

ZHENKE WU  
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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*  
Advisors: Scott Zeger and Constantine Frangakis
- 2009    **Fudan University**, Shanghai, China  
B.Sc. in Mathematics

## PROFESSIONAL EXPERIENCE

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- 2016 - present    **Assistant Professor**  
Department of Biostatistics, University of Michigan  
**Research Assistant Professor**  
Michigan Institute of Data Science (MIDAS), University of Michigan
- 2017 - present    **Faculty Associate**  
Quantitative Methodology Program, Survey Research Center  
Institute for Social Research (ISR), University of Michigan
- 2016 - present    **Consultant**  
Biostatistics Core for Global Health ([GLOBAL STATCORE](#)), Office of Global Public Health, University of Michigan
- 2014 - 2016    **Postdoctoral Fellow**  
Hopkins individualized Health (*inHealth*), Johns Hopkins University  
Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health
- 2014 - 2016    **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

**PROFESSIONAL ACTIVITIES (\*upcoming)**

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Committee Member	Eastern North American Regional Meeting of the International Biometric Society - Regional Advisory Board (2018-2020) - Educational Advisory Committee (2018; Atlanta, GA)
Session Chair	<i>Towards a Learning-Health System: Methods and Strategies for Data-Driven Healthcare</i> , Joint Statistical Meetings (July 29 - August 3, 2017; Baltimore, MD)
Member	Cancer Epidemiology and Prevention (CEP) research program, Cancer Center Core Grant Member, University of Michigan Comprehensive Cancer Center (UMCCC)  MIDAS mobile sensor analytics working group Hopkins inHealth (HiH) Learning Methodologies Working Group
Founding Member	<a href="#">Chinese Public Health Forum (CPHF) at Johns Hopkins</a> , 2010-12
Consultant	<a href="#">Studio Consultation, Johns Hopkins Institute for Clinical and Transnational Research (ICTR)</a>
Hosted Attendee	Methods Summit. PCORI Annual Meeting: Building a Patient-Centered Research Community. Arlington VA. October 6-8, 2015
Panelist*	Foundations of Data Science. Fifth Bayesian, Fiducial and Frequentist Conference (BFF5) (May 6-9, 2018; Ann Arbor, MI)
Referee	<b>Journals:</b> <i>Biometrics, Biostatistics, 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), Nature Partner Journal (npj) Digital Medicine, International Journal of Epidemiology</i> <b>Books:</b> Cambridge University Press <b>Grants:</b> 2017 Michigan Institute for Clinical and Health Research (MICHR) Pilot Grant; 2016 Johns Hopkins Individualized Health Initiative Request for Proposal (RFP); 2016 Methodology Research Grant, Medical Research Council, United Kingdom

**HONORS AND AWARDS**

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UNIVERSITY OF MICHIGAN

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2017 Travel Award for ENAR Junior Investigator Workshop, International Biometric Society. Washington, DC.

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JOHNS HOPKINS UNIVERSITY

2016 New Researcher Conference Travel Award, Institute of Mathematical Statistics. Madison, WI.

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

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UNIVERSITY OF CALIFORNIA, LOS ANGELES

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

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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

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**PUBLICATIONS** (†: alphabetical order)

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JOURNAL ARTICLES (STATISTICAL METHODOLOGY)

Fritsche L, Gruber SB, **Wu Z**, Schmidt E, Zawistowski M, Moser SE, Blanc VM, Brummet CM, Kheterpal S, Abecasis GR, Mukherjee B (2018+). Association of Polygenic Risk Scores for Multiple Cancers in a Phenome-wide Study: Results from The Michigan Genomics Initiative. *American Journal of Human Genetics*. In press. <https://doi.org/10.1101/205021>.

**Wu Z**, Casciola-Rosen L, Shah AA, Rosen A, Zeger SL (2017). Estimating AutoAntibody Signatures to Detect Autoimmune Disease Patient Subsets. *Biostatistics*. In press. doi: 10.1093/biostatistics/kxx061.

**Wu Z**, Deloria-Knoll M, and Zeger SL (2017). Nested Partially-Latent Class Models (npLCM) for Dependent Binary Data; Estimating Disease Etiology. *Biostatistics*, 18 (2): 200-213. doi:10.1093/biostatistics/kxw037.

**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.

**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. *F1000Research* 2016, 5:2672. doi: 10.12688/f1000research.8628.1.

