eaton J., **Bao L.** (2017). Statistical Models for Incorporating Data from Routine HIV Testing of Pregnant Women at Antenatal Clinics into HIV/AIDS Epidemic Estimates. *AIDS* 31: S87-S94.
6. Hunter D.R., **Bao L.**, and Poss M. (2017). Assignment of Endogeneous Retrovirus Integration Sites Using a Mixture Mode. *Annals of Applied Statistics* 11(2): 751-770.
7. Thomas J. and **Bao L.** (2016). Modeling the dynamics of an HIV epidemic. *Dynamic Demographic Analysis*. 91-144.
8. Malhotra, R., Elleder, D., **Bao, L.**, Hunter, D. R., Poss, M., Acharya, R. (2016). A pipeline for identifying integration sites of mobile elements in the genome using next-generation sequencing. *Proceedings of the 8th International Conference on Bioinformatics and Computational Biology*. (BICOB 2016): 63-69.
9. Li R., Dudek S.M., Kim D., Hall M.A., Bradford Y., Peissig P.L., Brilliant M.H., Linneman J.G., McCarty C.A., **Bao L.**, and Ritchie M.D. (2016) Identification of genetic interaction networks via an evolutionary algorithm evolved Bayesian network. *Bio Data Mining*, 9(18). DOI: 10.1186/s13040-016-0094-4.
10. **Bao L.**, Raftery A.E., Reddy A. (2015) Estimating the sizes of populations at risk of HIV infection from multiple data sources using a Bayesian hierarchical model. *Statistics and Its Interface*. 8(2): 125-136.
11. **Bao L.**, Elleder D., Malhotra R., DeGiorgio M., Maravegias T., Horvath L., Carrel L., Gillin C., Hron T., Fábryová H., Hunter D. and Poss M. (2014) Computational and statistical analyses of insertional polymorphic endogenous retroviruses in a non-model organism. *Computation*. 2: 221-245.
12. **Bao L.**, Ye J., Hallett T.B. (2014) Incorporating incidence information within the UNAIDS Estimation and Projection Package framework: A study based on simulated incidence assay data. *AIDS* 28: S515-S522.
13. Brown T., **Bao L.**, Eaton J.W., Hogan D.R., Mahy M., Marsh K., Mathers B.M., Puckett R. (2014) Improvements in prevalence trend fitting and incidence estimation in EPP 2013. *AIDS* 28: S415-S425.

14. Kamath P., Elleder D., **Bao L.**, Cross P., Poss M. (2013) The population history of endogenous retroviral elements in mule deer (*Odocoileus hemionus*). *Journal of Heredity*, 105: 173-187.
15. **Bao L.** (2012). A new infectious disease model for estimating and projecting HIV/AIDS epidemics. *Sexually Transmitted Infections*, 88: i58-i65.
16. **Bao L.**, Salomon J.A., Brown T., Raftery A.E., and Hogan D.R. (2012). Modelling national HIV/AIDS epidemics: Revised approach in the UNAIDS Estimation and Projection Package 2011. *Sexually Transmitted Infections*, 88: i3-i10.
17. Clark S.J., Thomas J., and **Bao L.** (2012). Estimates of age-specific reductions in HIV Prevalence in Uganda: Bayesian melding estimation and probabilistic population forecast with an HIV-enabled cohort component projection model. *Demographic Research* 27: 743-774.
18. Meila M. and **Bao L.** (2010). An exponential model for infinite rankings. *Journal of Machine Learning Research*, 11: 3481-3518.
19. Raftery A.E. and **Bao L.** (2010). Estimating and projecting trends in HIV/AIDS generalized epidemics using incremental mixture importance sampling. *Biometrics*, 66: 1162-1173.
20. **Bao L.**, Raftery A.E. (2010). A stochastic infection rate model for estimating and projecting national HIV prevalence rates. *Sexually Transmitted Infections*, 86: ii93-ii99.
21. Brown T., **Bao L.**, Raftery A.E., Salomon J.A., Baggaley R.F., Stover J., and Gerland P. (2010). EPP 2009: Bringing the UNAIDS Estimation and Projection Package into the ART era. *Sexually Transmitted Infections*, 86: ii3-ii10.
22. **Bao L.**, Gneiting T., Grimit E., Guttrop P. and Raftery A.E. (2010). Bias correction and Bayesian model averaging for ensemble forecasts of surface wind direction. *Monthly Weather Review*, 138:1811-1821.
23. **Bao L.**, Zhu, Z. and Ye, J. (2009). Modeling oncology gene pathways network with multiple genotypes and phenotypes via a copula method. *IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology*, 237-246. DOI: 10.1109/CIBCB.2009.4925734.
24. Meila M. and **Bao L.** (2008). Estimation and clustering with infinite rankings. *Proceedings of the 24<sup>th</sup> Conference in Uncertainty in Artificial Intelligence*, 24:393-402.

