ZHENKE WU
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EDUCATION

2014 **Johns Hopkins Bloomberg School of Public Health**, Baltimore, MD
Ph.D. in Biostatistics
Thesis title: *Statistical Methods for Individualized Health: Etiology, Diagnosis, and Intervention Evaluation*
Advisors: Scott Zeger and Constantine Frangakis

2009 **Fudan University**, Shanghai, China
B.Sc. in Mathematics

PROFESSIONAL EXPERIENCE

2014 - present **Postdoctoral Fellow**
Hopkins individualized Health (*in*Health), Johns Hopkins University
Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health

2014 - present **Co-lead Statistician**
Pneumonia Etiology Research for Child Health (PERCH) funded by Gates Foundation, International Vaccine Access Center (IVAC), Johns Hopkins Bloomberg School of Public Health
Principal Investigator: Katherine O'Brien

2015 August **Visiting Scholar**
Combining Health Information, Computation and Statistics (CHICAS)
Lancaster University, Lancaster, England

2013 - 2014 **External Consultant**
Child Health Research Foundation (CHRF), Dhaka, Bangladesh; National Center for Immunization and Respiratory Diseases (NCIRD), The U.S. CDC

2010 - 2014 **Research Assistant**
International Vaccine Access Center (IVAC), Johns Hopkins Bloomberg School of Public Health
Advisor: Scott Zeger; *Principal Investigator*: Katherine O'Brien

2008 **Research Scholar**
California NanoSystems Institute, and Department of Mechanical and Aerospace Engineering, University of California, Los Angeles

2007 - 2009 **Research Scholar**
Center for Computational Systems Biology, Fudan University, Shanghai, China

Research Support

Active:

Co-investigator, PCORI ME-1408-20318 (PI: Zeger) 07/01/2015 - 06/31/2018
Bayesian Hierarchical Models for Design and Analysis of Studies to Individualize Healthcare.
Funding for Methodological Research, Patient-Centered Outcomes Research Institute.
50% effort.

Co-lead Statistician, Gates Foundation 48968 (PI: O'Brien) 09/01/2014-12/31/2016
Pneumonia Etiology Research for Child Health (PERCH).
50% effort.

Investigator, Project Data Sphere, LLC (PDS) by AstraZeneca 10/01/2015-03/31/2016
Prostate Cancer DREAM Challenge Educational Program Award
$2307.69.

Co-investigator, Johns Hopkins Biostatistics (PI: Colantuoni) 12/01/2014 - 08/31/2016
Evaluation of Peer-Review Grading in Biostatistics Courses Focused on Development of Data Analysis Skills.
Variable effort.

Honors and Awards

JOHNS HOPKINS UNIVERSITY

2015	Top Performer for 2015 Prostate Cancer DREAM Challenge 1b; As part of *Bmore Dream Team*. Press Release.
2015	Scholarship for Summer Institute in Statistics and Modeling in Infectious Diseases. University of Washington, Seattle, WA
2015	NSF Big Data Travel award for Drawing Causal Inference from Big Data. National Academy of Sciences, Washington DC
2015	Induction into Alpha Chapter of *Delta Omega* Public Health Honor Society
2015	Induction into *Phi Beta Kappa* Honor Society
2014	First Place: Biostatistics Section of the Delta Omega Poster Competition
2012, 2013	Joseph Zeger Travel Award to ENAR and JSM
2012	June B. Culley Award, for outstanding achievement on school-wide oral exam paper
2011-14	Johns Hopkins Sommer Scholar
2009-14	Department of Biostatistics Graduate Fellowship

UNIVERSITY OF CALIFORNIA, LOS ANGELES

2008	UCLA-China Cross Disciplinary Scholarship in Science and Technology (CSST)

FUDAN UNIVERSITY

2009	B.Sc. with First Class Honors
2007-09	Chun-Tsung Scholar, Chinese Undergraduate Research Endowment (CURE) Scholarship
2008	First Class National Scholarship, Ministry of Education, China
2007	Excellent Undergraduate Student, Government of Shanghai
2006-07	First Class People's Scholarship
2006	First Class Shi Dai Scholarship

PUBLICATIONS (†: alphabetical order)

PUBLISHED/IN PRESS

Wu Z, Deloria-Knoll M, and Zeger SL (2016). Nested Partially-Latent Class Models (npLCM) for Dependent Binary Data; Estimating Disease Etiology. *Biostatistics*. To appear.

