ZHENGFAN WANG

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Education

University of Massachusetts-Amherst
August 2017 – February 2022
Ph.D., Biostatistics

Georgetown University
August 2014 - December 2015
Master of Science, Biostatistics

Beijing Normal University - Hong Kong Baptist University United International College(UIC)
September 2010 - June 2014
Bachelor of Science, Statistics

Research Experience

Department of Biostatistics, University of Massachusetts-Amherst **Amherst, MA**
Postdoctoral Scholar *January 2022 – present*
Advisor: Leontine Alkema, PhD

- Developed a novel Bayesian survival model to estimate cohort-age specific mortality rate in Senegal
- Mentored doctoral students developing a Bayesian model to estimate family plan indicators
- Created functions to visualize the interest outcomes/problems
  - Country-specific Stillbirth rate and mortality by a world map
  - Visualization of the two-dimensional spline coefficients

Department of Biostatistics, University of Massachusetts-Amherst **Amherst, MA**
Research Assistant *September 2018 – December 2021*
Advisor: Leontine Alkema, PhD

- Estimated the stillbirth rate globally using a Bayesian hierarchical temporal sparse regression model in a data-limit setting
- Designed methods/surveys for UNICEF to optimize the data collection process to improve the stillbirth rate data quality
- Proposed Bayesian Reference Distribution Variable Selection method based on horseshoe prior and applied this method to stillbirth rate project to identify the most important covariates to reduce the stillbirth globally.
- Estimation and prediction of reporting errors in survival probabilities in sibling survival data

Department of Biostatistics, University of Massachusetts-Amherst **Amherst, MA**
Research Assistant *September 2017- September 2018*
Advisor: Xiangrong Kong, PhD

- Developed a hybrid modeling strategy based on Markov transition models with pairwise composite likelihood to deal with the high dimensional correlated data from Stargardt disease trials
- Proposed a visualization approach to present the high dimensional data for Stargardt disease trials
- Studied the visual impairment and eye diseases in HIV-infected people in the Antiretroviral Therapy era in Rakai, Uganda

Department of Biostatistics, Georgetown University **Washington, DC**
Research Assistant *September 2015- January 2017*
Advisor: Ao Yuan, PhD

- Proposed a robust test to allow for multiple endpoints in sequential clinical trial design based on symmetric distribution assumption instead of normal distribution via simulation and empirical clinical trial data

Department of Biostatistics, Georgetown University **Washington, DC**
Research Assistant *January 2015-May 2015*

Advisor: Lin Cai, PhD

- Tested the hypothesis that injecting a premixed solution of propofol/lidocaine will be associated with less pain than when lidocaine is injected separately before propofol
- Designed questionnaire and test for the study to evaluate first year medical students' HIV/STI attitudes and counseling knowledge
- Analyzed outcome difference between GLM procedure and MIXED procedure in R and SAS based on CONNOR data
- Conducted data analysis to explore the risk factor of haploid leukemia and URD leukemia

Department of Biostatistics, Georgetown University **Washington, DC**
Practicum *January 2015-December 2015*
Advisor: Ming Tan, PhD

- Developed Sequential Conditional Probability Ratio Test(SCPRT) for clinic trial data analysis, designed R packages, evaluated the SCPRT through type I& type II error and discordance probability via simulation

Department of Science and Technology, UIC **Zhuhai, China**
Advisor: Ping He, PhD *January 2014-May 2014*
Research Content: Application of Markov Chain-Monte Carlo method in logistic regression

- Created a method to predict result of NBA basketball game by using Markov Chain-Monte Carlo method in logistic regression 2014 NBA data

Department of Science and Technology, UIC **Zhuhai, China**
Advisor: Jianzhong Zhang, PhD *September 2012-November 2012*
Research Content: Application of MATLAB programing

- Solved a classical complex logistics problem-optimizing the logistics network by using method of enumeration in MATLAB

Publications

Wang, Z., Fix, M.J., Hug, L., Mishra, A., You, D., Blencowe, H., Wakefield, J. and Alkema, L., 2020. Estimating the stillbirth rate for 195 countries using a Bayesian sparse regression model with temporal smoothing. arXiv preprint arXiv:2010.03551. (Accepted by *Annals of Applied Statistics*)

Hug, L., You, D., Blencowe, H., Mishra, A., **Wang, Z.,** Fix, M.J., Wakefield, J., Moran, A.C., Gaigbe-Togbe, V., Suzuki, E. and Blau, D.M., 2021. Global, regional, and national estimates and trends in stillbirths from 2000 to 2019: a systematic assessment. The Lancet, 398(10302), pp.772-785.