25. **Bao L.**, Gu H., Dunn, K.A. and Bielawski J. (2008). Likelihood based clustering (LiBaC) for codon models, a method for grouping sites according to similarities in the underlying process of evolution. *Molecular Biology and Evolution*. 25:1995-2007.
26. **Bao L.**, Gu H., Dunn K.A. and Bielawski J. (2007). Methods for selecting fixed-effect models for heterogeneous codon evolution, with comments on their application to gene and genome data. *BMC Evolutionary Biology*. 7 Suppl 1:S5.
27. Mitnitski A, **Bao L.** and Rockwood K. (2007). A cross-national study of transitions in deficit counts in two birth cohorts: Implications for modeling ageing. *Experimental Gerontology*. 42:241-246.
28. Mitnitski A, **Bao L.** and Rockwood K. (2006). Going from bad to worse: a stochastic model of transitions in deficit accumulation, in relation to mortality. *Mechanisms of Ageing and Development*. 127: 490-493.

### Reports:

29. UNAIDS (2015). Guidelines on monitoring the impact of the HIV epidemic using population-based surveys.  
[http://www.unaids.org/en/resources/documents/2015/population\\_based\\_surveys](http://www.unaids.org/en/resources/documents/2015/population_based_surveys)
30. WHO (2015). Tracking universal health coverage: First global monitoring report.  
[http://www.who.int/healthinfo/universal\\_health\\_coverage/report/2015/en/](http://www.who.int/healthinfo/universal_health_coverage/report/2015/en/)
31. **Bao L.**, Hogan D., Raftery A.E., and Salomon J.A. (2011). A flexible model for estimating and projecting trends in HIV/AIDS epidemics. *Technical Report, UNAIDS, Geneva*.

### Reviews and Comments:

32. **Bao L.**, Fricks J. and Haran M. (2012). Comment on the mechanistic modeling and inference for cell motility by Manolopoulou et al. *Journal of the American Statistical Association*, 107: 869–871.
33. **Bao L.**, (2015). Comment on Quasi-Monte Carlo sampling by Gerber and Chopin. *Journal of the Royal Statistical Society: Series B*, 77: 560.

### Invited talks:

1. UNAIDS Reference Group on Estimates, Models and Projections, London, 10/17/2017, *Discussion of the Bayesian Hierarchical Models for Size Estimation of Key Populations*