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.

#### JOURNAL ARTICLES (SUBSTANTIVE RESEARCH)

Deloria-Knoll M, Fu W, Shi Q, Prosperi C, **Wu Z**, Hammitt LL, Feikin DR, Baggett HC, Howie SRC, Scott JAG, Murdoch DR, Madhi SA, Thea DM, Brooks WA, Kotloff KL, Li M, Park DE, Lin W, Levine OS, O'Brien KL, Zeger SL (2017). Bayesian Estimation of Pneumonia Etiology: Epidemiologic Considerations and Applications to PERCH. *Clinical Infectious Diseases*, 64 (suppl 3): S213-S227. doi: 10.1093/cid/cix144.

Morpeth SC et al., **Wu Z** as part of the PERCH Study Group (2017). Detection of Pneumococcal DNA in Blood by Polymerase Chain Reaction for Diagnosing Pneumococcal Pneumonia in Young Children From Low- and Middle-Income Countries. *Clinical Infectious Diseases*, 64 (suppl 3): S347-S356. doi: 10.1093/cid/cix145.

Higdon MM et al., **Wu Z** as part of the PERCH Study Group (2017). Association of C-Reactive Protein With Bacterial and Respiratory Syncytial Virus-Associated Pneumonia Among Children Aged <5 Years in the PERCH Study. *Clinical Infectious Diseases*, 64 (suppl 3): S378-S386. doi:10.1093/cid/cix150.

Higdon MM et al., **Wu Z** as part of the PERCH Study Group (2017). Should Controls With Respiratory Symptoms Be Excluded From Case-Control Studies of Pneumonia Etiology? Reflections From the PERCH Study. *Clinical Infectious Diseases*, 64 (suppl 3): S205-S212. doi: 10.1093/cid/cix076.

Crawley J et al., **Wu Z** as part of the PERCH Study Group (2017). Standardization of Clinical Assessment and Sample Collection Across All PERCH Study Sites, *Clinical Infectious Diseases*, 64 (suppl 3): S228-S237. doi: 10.1093/cid/cix077.

Fancourt N et al., **Wu Z** as part of the PERCH Study Group (2017). Chest Radiograph Findings in Childhood Pneumonia Cases From the Multisite PERCH Study. *Clinical Infectious Diseases*, 64 (suppl 3): S262-S270. doi:10.1093/cid/cix089.

Murdoch DR et al., **Wu Z** as part of the PERCH Study Group (2017). Microscopic Analysis and Quality Assessment of Induced Sputum From Children With Pneumonia in the PERCH Study, *Clinical Infectious Diseases*, 64 (suppl 3): S271-S279. doi:10.1093/cid/cix083.

Murdoch DR et al., **Wu Z** as part of the PERCH Study Group (2017). The Diagnostic Utility of Induced Sputum Microscopy and Culture in Childhood Pneumonia, *Clinical Infectious Diseases*, 64, (suppl 3): S280-S288. doi:10.1093/cid/cix090.

Thea DM et al., **Wu Z** as part of the PERCH Study Group (2017). Limited Utility of Polymerase Chain Reaction in Induced Sputum Specimens for Determining the Causes of Childhood Pneumonia in Resource-Poor Settings: Findings From the Pneumonia Etiology Research for Child Health (PERCH) Study. *Clinical Infectious Diseases*, 64 (suppl 3): S289-S300. doi:10.1093/cid/cix098.

DeLuca AN et al., **Wu Z** as part of the PERCH Study Group (2017). Safety of Induced Sputum Collection in Children Hospitalized With Severe or Very Severe Pneumonia. *Clinical Infectious Diseases*, 64 (suppl 3): S301-S308. doi: 10.1093/cid/cix078.

Baggett HC et al., **Wu Z** as part of the PERCH Study Group (2017). Density of Upper Respiratory Colonization With *Streptococcus pneumoniae* and Its Role in the Diagnosis of Pneumococcal Pneumonia Among Children Aged <5 Years in the PERCH Study. *Clinical Infectious Diseases*, 64 (suppl 3): S317-S327. doi:10.1093/cid/cix100.