Wu Z, Deloria-Knoll M, Hammitt LL, and Zeger SL, for the PERCH Core Team (2016). Partially Latent Class Models (pLCM) for Case-Control Studies of Childhood Pneumonia Etiology. *Journal of the Royal Statistical Society: Series C (Applied Statistics)*, 65: 97-114. doi: 10.1111/rssc.12101.

Frangakis CE, Qian T, **Wu Z**, Diaz I (2015). Deductive Derivation and Turing-computerization of Semiparametric Efficient Estimation. *Biometrics*. doi:10.1111/biom.12362. Discussion paper.

Frangakis CE, Qian T, **Wu Z**, Diaz I (2015). Rejoinder: Deductive Derivation and Turing-computerization of Semiparametric Efficient Estimation. *Biometrics*. doi:10.1111/biom.12365.

Wu Z, Frangakis CE, Louis TA, Scharfstein DO (2014). Estimating Treatment Effects in Cluster Randomized Trials by Calibrating Covariate Imbalances between Clusters. *Biometrics*, 70: 1014-1022. doi: 10.1111/biom.12214.

Georgiades C, Geschwind J-F, Neil H, Hines-Peralta A, Liapi E, Hong K, **Wu Z**, Kamel I, Frangakis CE (2012). Lack of response after initial chemoembolization for hepatocellular carcinoma: Does it predict failure of subsequent treatment? *Radiology*, 265:115-123.

UNDER REVISION/REVIEW

Wu, Z and Zeger SL (2016+). **baker**: Bayesian Analytic Kit for Etiology Research.

Bmore Dream Team: Deng D, Du Y, Ji Z, Rao K, **Wu Z**, Zhu Y, Coley RY (2016+). Predicting Survival Time for Metastatic Castration-Resistant Prostate Cancer: An Iterative Imputation Approach. *Submitted to F1000 Research (DREAM Challenges Channel)*.

IN PREPARATION

Wu Z and Zeger SL (2016+). Bayesian Regression Analysis for Estimating Disease Etiology from Case-Control Data.

Wu Z and Zeger SL (2016+). Sparse Latent Class Regression for Multivariate Binary Data; A Bayesian Approach.

Wu Z and Zeger SL (2016+). Individualizing Health with Longitudinal Measurements and Feedback in Treatment Assignments

Wu Z, Ji HK, Leek JT, Colantuoni E (2016+). Evaluation of Peer-Review Grading in Biostatistics Courses Focused on Development of Data Analysis Skills.

Deloria-Knoll M, **Wu Z**, Fu W, Prosperi C, Zeger SL, for the PERCH Core Team (2016+). Epidemiologic considerations in applying a partial-latent class analysis for etiologic estimations in The Pneumonia Etiology Research for Child Health Study. In preparation for *Clinical Infectious Disease*.

Wu Z, with PERCH Study Group (2016). The Burden and Etiology of Severe and Very Severe Childhood Pneumonia in Developing Countries: A 21st Century Perspective. In preparation for *Lancet*.

Guinney J et al. - **Wu Z** in PCC DREAM Consortium (2016). A Community Challenge to Improve Prognostic Models in Patients with Metastatic Castration-Resistant Prostate Cancer. In preparation for *Nature Biotechnology*.