Jian-Yu, E., **Wang, Z.,** Ssekasanvu, J., Munoz, B., West, S., Ludigo, J., Gray, R., Nakigozi, G. and Kong, X., 2020. Visual Impairment and Eye Diseases in HIV-infected People in the Antiretroviral Therapy (ART) Era in Rakai, Uganda. Ophthalmic Epidemiol.

Wang, Z., Yuan, A. and Tan, M.T., 2016. Computation of the Properties of Multi-Stage Clinical Trial Design Based on SCPRT. J Clin Trials, 6(274), pp.2167-0870.

Work in progress

Zhengfan Wang, Emily Peterson, Stephane Helleringer, Bruno Masquelier, Leontine Alkema. Estimating adult mortality from sibling survival histories while accounting for reporting errors: A Bayesian two-stage approach (Target journal: Statistics in Medicine)

Zhengfan Wang, Jadey Wu, Chuchu Wei, Leontine Alkema. Application of hierarchical model class in estimating family planning indicators (Target journal: Statistics in Medicine)

Presentations

Wang, Z., A two-stage Bayesian Approach to Estimate Age-cohort Specific Adult Mortality Accounting for Reporting Errors in Sibling Survival Histories. (Paper presentation. PAA. Apr. 2022)

Wang, Z., Stillbirth rate estimation model (Presentation. Core Stillbirth Estimation Group Meeting UN Inter-agency Group for Child Mortality Estimation Meeting. Online. Dec 2020.)

Wang, Z., Alkema, L. Imposing Sparseness in a Bayesian Hierarchical Regression Model with Temporal Smoothing via the Horseshoe Prior with an Application to Estimate Stillbirths for All Countries. (Paper presentation. JSM. Aug. 2020)

Wang, Z., Estimation of stillbirth rate (Presentation. Second Core Stillbirth Estimation Group Meeting UN Inter-agency Group for Child Mortality Estimation Meeting. New York. July 2019)

Wang, Z., Kong, X. Multivariate Longitudinal Data from Eyes – Microperimertry Macular Sensitivity Loss in Patients with Stargardt Disease. (Poster presentation. JSM. Denver, CO. July 2019)

Wang, Z. Alkema, L. Estimating Stillbirth Rates for all Countries from 2000 Till 2017 using a Bayesian Temporal Hierarchical Regression Model. (Poster presentation. NESS. Hartford, CT. May 2019)

Wang, Z., Alkema, L. Stillbirth estimation model (Presentation. Core Stillbirth Estimation Group Meeting UN Inter-agency Group for Child Mortality Estimation Meeting. Montreux, Switzerland. Mar 2019)

Hannallah, M. S., Lopatin, J., Cestare, T., Tefera, E., **Wang, Z.,** & Cai, L. Mixing Lidocaine and Propofol Decreases the Severity but not the Incidence of Propofol Pain on Injection Compared to Injecting Lidocaine Before Propofol in Non-Premedicated Patients Undergoing Colonoscopy. (DC. Oct 2015)

Professional Experience

Department of Biostatistics, University of Massachusetts-Amherst **Amherst, MA**
Teaching Assistant *September 2017-May 2019*

- Teaching assistant for
  - Categorical data analysis
  - Computing in R
  - Survival analysis
  - Introduction to Biostatistics

Department of Biostatistics, Georgetown University **Washington, DC**
Biostatistics Consultant *January 2015-May 2015*

- Worked as an assistant of statistical counselor, and helped customers conduct projects

Johnson &Johnson **Shanghai, China**
Internship-Project Assistant *May 2015-August 2015*

- Worked in statistical department, and participated in the VELCADE and ZYTIGA program
- Assisted finishing the SAP of VELCADE and ZYTIGA and analyzed clinical trial data
- Communicated academic experiment design methods with colleagues in J&J in Japan

Sealand Securities **Taiyuan, China**
Internship-Sales Assistant *June 2012-September 2012*

- Wrote the financial plan for VIP client of Sales Department under the guidance of experienced staff
- Designed the classification of customer survey

National Bureau of Statistics of the People's Republic of China **Beijing, China**

Internship- Statistic consultant *June 2011-September 2011*

- Trained colleagues using advanced statistical software (SAS, R)
- Increased the efficiency of public transportation system by more than 10%
- Participated in statistic enforcement for a company

Skills

Programing and Software: R (proficient), SAS (base and advance certificate), Python (proficient), Microsoft Office
Language: Chinese (native), English (full professional)