ZIQIANG CHEN

(716)429-5949 ◇ ziqiangc.us@gmail.com ◇ Website: ziqiangc.github.io

EDUCATION

University at Buffalo, Buffalo, NY *Expected 2020*
Ph.D. in Biostatistics, GPA: 3.9/4.0
- *Advisor: Dr. Gregory E. Wilding*
- *Dissertation: Selected topics in statistical methods for drug and diagnostic device development.*

University at Buffalo, Buffalo, NY *Jul 2015*
M.A. in Biostatistics, GPA: 3.9/4.0

The Second Institute of Oceanography, Hangzhou, China *Jul 2013*
M.S. in Marine Biology, GPA: 3.7/4.0

Shandong University, Weihai, China *Jul 2009*
B.Sc. in Biological Science, GPA: 3.0/4.0

PROFESSIONAL EXPERIENCE

HTG Molecular Diagnostic, Inc. Tucson, AZ
Biostatistician, Intern *Jan 2018 - Jan 2019*

· Provided statistical support for companion diagnostics (CDx) classifier build projects collaborated with Abbvie and QIAGEN.
· Worked closely with multiple functional groups and data analytic teams as the lead statistician.
· Experienced in statistical programming including data visualization, method implementation, parallel computing on Slurm and version control, etc.

Clinical and Translational Science Institute Buffalo, NY
Research Assistant *Aug 2014 - pres.*

· Designed and implemented statistical strategy for more than 50 research projects (full list) under supervision.
· Experienced in collaborative work for statistical consulting and quantitative analysis, including experimental design, clinical trials, observational studies and survey analysis.
· Built an "in-house" R package and Shiny apps of various statistical analyses for consulting purpose.

Department of Biostatistics, University at Buffalo Buffalo, NY
Research Assistant *Jun 2014 - Jun 2016*

· Work with professors in methodology development and implementation in genomics and survey data.
· Built and maintained an RStudio server on Linux for the department use.

PROFESSIONAL SERVICE

Reviewer, *Emerging Infectious Diseases* *2020 - pres.*
Reviewer, *Public Health Reports* *2020 - pres.*

SOFTWARE AND SKILLS

Proficient in R (and Shiny), SAS, SPSS, Arc-GIS, MS Office and knowledge of Windows/Linux.

SELECTED RESEARCH PROJECTS

Methodology development:

A novel ROC method for diagnostic testing in the presence of intermediate results.

- Proposed a multistage diagnostic testing algorithm for handling intermediate (grey zone) results.
- Established a generalized ROC analysis framework including summary indices, empirical, parametric and non-parametric estimation, inference and hypothesis testing methods.
- Developed an R package that integrated all analytic functions and visualization.

Exact tests based on multiple comparisons for Poisson rate.

- Proposed an exact multiple comparison procedure for Poisson random variables based on conditional and unconditional approaches, with application to Leukemia incidence data.

Confidence interval of Cronbach's alpha with application to complex survey data.

- Developed a novel bootstrap method for the inference of the alpha coefficient.
- Incorporated complex survey design and applied in National Comorbidity Survey (NCS-R) data.

A novel exact method for Top-K family-wise error control

- Proposed an exact test for the inference of top-K selected features in a two-stage genomic study.
- Developed an R package and corresponding Shiny apps.

Intern projects:

Lung Subtyping Assay (LSA) CDx classifier build.

- Built classifier to subtype non-small-cell lung cancer and applied in Veliparib clinical trial samples.
- Participated in statistical analysis plan, QC metric investigation, classifier build, repeatability, analytical sensitivity and robustness studies.

Tumor Mutational Burden (TMB) exploratory analysis.

- Member of a two-person team that conducted TMB association study and enrichment study.
- Responsible for analysis of RNAseq and whole exome sequencing data, including visualization, feature selection, clustering, and p-value adjustment via permutation.

Collaborative projects:

Salivary metals, age, and gender correlate with cultivable oral *Candida* carriage levels.

- Addressed the LoD issue in metal measurement using a conditional expected value algorithm.
- Evaluated and utilized zero inflated negative binomial model (ZINB) for excess zeros in outcome.

Disease modifying effect in Alzheimer's disease with cholinesterase inhibitors.