2. 2017 JSM, Baltimore, 08/01/2017, *Statistical Models for Estimating HIV/AIDS Epidemics with Multiple Types of Prevalence Data*
3. International Conference on Big Data in Biological and Medical Sciences, Xi'An, China, 07/04/2017, *Identification of endogenous retrovirus integration sites using a mixture model*
4. Department of Financial Mathematics, Peking University, China, 06/15/2017, *Challenges of Quantitative Analysis in Global Health*
5. Academy of Mathematics and System Sciences, Chinese Academy of Sciences, 06/07/2017, *Challenges of Quantitative Analysis in Global Health*
6. UNAIDS Reference Group on Estimates, Models and Projections, Geneva, 05/15/2017, *Missing Data Issue in HIV Surveillance Data*
7. Small Area Estimation and Spatial Statistics Working Group, Department of Biostatistics, Johns Hopkins University, 03/09/2017, *Leaving No One Behind: Estimating HIV Epidemics at Sub-National and Sub-Population Level*
8. Centers for Disease Control and Prevention, Atlanta, 01/31/2017, *Estimating the size of populations at high risk of HIV using a Bayesian hierarchical model*
9. UNAIDS Reference Group on Estimates, Models and Projections, New York, 11/08/2016, *Modelling using a Hierarchical Approach; Incidence Assay Update*
10. Latent Variables 2016 Conference, University of South Carolina, 10/13/2016, *Identification of endogenous retrovirus integration sites using a mixture model*
11. Department of Statistics, The Ohio State University, 10/06/2016, *Incorporating Hierarchical Structure into Dynamic Systems: An Application of Estimating HIV Epidemics at Sub-National and Sub-Population Level*
12. Department of Statistics, UCLA, 10/04/2016, *Incorporating Hierarchical Structure into Dynamic Systems via Auxiliary Data Approach*
13. ADAPT seminar, The Pennsylvania State University, 09/01/2016, *Incorporating Hierarchical Structure into Dynamic Systems via Auxiliary Data Approach*
14. 2016 JSM, Chicago, 08/03/2016, *Estimating HIV Epidemics at Fine Scales*
15. The Third Taihu International Statistics Forum, Shanghai, China, 07/10/2016, *Statistical models for Estimating and Predicting HIV Epidemics*
16. The School of Mathematics, Peking University, 06/27/2016, *Statistical models for Estimating and Predicting HIV Epidemics*
17. The School of Economics, Xiamen University, 06/22/2016, *Statistical models for Estimating and Predicting HIV Epidemics*
18. National Center for AIDS/STD Control and Prevention, China CDC, 06/16/2016, *Estimating HIV Epidemics at Fine Scales*
19. Hershey/Institute for Personalized Medicine, The Pennsylvania State University, 04/29/2016, *Network-based Discriminant Analysis*

20. CTSI BERD seminar, The Pennsylvania State University, 03/29/2016, *Leaving No One Behind -- Estimating HIV Epidemics at Fine Scales*
21. Department of Global Health, University of Washington, 02/29/2016, *Estimating HIV Epidemics at Sub-National and Sub-Population Level*
22. Department of Statistics, Temple University, 11/20/2015, *An Efficient Way of Estimating HIV Epidemics in Sub-National Areas and Sub-Populations*
23. UNAIDS Reference Group on Estimates, Models and Projections, London, 10/26/2015, *Incorporating PMTCT data in EPP: Investigation of Level of Continuity Required, Data Quality Requirements; Further Testing of the Hierarchical Model*
24. Department of Statistics, Columbia University, 09/28/2015, *Estimating HIV Epidemics for Sub-National Areas*
25. Big Data Social Science IGERT program, The Pennsylvania State University, 09/09/2015, *Estimating HIV Epidemics for Sub-National Areas*
26. Bioinformatics and Genomics Retreat, The Pennsylvania State University, 08/29/2015, *Assigning Viruses from Sequence Count Data via a Mixture Model*
27. UNAIDS Reference Group on Estimates, Models and Projections, Boston, 06/04/2015, *Hierarchical Model - Revisions, Accuracy, Efficiency, Use with Key Populations*
28. UNAIDS Reference Group on Estimates, Models and Projections, Boston, 06/03/2015, *Incorporating PMTCT Data into EPP Fitting*
29. ENAR, Miami, 03/17/2015, *Compression of Complex Data with an Example of Time Series Gene Expression and Biomarker*
30. Department of Genomics, The Pennsylvania State University, 02/27/2015, *Compression of Complex Data with an Example of Time Series Gene Expression*
31. Bill & Melinda Gates Foundation, Seattle, 02/17/2015, *Towards a Target Product Profile for HIV Incidence Assay Development*
32. Information Communication Technology for Development (ICT4D), The Pennsylvania State University, 12/17/2014, *HIV Epidemics Study*
33. The Methodology Center, The Pennsylvania State University, 11/13/2014, *A Hierarchical Model for Estimating HIV/AIDS Epidemics*
34. UNAIDS Reference Group on Estimates, Models and Projections, UNAIDS, Geneva, 10/29/2014, *Considerations for Incorporating PMTCT as an Additional Data Source with Calibrating Parameter*
35. UNAIDS Reference Group on Estimates, Models and Projections, UNAIDS, Geneva, 10/28/2014, *Hierarchical Approach for Generating Sub-National Estimates within the EPP Framework*
36. UNAIDS Reference Group on Estimates, Models and Projections, Seattle, 04/25/2014, *Bayesian Hierarchical Model for Sharing Information Across Areas and Countries*
37. Institute for Health Metrics and Evaluation, University of Washington, Seattle, 04/23/2014, *Statistical Models for Estimating and Predicting HIV/AIDS Epidemics*



