WEIJIA REN, Ph.D.

osurwj@gmail.com (617) 319-4470 Permanent U.S. Resident

Ph.D. seeking a quantitative research scientist or statistical modeling related role that will utilize my survey methodology, statistical sampling and weighting, and statistical modeling skills.

EDUCATION

The Ohio State University Columbus, OH
Ph.D. in Quantitative Research, Evaluation, and Measurement, GPA: 3.9/4.0 December, 2011
Graduate Minor: Statistical Data Analysis

University of Kentucky Lexington, KY
M.A. in Social & Philosophical Studies, GPA: 3.9/4.0 August, 2007

Sichuan International Studies University Chongqing, China
B.A. in English- International Affairs with Honors, GPA: 3.6/4.0 July, 2005

PROFESSIONAL EXPERIENCE

10+ years of experience with statistical data analysis and modeling including:

- **Statistical data analysis**: exploratory data analysis, data wrangling and visualization, missing data imputation, hypothesis-driven statistical modeling (i.e., multilevel regressions, time series, survival analysis, latent class analysis), simulation, feature selection, machine learning models (i.e. classification tree, random forest, xgboost, lasso)
- **Sampling and weighting**: multi-stage complex sample design and weighting, power analysis, nonresponse bias analysis, adaptive survey design
- **Survey methodology**: survey instrument development, reliability and validity test, psychometric properties analysis (i.e. confirmatory factor analysis, path analysis, item response theory analysis, etc.)
- **Experimental design** and **program evaluation**.

Programming: SAS, R, Python, HLM, SPSS, Wesvar, Sudaan, and SQL.
Datasets: large-scale database on education, health, financial, criminology, transportation, etc.
Additional skills: professional documentation and technical proposal/report writing, presentation and communication skills.

WESTAT Rockville, MD
Senior Statistician October, 2011 – Present

- Develop and validate small area estimation models (i.e. multivariate area-level model) through Bayesian-based MCMC simulation study using SAS, R-STAN, R-JAGS, etc., for the Organization for Economic Cooperation and Development to produce adult literacy and numeracy skill estimation within each U.S. county and state.
- Develop, train and validate conditional random forest classification models (i.e. *cforest* in R) for the National Cancer Institute to create a cost-effectively automated logical check process to ensure data quality.
- Design, collect and analyze the internal and external customer quality survey using regression and clustering analysis for the United States Patent and Trademark Office to evaluate the USPTO's service quality.

- Perform data quality check, multiple imputation for missing data, and conduct feature selection through LASSO regression, stepwise regression, or other dimension reduction methods (i.e. PCA, LCA) for various projects.
- Explore, analyze and interpret the relationships and trends in data for various projects (i.e., USDA's National Household Food Acquisition and Purchase Survey) by using appropriate statistical models (M/ANOVA, generalized linear model, logistic regression, propensity matching, HLM, machine learning models, etc.)
- Perform sampling and weighting tasks for various national projects (i.e. USDA's summer food service program, Association of American Universities' campus climate survey) and international projects (CDC's population-based HIV Assessments, Program for the International Assessment of Adult Competencies).
- Conduct clinical trial analysis for national analysis (i.e., NIH's Adolescent Medicine Trials Network study, CDC's intervention study of Patient Navigation for Colonoscopy Screening)
- Cooperate with the production team to create online tools for public use.
- Document analysis procedure and findings using R Markdown.
- Visualize the analysis findings using creative graphs/plots in R and Python
- Write proposal, technical report, conference papers and peer-reviewed journal papers.
- Present project findings and results to non-technical clients or in conferences.

THE OHIO STATE UNIVERSITY Columbus, OH
Graduate Research Associate September, 2007 – December, 2011

- Evaluated the Ohio Department of Youth Services' Striving Readers Project.
- Conducted the experimental design and collected quantitative and qualitative data.
- Developed, validated, and analyzed survey instruments using confirmatory factor analysis (CFA) and item response theory (IRT).
- Analyzed the ODYSSR project using advanced statistical models (HLM, SEM, CCREM, etc.) to evaluate the effectiveness of the project.
- Reported annual results of statistical analyses including information in the form of graphs, charts, and tables to stakeholders and in national conferences.

UNIVERSITY OF KENTUCKY Lexington, KY
Evaluator April, 2006 – May, 2007

- Evaluated the Kentucky Electronics Education Project
- Developed, distributed and collected survey instrument to students, ensuring anonymity
- Entered and cleaned data ensuring there is no particular response pattern
- Validated and analyzed survey questionnaire for participants in the program
- Evaluated the implementation of the program
- Presented report in form of graphs, charts, and tables in professional conferences

PUBLICATION & CONFERENCE PAPER

Ren, W., Krenzke, T., and West, B.T. (2018). *An Evaluation of Interviewer Observation Accuracy in the Food Acquisition and Purchasing Survey Pilot Study.* Presented at the 2018 Joint Statistical Meeting Annual Conference, Vancouver, BC, Canada.

Ren, W. (2016). *The impact of ignoring cross-classified data structure when estimating cross-classified logistic models.* Presented at the 2016 Annual Meeting of the American Educational Research Association, Washington, DC.

Nichols, S.L., Bethel, J., Kapogiannis, B.G., Li, T., Woods, S.P., Patton, E.D., **Ren, W.,** Thornton, S., Major-Wilson, H.O., Puga, A.M., Sleasman, J.W., Rudy, B.J., Wilson, C.M., and Garvie, P.A. (2016). Antiretroviral treatment initiation does not differentially alter neurocognitive functioning over time in youth with behaviorally acquired HIV. *Journal of NeuroVirology*, 22(2), 218-230.

Nichols, S.L., Bethel, J., Garvie, P.A., Patton, D.E., Thornton, S., Kapogiannis, B.G., **Ren, W.,** Major-Wilson, H., Puga, A., and Woods, S.P. (2013). Neurocognitive functioning in antiretroviral therapy-naive youth with behaviorally acquired human immunodeficiency virus. *Journal of Adolescent Health*, 53(6), 763-771.

Ren, W., Loadman, W., Moore, R., Edington, J., and Vanderhorst, A. (2010). *Hierarchical linear modeling in analyzing the effect of Read180 Program on incarcerated youth's reading performance.* American Educational Research Association Annual Meeting, Denver, CO.

O'Connell, A.A., Reed, S., **Ren, W.,** and Li, J. (2010). *Estimation methods and software comparison for hierarchical generalized linear models.* American Educational Research Association Annual Meeting, Denver, CO.

Ren, W., Bradley, K.D., and Lumpp, J.K. (2008). Applying the Rasch model to evaluate an implementation of the Kentucky Electronics Education Project. *Journal of Science Education and Technology*, 17(6), 618-625.

*Professional references available upon request