- Two pharmacogenetic observational studies to evaluate a human specific fusion gene accounts for the translational gap for cholinergic strategies in Alzheimer's disease.
- Longitudinal analysis with autoregressive linear mixed-effects model.

Randomized pilot study to improve child asthma care through multiple health centers.

- A randomized control trial comparing a novel multifaceted health services intervention to usual care.
- Implemented permuted block randomization; longitudinal analysis with linear mixed-effects model.

HONORS AND AWARDS

Best Young Researchers' Award, The Upstate Chapter of American Statistical Association *2017*
Poster of Distinction at UB Research Day, University at Buffalo *2017*
Perry Poster Day 2016 Winner, Biostatistics, University at Buffalo *2016*
Outstanding Graduate, The Second Institute of Oceanography *2013*
Outstanding Graduate, Shandong University *2009*

SELECTED PUBLICATIONS

Chen, Z., Koestler, D., Miecznikowski, J. C., Ren, X. Gaile, D. P. (2020). A novel exact method for Top-K family-wise error control for small sample non-small scale inference. (submitted)

He, Z., **Chen, Z.**, Wu, Y and Gaile, D. P. (2020). A novel and quick method to power pilot studies for the comparison of assay platforms and under controlled specificity. (submitted)

Szigeti, K., Ihnatovych, I., Birkaya, B., **Chen, Z**., et al. (2020). A human specific fusion gene, accounts for the translational gap for cholinergic strategies in Alzheimer's disease. *EBioMedicine*. (In press)

Lamoshi, A., Ham III, P. B., **Chen, Z.**, et al. (2020). Timing of the definitive procedure and ileostomy closure for total colonic Aganglionosis HD: Systematic review. *Journal of Pediatric Surgery*. (In press)

Lamoshi, A., Wagner, N., **Chen, Z.**, Fabiano, T., Wilding, G. E., Rothstein, D. H., & Bass, K. (2020). Predictive model for operative intervention after blunt abdominal trauma in children with equivocal CT findings. *Journal of Pediatric Surgery*. 255, 449-455.

Yu, J., **Chen, Z.**, Wang, K., Tezal, M. (2019). Suggestion of the confidence interval of the Cronbach alpha in application to complex survey data. *Survey Methodology*, 45(3), 465-484.

Perez, A. C., Johnson, A., **Chen, Z**., Wilding, G. E., Malkowski, M. G., Murphy, T. F. (2018). Mapping protective regions on a three-dimensional model of the Moraxella catarrhalis vaccine antigen oligopeptide permease A. *Infection and Immunity*, 86(3), e00652-17.

Norris, H. L., Friedman, J., **Chen, Z**., Puri, S., et al. (2018). Salivary metals, age, and gender correlate with cultivable oral Candida carriage levels. *Journal of Oral Microbiology*, 10(1), 1447216.

Castilla-Earls, A., Pérez-Leroux, A. T., Restrepo, M. A., Gaile, D. P., **Chen, Z**. (2018). The complexity of the Spanish subjunctive in bilingual children with SLI. *Language Acquisition*, 25(1), 72-84.

Chen, Z., Sun, Q., Chen, Q., Sun, J., Zeng, J. (2013). Effect of acid stress on the early life stages of *Sargassum horneri*. *Asian Journal of Ecotoxicology*, 8(6), 864-870.

Chen, Z., Shou, L., Liao, Y., Gao, A., Zeng, J., Chen, Q. (2013). Community structure of benthic algae and its seasonal variation in the intertidal zone of Sanya. *Acta Ecologica Sinica*, 33(11), 3370-3382.

In Progress:

Chen, Z., Wilding, G. E. (2020). Unconditional exact tests based on multiple comparisons for Poisson rate with application to Leukemia incidence data.

Chen, Z., Wilding, G. E. (2020). Generalized ROC analysis for multistage diagnostic testing procedures in the presence of intermediate results.

PRESENTATIONS

Paper presentation, Joint Statistical Meetings, Denver, CO *Jul 2019*

· ROC analysis for multistage diagnostic testing procedures in the presence of intermediate results.

Poster and oral, Sixth Annual Conference of The Upstate Chapter of American Statistical Association, Rochester, NY *Apr 2017*

· On The Strong Control of Top-K Error Rates.