Park DE et al., **Wu Z** as part of the PERCH Study Group (2017). Colonization Density of the Upper Respiratory Tract as a Predictor of Pneumonia? *Haemophilus influenzae*, *Moraxella catarrhalis*, *Staphylococcus aureus*, and *Pneumocystis jirovecii*. *Clinical Infectious Diseases*, 64 (suppl 3): S328-S336. doi:10.1093/cid/cix104.

Feikin DR et al., **Wu Z** as part of the PERCH Study Group (2017). Is Higher Viral Load in the Upper Respiratory Tract Associated With Severe Pneumonia? Findings From the PERCH Study. *Clinical Infectious Diseases*, 64 (suppl 3): S337-S346. doi:10.1093/cid/cix148.

Morpeth SC et al., **Wu Z** as part of the PERCH Study Group (2017). Detection of Pneumococcal DNA in Blood by Polymerase Chain Reaction for Diagnosing Pneumococcal Pneumonia in Young Children From Low- and Middle-Income Countries. *Clinical Infectious Diseases*, 64 (suppl 3): S347-S356. doi:10.1093/cid/cix145.

Deloria-Knoll M et al., **Wu Z** as part of the PERCH Study Group (2017). Evaluation of Pneumococcal Load in Blood by Polymerase Chain Reaction for the Diagnosis of Pneumococcal Pneumonia in Young Children in the PERCH Study. *Clinical Infectious Diseases*, 64 (suppl 3): S357-S367. doi:10.1093/cid/cix149.

Driscoll AJ et al., **Wu Z** as part of the PERCH Study Group (2017). The Effect of Antibiotic Exposure and Specimen Volume on the Detection of Bacterial Pathogens in Children With Pneumonia. *Clinical Infectious Diseases*, 64 (suppl 3): S368-S377. doi:10.1093/cid/cix101.

Higdon MM et al., **Wu Z** as part of the PERCH Study Group (2017). Association of C-Reactive Protein With Bacterial and Respiratory Syncytial Virus-Associated Pneumonia Among Children Aged <5 Years in the PERCH Study. *Clinical Infectious Diseases*, 64 (suppl 3): S378-S386. doi:10.1093/cid/cix150.

Syednasrollah F et al. - **Wu Z** in Prostate Cancer DREAM Challenge Community (2017). A DREAM Challenge to Build Prediction Models for Short-Term Discontinuation of Docetaxel in Metastatic Castration-Resistant Prostate Cancer. *JCO Clinical Cancer Informatics* 1, 1-15. doi: 10.1200/CCI.17.00018

Guinney J et al. - **Wu Z** in PCC DREAM Consortium (2017). Prediction of Overall Survival for Patients with Metastatic Castration-Resistant Prostate Cancer: Development of A Prognostic Model Through A Crowdsourced Challenge with Open Clinical Trial Data. *The Lancet Oncology*, 18 (1): 132-142. doi: 10.1016/S1470-2045(16)30560-5.

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.

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#### OTHER REFEREED PUBLICATIONS

Xu G, **Wu Z** and Murphy SA (2017). Micro-Randomized Trials. *Wiley StatsRef: Statistics Reference Online*. In press.

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#### UNDER REVIEW/REVISION

**Wu Z** and Zeger SL (2018+). Clustering Multivariate Binary Outcomes with Restricted Latent Class Models: A Bayesian Approach.

PERCH Study Group (**Wu Z** as part of group authorship) (2018+). Clinical and microbiological findings among young HIV-uninfected children with severe pneumonia from Africa and Asia: the Pneumonia Etiology Research for Child Health (PERCH) Case-Control Study. Submitted to *The Lancet*.

PERCH Study Group (**Wu Z** as part of group authorship) (2018+). Etiology of severe and very severe pneumonia in children from Africa and Asia: Integrated Analysis of the PERCH Case-Control Study. Submitted to *The Lancet*.

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#### IN PREPARATION

Chen YH, Mukherjee B, Narisetty, NN, **Wu Z**, Ferguson K, Meeker J (2018+). A Hierarchical Integrative Grouped Lasso (HIGLASSO) Framework for Analyzing Environmental Mixtures.

**Wu Z**, Xu G and Murphy SA (2018+). Statistics in mHealth/Just in Time Adaptive Intervention. *Wiley StatsRef: Statistics Reference Online*.

**Wu Z**, Casciola-Rosen L, Shah AA, Rosen A and Zeger SL (2018+). Subsetting Autoimmune Disease Patients via Reconstruction of Cellular Machine Components from Autoantibody Signatures.