38. National Institutes of Health (NIH), NICHD, Bethesda, Maryland, 02/20/2014, *Compression of Complex Data with an Example of Time Series Gene Expression*
39. UNAIDS Reference Group on Estimates, Models and Projections, Spain, 08/12/2013, *Use of Incidence Assays within the EPP framework*
40. The 2nd Taihu International Statistics Forum, Soo Chow University, China, 07/07/2013, *Inference of Gene Associations using Model-based Clustering and Adjusted Rand Index in Time-course Gene Expression Data*
41. IMS-China, International Conference on Statistics and Probability, Chengdu, China, 07/02/2013, *Inference of Gene Associations using Model-based Clustering and Adjusted Rand Index in Time-course Gene Expression Data*
42. ENAR, Orlando, FL, 03/11/2013, *A New Infectious Disease Model for Estimating and Projecting HIV/AIDS Epidemics*
43. Working group on Stochastic Modelling and Computational Statistics, State College, PA, 11/15/2012, *Incremental Mixture Importance Sampling*
44. UNAIDS Reference Group on Estimates, Models and Projections, London, 09/24/2012, *A New Infectious Disease Model for Estimating and Projecting HIV/AIDS Epidemics*
45. Second Biostatistics Symposium, Renmin University, Beijing, 07/09/2012, *New Methods for Estimating and Projecting National HIV/AIDS Prevalence Rates*
46. Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China, 06/15/2012, *Incremental Mixture Importance Sampling for Estimating and Predicting HIV/AIDS Epidemics*
47. Department of Mathematics and Statistics, University of Minnesota, Duluth, MN, 05/04/2012, *Statistical Models for Estimating and Predicting HIV/AIDS Epidemics*
48. UNAIDS Reference Group on Estimates, Models and Projections, Boston, MA, 04/02/2012, *New Improvements on R-Flexible Model*
49. Student Advisory Committee (SAC) Seminar, Department of Statistics, The Pennsylvania State University, University Park, PA, 03/21/2011, *New Methods for Estimating and Projecting National HIV/AIDS Prevalence Rates*
50. Department of Statistics, University of Washington, Seattle, WA, 05/17/2011, *Statistical Models for Estimating and Projecting HIV/AIDS Epidemics*
51. Center of Statistical Science, Peking University, Beijing, China, 04/12/2011, *Statistical Models for Estimating HIV Prevalence and the At-Risk Population Size*
52. Department of Biostatistics and Bioinformatics, Emory University, Atlanta, 03/31/2011, *Statistical Models for Estimating HIV Prevalence and the At-Risk Population Size*
53. Department of Statistics, The Pennsylvania State University, University Park, 02/10/2011, *Statistical Models for Estimating HIV Prevalence and the At-Risk Population Size*
54. Department of Statistics, National University of Singapore, Singapore, 01/21/2011, *Estimating HIV At-Risk Population Size Using a Bayesian Hierarchical Model*

55. UNAIDS Reference Group on Estimates, Models and Projections, Boston, 10/26/2010, *A Flexible Model for Estimating and Projecting HIV Prevalence Rates*
56. Joint Statistical Meetings, Vancouver, Canada, 08/01/2010, *The Bayesian Hierarchical Model for Estimating the Size of HIV At-Risk Populations in Bangladesh*
57. UNAIDS Reference Group on Estimates, Models and Projections, Glastonbury, 05/21/2010, *A Stochastic Infection Rate Model for Estimating and Projecting National HIV Prevalence Rates*
58. UNAIDS Reference Group on Estimates, Models and Projections, London, 10/14/2009, *The Bayesian Model for Estimating the Size of HIV At-Risk Population*
59. Working group on Model-Based Clustering Summer Session, Seattle, WA, 07/10/2008, *Incremental Mixture Importance Sampling*
60. Pacific Northwest Weather Workshop, Seattle, WA, 02/29/2008, *Probabilistic Wind Direction Forecasting Using Bayesian Model Averaging*

### **Student Supervision:**

#### *Current Ph.D. Students at The Pennsylvania State University*

Jingyi Ye (Department of Statistics), Ben Sheng (Department of Statistics), Jacob Parsons (Department of Statistics), Binglan Li (Department of Genomics), Amy Zhang (Department of Statistics), Xiaoxiao Li (Department of Statistics), Sanam Sanei (Department of Statistics)