SOFTWARE

baker: Bayesian Analysis Kit for Etiology Research - Fitting and visualizing Bayesian nested partially-latent class models for estimating disease etiology
https://github.com/zhenkewu/baker

mpcr: Robust covariate-calibrated estimation of treatment effect in matched-pair cluster randomized trials.
https://github.com/zhenkewu/mpcr

PRESENTATIONS (*upcoming)

ORAL: INVITED

2016 Bayesian Nested Partially-Latent Class Models for Dependent Binary Data; Estimating Disease Etiology.

- 9th International Conference of the ERCIM WG on Computational and Methodological Statistics. December 9-11, University of Seville, Spain.*
- 18th Meeting of New Researcher Conference in Statistics and Probability. July 28-30, University of Wisconsin, Madison.*
- Department of Biostatistics, University of Michigan. February 25, Ann Arbor, MI.
- Department of Biostatistics, University of Massachusetts, Amherst. February 5, Amherst, MA.
- Biostatistics Research Branch, Division of Clinical Research, National Institute of Allergy and Infectious Diseases, NIH. February 1, Rockville, MD.

2016 Sparse Latent Class Regression for Multivariate Binary Data; A Bayesian Approach. Survival, Longitudinal and Multivariate Data Working Group. Department of Biostatistics, Johns Hopkins University. May 6, Baltimore, MD.*

2015 Informative Bayes Models for Estimating Disease Etiology.

- Biostatistics Grand Rounds, Johns Hopkins Bloomberg School of Public Health. November 9, Baltimore, MD.
- CHICAS, Medical School, Lancaster University. August 17, Lancaster, England.
- Department of Biostatistics, Brown University. February 17, Providence, RI.

2014 Partially Latent Class Models (npLCM) for Case-Control Studies of Childhood Pneumonia Etiology. SLAM Working Group. December 12, Baltimore, MD.

2014 Partially Latent Class Models (npLCM) for Case-Control Studies of Childhood Pneumonia Etiology. Pneumonia Etiology Research for Child Health (PERCH) Executive Committee Meeting. December 2, London, England.

2013 Estimating Infectious Etiology from Hierarchical Dirichlet Process Perspective. Pneumonia Etiology Research for Child Health (PERCH) Executive Committee Meeting. December 2, London, England.

2013 Partially Latent Class Models (pLCM) for Case-Control Studies of Childhood Pneumonia Etiology. US Centers for Disease Control and Child Health Research Foundation: Aetiology of Neonatal Infection in South Asia (ANISA) Project Committee Meeting. November 10, San Diego, CA.

2012 Revealing and Addressing Existing Basic Inadequacies in the Use of Paired Cluster Randomized Trials. Department of Biostatistics. Johns Hopkins Biostatistics Causal Inference Working Group. December 6, Baltimore, MD.

ORAL: CONTRIBUTED

2016 Sparse Latent Class Regression for Multivariate Binary Data; A Bayesian Approach. Joint Statistical Meetings. July 31-August 4, Chicago, IL.*

2016 Bayesian Regression Analysis for Estimating Disease Etiology. Eastern North American Regional meeting of the International Biometric Society. March 6-9, Austin, TX.

2015 Bayesian Nested-Partially Latent Class Models for Estimating Disease Etiology. Eastern North American Regional meeting of the International Biometric Society. March 15-18, Miami, FL.

2014 Nested Partially Latent Class Models (npLCM) for Case-Control Studies of Childhood Pneumonia Etiology. Joint Statistical Meetings. August 7, Boston, MA.

2014 Estimating Treatment Effects in Cluster Randomized Trials by Calibrating Covariate Imbalances between Clusters. Eastern North American Regional meeting of the International Biometric Society. March 18, Baltimore, MD.

2013 Estimating Treatment Effects in Cluster Randomized Trials by Calibrating Covariate Imbalances between Clusters. Joint Statistical Meeting. August 4, Montreal, QC, Canada.

POSTER

2015 Bayesian Nested-Partially Latent Class Models for Estimating Disease Etiology. John W. Tukey 100th Birthday Celebration Conference. Center for Statistics and Machine Learning (CSML), Princeton University. September 18, Princeton, NJ.

2014 Estimating Childhood Pneumonia Episodes Attributable to Putative Pathogens from Indirect Measurements: Seasonality and Impact of HIV Infection. Delta Omega Scientific Poster Competition. Feburary 8, Baltimore, MD.