**Wu Z**, Dempsey W and Murphy SA (2018+). Dynamic Prediction to Individualize Mobile Interventions for Behavioral Maintenance.

**Wu Z**, Ji HK, Leek JT, Colantuoni E (2018+). Evaluation of Peer-Review Grading in Biostatistics Courses Focused on Development of Data Analysis Skills.

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

**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

## SOFTWARE

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- 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>
- spotgear:** Subset Profiling and Organizing Tools for Gel Electrophoresis Autoradiography in R  
<https://github.com/zhenkewu/spotgear>
- rewind:** Reconstructing Etiology with Binary Decomposition  
<https://github.com/zhenkewu/rewind>

## TEACHING AND ADVISING (see [website](#) for materials)

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### ADVISING (\*expected graduation)

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- 2019\* [Tim NeCamp](#), PhD student (co-advisor with Edward Ionides). NSF Graduate Research Fellow. Department of Statistics, University of Michigan
- 2019\* Mengbing Li, MS student. Department of Biostatistics, University of Michigan

### PRELIMINARY ORAL PARTICIPATION

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2018 Yuqi Gu (Statistics)

### FINAL ORAL PARTICIPATION

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2018 Jun Guo (Statistics)

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 MENTOR
 

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2017 Summer     [Big Data Summer Institute](#), NIH BD2K R25 (PI: Mukherjee)  
 Undergraduate Projects on Statistical Methods for **Electronic Health Records** (data: Michigan Genomics Initiative). Department of Biostatistics, University of Michigan

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 INSTRUCTOR
 

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2018 Fall\*     Applied Stats III: Longitudinal Analysis (BIOSTAT 653), Department of Biostatistics, University of Michigan.

2017 Fall     Statistical Methods in Epidemiology (BIOSTAT 523), Department of Biostatistics, University of Michigan. 84 Master/Doctoral Students.

2016 Fall     [Statistical and Computational Methods for Learning through Graphical Models](#) (Advanced Topics in Biostatistics; BIOSTAT 830), Department of Biostatistics, University of Michigan. 11 Doctoral Students.

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

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 GUEST LECTURER
 

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2018\*          Causal Inference. Big Data Summer Institute, Department of Biostatistics, University of Michigan. June 28.

2017            Network. Big Data Summer Institute, Department of Biostatistics, University of Michigan. June 22. Link: [http://bigdatasummerinst.sph.umich.edu/wiki/index.php/Main\\_Page](http://bigdatasummerinst.sph.umich.edu/wiki/index.php/Main_Page).

2016            Predicting Survival Time for Metastatic Castration Resistant Prostate Cancer: An Iterative Imputation Approach. Cancer Biostatistics Seminar Course (BIOSTAT 803), Department of Biostatistics, University of Michigan (Instructor: Jeremy M G Taylor). October 28.

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).

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 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; ~ 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).

### PRESENTATIONS (\*upcoming)

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#### ORAL: INVITED

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- 2018\*      Estimating clusters from multivariate binary data via hierarchical Bayesian Boolean matrix factorization. 2nd International Conference on Econometrics and Statistics (EcoStat 2018). June 19-21, The City University of Hong Kong.
- 2018\*      Partially Observed Dynamic Models for Tracking Therapeutic and Engagement Outcomes. "Statistics Methods and Applications in Mobile Health", Applied Statistics Symposium. International Chinese Statistical Association (ICSA). June 14-17, New Brunswick, NJ, USA.
- 2018\*      TBA. Junior Faculty Lightning Talks. Cancer Control and Population Sciences (CCPS), University of Michigan Cancer Center. May 4.
- 2018      Predicting mood using multivariate mobile sensor data streams for medical interns. Health Sciences Challenge Symposium. Michigan Institute for Data Sciences, University of Michigan. May 1.
- 2018      Bayesian Hierarchical Methods to Power Disease Discovery and Improve Clinical Decisions. Michigan Student Symposium for Interdisciplinary Statistical Sciences (MSSISS) University of Michigan. Apr 2-3. **Junior Faculty Keynote Speaker.**
- 2017      Partially Observed Dynamic Models for Therapeutic and Engagement Outcomes. Statistical Reinforcement Learning Lab. December 22. Department of Statistics, Harvard University, Cambridge, MA.