#### *Ph.D. Thesis Committees at The Pennsylvania State University*

Xiaoheng Cheng (Department of Biology)

Yuji Samizo (Department of Statistics)

Justin Petrovich (Department of Statistics)

ChingChi Yang (Department of Statistics)

Ruowang Li (Department of Genomics, Jul 2016)

Wenjie Hu (College of Information Sciences and Technology, Feb 2016)

Xin Chen (College of Information Sciences and Technology, Dec 2015)

Rashmi Bomiriya (Department of Statistics, Jul 2014)

Xiaotian Zhu (Department of Statistics, Nov 2014)

Yihan Li (Department of Statistics, Apr 2014)

Qi Fang (College of Information Sciences and Technology, Aug 2013)

Wei Wang (Department of Statistics, Jul 2013)

James Yonamine (Department of Political Science, Jul 2013)

*Undergraduate Honor Thesis at The Pennsylvania State University*

Yuan Tang (Department of Mathematics, May 2015)

Shanglun Li (Department of Statistics, expect May 2018)

### **Teaching:**

1. STAT/IST 557, Data Mining, Fall 2011/Fall 2012/Spring2014/Spring2015/Fall 2016/Spring 2017
2. STAT554, Categorical Data Analysis, Fall 2014/Fall 2015/Fall 2017
3. STAT/MATH415, Introduction to Mathematical Statistics, Fall 2013/Spring 2016/Fall 2017
4. STAT897D, Applied Data Mining, Fall 2012

### **Scientific Software:**

1. IMIS: R-package for Incremental Mixture Importance Sampling.
2. SizeEstimation: R-package for estimating the size of hidden population with multiple data sources.
3. Estimation and Projection Package (EPP): it is used to estimate and project adult HIV prevalence and incidence from surveillance data.
4. Codeml\_FE: Comprehensive set of fixed-effect models of codon evolution.
5. LiBaC: Clustering analysis under a probabilistic model of codon evolution.

### **Service to the Profession:**

- 2011 - present    Key technical advisor of the UNAIDS Reference Group on HIV Estimates, Modelling and Projections who advises on the methods for calculating international AIDS statistics. <http://www.epidem.org/about-us>
- 2013 - present    Core project team leader of the Diagnostics Modelling Consortium who aims to utilize modelling to guide the effective use of diagnostic technologies in resource-poor settings. <http://www.dxmodelling.org/people>

- 2014 - present National Institute of Statistical Sciences (NISS) associate liaison at The Pennsylvania State University
- 2017, 2015, 2014 Expert Consultation on Meeting for HIV/AIDS Response of China, Ministry of Health (MoH), Beijing, China
- 2017 Expert Consultation on Estimating the Size of Key Populations in Resource Limited Settings, Atlanta, US Centers for Disease Control and Prevention
- 2013 - 2016 Statistical Adviser for PLOS One
- 2010 Consultant, Regional Training on Methods for Size Estimation of Most-at-Risk Populations in the Asia-Pacific Region, Bangkok, Thailand
- 2009 Consultant, Training of Trainers Workshop on HIV/AIDS Estimates and Projections, Geneva, Switzerland

Reviewer for the following journals:

Journals in Statistics:

- Annals of Applied Statistics,
- Biostatistics,
- Computational Statistics and Data Analysis,
- Journal of the American Statistical Association,
- Journal of Computational and Graphical Statistics,
- Pattern Recognition,
- Statistics and Computing,
- Statistics and Its Interface,
- Statistics in Medicine,
- Technometrics,

Journals in Bioinformatics:

- BMC Genetics,
- BMC Bioinformatics,
- BioData Mining,
- Bioinformatics,

- PLOS one,

Journals in Epidemiology:

- Epidemiology,
- International Journal of Infectious Diseases,
- Journal of Acquired Immune Deficiency Syndromes,
- Journal of AIDS and Clinical Research,
- Journal of the International AIDS Society,
- Sexually Transmitted Infections,

Journals in Global Health:

- Journal of Agricultural, Biological, and Environmental Statistics,
- The Journal of Nutrition, Health and Aging, Population Health Metrics,
- The South Pacific Journal of Natural and Applied Sciences.