2013 Hierarchical Bayesian Model for Combining Information from Multiple Biological Samples with Measurement Errors: An Application to Children Pneumonia Etiology Study. Eastern North American Regional meeting of the International Biometric Society. March 12, Orlando, FL.

TEACHING (see website for materials)

INSTRUCTOR

2014 Statistical Methods for Individualizing Health. Mayo Clinic, Department of Health Sciences Research, November 17, Rochester, MN. (Short course taught with Scott Zeger)

GUEST LECTURER

2016 Data Visualization for Individualized Health via `ggplot2`. Public Health Studies, Undergraduate Seminar Course, Johns Hopkins University (taught by Yates Coley). March 1.

2016 Methods in Biostatistics (140.653; Master-level). Johns Hopkins University. February 11.

2015 A Survey of Automatic Bayesian Software and Why You Should Care. Hopkins Biostatistics Student Computing Club.

2015 Exploring the Posterior Distribution by Markov chain Monte Carlo. Hopkins Biostatistics Student Computing Club.

2014 Introduction to Empirical Processes and Semiparametric Inference. SLAM Working Group.

2012 Advanced Special Topics in Statistical Machine Learning, 140.840 (taught by Han Liu).

TEACHING ASSISTANT

2014 Multilevel Statistical Models, Graduate, 140.656 (taught by Elizabeth Colantuoni).

2014 Analysis of Longitudinal Data, Graduate, 140.655 (taught by Elizabeth Colantuoni).

2013 Biostatistics in Public Health, Undergraduate, 280.346 (taught by Scott Zeger).

2013 Case-based Introduction to Biostatistics, **www.coursera.org** (taught by Scott Zeger;$\sim 23,000$ global enrollments).

2013 Bayesian Methods **I-II**, Graduate, 140.762-763 (taught by Gary Rosner).

2012 Biostatistics in Public Health, Undergraduate, 280.346 (taught by Scott Zeger).

2011-12 Advanced Probability Theory **I-II**, Graduate, 550.620 - 621 (taught by James Fill).

2010-11 Essentials of Probability and Statistical Inference **I-IV**, Graduate, 140.646-649 (taught by Michael Rosenblum and Charles Rohde).

Professional Activities

Hosted Attendee	Methods Summit. 2015 PCORI Annual Meeting: Building a Patient-Centered Research Community. Arlington VA. October 6-8, 2015
Co-Organizer	Hopkins Biostatistics Student Journal Club, 2012-2013
Committee and treasurer	Chinese Public Health Forum (CPHF) at Johns Hopkins, 2010-2012
Volunteer	ENAR Spring Meeting, Washington, DC, 2012
Representative and panelist	Johns Hopkins Department of Biostatistics Alumni Day, April 2016
	Department of Biostatistics Student Recruitment Committee, 2010-2012
Member	Hopkins inHealth (HiH) Learning Methodologies Working Group
	JHSPH Causal Inference Working Group
	Survival, Longitudinal, and Multilevel Modeling (SLAM) Working Group
	American Association for the Advancement of Science (AAAS) Program for Excellence in Science, American Statistical Association (ASA), International Chinese Statistical Association (ICSA), International Biometric Society (ENAR), Institute of Mathematical Statistics (IMS), American Public Health Association (APHA)
Consultant	Studio Consultation, Johns Hopkins Institute for Clinical and Transnational Research (ICTR)
Reviewer	**Journals**: *Biometrics, Journal of Business and Economic Statistics, Statistics in Medicine, Annals of Statistics, Ophthalmic Epidemiology, Computational Statistics and Data Analysis, Statistical Science, Sankhya (The Indian Journal of Statistics)*
	Conference: International Conference on Artificial Intelligence and Statistics (AISTAT)
	Grants: 2016 Johns Hopkins Individualized Health Initiative Request for Proposal (RFP); 2016 Methodology Research Grant, Medical Research Council, United Kingdom

References

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