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## EDUCATION

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- 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*  
Advisor: Scott Zeger
- 2009     **Fudan University**, Shanghai, China  
B.Sc. in Mathematics and Applied Mathematics

## PROFESSIONAL EXPERIENCE

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- 2014 - present     **Postdoctoral Fellow**  
Hopkins individualized Health (*inHealth*), 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
- 2013 - present     **External Statistical Advisor**  
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 Engi-  
neering, University of California, Los Angeles
- 2007 - 2009     **Research Scholar**  
Center for Computational Systems Biology, Fudan University, Shanghai, China

## RESEARCH SUPPORT (\*pending)

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- 2015 - 2017\*     Bayesian hierarchical models for design and analysis of studies to individualize health-  
care. Scott Zeger, PI. Improving Methods for Conducting Patient-Centered Outcomes  
Research (PCOR), PCOR Institute (PCORI) .  
Co-investigator.

## HONORS AND AWARDS

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### JOHNS HOPKINS UNIVERSITY

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- 2015            Travel award for Drawing Causal Inference from Big Data, National Academy of Sciences, Washington DC
- 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

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

### FUDAN UNIVERSITY

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- 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

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### PUBLISHED/IN PRESS

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**Wu Z**, Deloria-Knoll M, Hammitt LL, and Zeger SL, for the PERCH Core Team (2015). Partially Latent Class Models (pLCM) for Case-Control Studies of Childhood Pneumonia Etiology. *Journal of the Royal Statistical Society: Series C (Applied Statistics)*. To appear.

Frangakis CE, Qian T, **Wu Z**, Diaz I (2015). Deductive Derivation and Turing-computerization of Semiparametric Efficient Estimation. *Biometrics*. Discussion paper. To appear.

**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 REVIEW

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**Wu Z**, Zeger SL (2015+). Nested Partially-Latent Class Models (npLCM) for Estimating Disease Etiology from Case-Control Data.

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#### IN PREPARATION

**Wu Z**, Zeger SL. Taxonomic Regression Analysis of Nested Partially-Latent Class Models for Estimating Disease Etiology from Case-Control Data.

**Wu Z**, Knoll MD, Li M, Zeger SL: Longitudinal Latent Variable Models for Etiologic Inferences.

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

**Wu Z**, Ogburn EL. A Latent Space Model for Inference in A Single Social Network.

**Wu Z**, Zeger SL. Individualizing Health with Longitudinal Measurements and Feedback in Treatment Assignments

PERCH Study Group: Burden and Etiology of Severe Childhood Pneumonia in Developing Countries (the Pneumonia Etiology Research for Child Health, PERCH): A 21st Century Perspective. In preparation for *Lancet*.

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#### SOFTWARE

**nplcm**: Bayesian nested partially-latent class models for disease etiology estimation and visualization for case-control studies.

<https://github.com/zhenkewu/nplcm>

**mPCR**: Covariate-calibrated treatment effect estimation in matched-pair cluster randomized trials.

<https://github.com/zhenkewu/mPCR>

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#### PRESENTATIONS (\*upcoming)

2015 Statistical Models for Individualizing Health with Application to Children's Pneumonia. Eastern North American Regional meeting of the International Biometric Society. March 15-18, Miami, FL. (Invited)\*

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

2014 Nested 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.

- 2014     Nested Partially Latent Class Models (npLCM) for Case-Control Studies of Childhood Pneumonia Etiology. Joint Statistical Meetings. August 7, Boston, MA. (Topic contributed)
- 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. (Topic contributed)
- 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.
- 2013     Estimating Treatment Effects in Cluster Randomized Trials by Calibrating Covariate Imbalances between Clusters. Joint Statistical Meeting. August 4, Montreal, QC, Canada. (Topic contributed)
- 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. (Topic contributed)
- 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.

## TEACHING

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### INSTRUCTOR

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- 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

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- 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

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- 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](http://www.coursera.org) (taught by Scott Zeger).
- 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

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| Co-Organizer                | <a href="#">Hopkins Biostatistics Student Journal Club</a> , 2012-2013   |
| Committee and treasurer     | <a href="#">Chinese Public Health Forum (CPHF) at Johns Hopkins</a> , 2010-present   |
| Volunteer                   | ENAR Spring Meeting, Washington, DC, 2012  |
| Representative and panelist | Department of Biostatistics Student Recruitment Committee, 2010-2012   |
| Member                      | Hopkins inHealth (HiH) Learning Methodologies Working Group<br><a href="#">JHSPH Causal Inference Working Group</a><br><a href="#">Survival, Longitudinal, and Multilevel Modeling (SLAM) Working Group</a><br>American Statistical Association (ASA), International Chinese Statistical Association (ICSA), International Biometric Society (ENAR), Institute of Mathematical Statistics (IMS), American Public Health Association (APHA) |
| Reviewer                    | <i>Journal of Business and Economic Statistics</i> , <i>Annals of Statistics</i> , <i>Ophthalmic Epidemiology</i> , <i>International Conference on Artificial Intelligence and Statistics (AISTAT)</i> , <i>Statistical Science</i>  |