- 2017 Estimating AutoAntibody Signatures to Detect Autoimmune Disease Patient Subsets.
- Rheumatology Data Science Meeting. December 1, Johns Hopkins School of Medicine, Bayview Medical Center.
  - International Biometric Society, Brazilian Regional Meeting. July 24 - July 28, Federal University of Lavras (UFLA), Lavras, MG, Brazil. **Conference Plenary Talk.**
  - Big Data Summer Institute, University of Michigan. July 10, Ann Arbor, MI.
  - Interdisciplinary Group Seminar (IGS), Center for Statistical Genetics, University of Michigan. November 29, 2016, Ann Arbor, MI
- 2016 Statistical Methods for Individualized Health. Annual School of Public Health Excellence in Research Symposium, University of Michigan. November 11, Ann Arbor, MI.
- 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.
  - 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.

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ORAL: CONTRIBUTED

- 2018\*      Estimating clusters from multivariate binary data via hierarchical Bayesian Boolean matrix factorization. Joint Statistical Meeting. July 28-August 2, Vancouver, Canada.
- 2018      Mixed Membership Regression Models for Estimating Autoimmune Disease Patient Subsets. Eastern North American Regional meeting of the International Biometric Society. March 25-28, Atlanta, GA.
- 2017      Detecting Autoimmune Disease Subsets for Estimated Autoantibody Signatures. Eastern North American Regional meeting of the International Biometric Society. March 12-15, Washington, DC.
- 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.

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POSTER

- 2017      Estimating AutoAntibody Signatures to Detect Autoimmune Disease Patient Subsets. Data Science Research Forum. December 1, University of Michigan, Ann Arbor, MI.
- 2016      Bayesian Nested-Partially Latent Class Models for Estimating Disease Etiology. 18th Meeting of New Researcher Conference in Statistics and Probability. July 28-30, University of Wisconsin, Madison.
- 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. February 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.

## RESEARCH GRANT PARTICIPATION

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### FUNDED

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- Co-I, NIH RO1 2R01MH101459 (PI: Sen; U of Michigan) 04/01/2018 - 03/31/2023  
 Mobile Technology to Identify Mechanisms Linking Genetic Variation and Depression  
 Effort: 10%.
- Subcontract PI, NIH R01AR073208 (PIs: Casciola-Rosen and Shah; Hopkins) 04/01/2018 - 03/31/2023  
 Autoantibodies Define Scleroderma Subgroups with Distinct Relationships to Cancer  
 Effort: 15%.
- Co-Investigator, MIDAS Challenge Awards (PI: Sen) 03/01/2017-02/28/2019  
[Identifying Real-Time Data Predictors of Stress and Depression Using Mobile Technology.](#)  
 Funding for methodological research in the area of health sciences, Michigan Institute for Data Science (MIDAS), University of Michigan  
 Effort: 10%. \$521,051.
- Subcontract PI, 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.  
 Subcontract to UMich 17-PAF02898; Effort: 27%. \$890,032.

### PENDING

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- Co-I, NIH UO1 (PI: Nahum-Shani, ISR, U of Michigan) 07/01/2018 - 06/30/2022  
 Novel use of mHealth data to identify states of vulnerability and receptivity to JITAIs
- Co-I, NIH UO1 (PI: Sen, U of Michigan) 07/01/2018 - 06/30/2022  
 Real-Time, Objective Predictors of Imminent Suicidal Risk

### COMPLETED

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- Co-lead Statistician, Gates Foundation 305215 (PI: O'Brien) 09/01/2014-12/31/2017  
[Pneumonia Etiology Research for Child Health \(PERCH\).](#)  
 Subcontract to UMich 17-PAF02901; Effort: 32%.
- Investigator, Project Data Sphere, LLC (PDS) by AstraZeneca 10/01/2015-03/31/2016  
 Prostate Cancer DREAM Challenge Educational Program Award

\$2307.69.

## ACADEMIC SERVICE

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### DEPARTMENT OF BIostatISTICS, UNIVERSITY OF MICHIGAN

2017 - Qualifying Exam Modernization Proposal  
2017 - Faculty Search  
2017 - Seminars/Brown Bag  
2016 - 2017 Admissions

### MICHIGAN INSTITUTE OF DATA SCIENCE

2016 Poster Competition Judge, Michigan Institute of Data Science Symposium, November 15