ZIQIANG CHEN

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EDUCATION

University at Buffalo, Buffalo, NY *Expected 2020*
Ph.D. in Biostatistics, GPA: 3.9/4.0

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

DISSERTATION RESEARCH

Topic: Selected topics in statistical methods for drug and diagnostic device development.
Thesis Advisor: Dr. Gregory E. Wilding

- Unconditional exact tests based on multiple comparisons for Poisson rate with application to Leukemia incidence data.
- A framework of generalized ROC analysis for multistage diagnostic testing procedures in the presence of intermediate results.

PROFESSIONAL EXPERIENCE

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

· Statistical support for Companion Diagnostics (CDx) and Custom Assay Development Division.
· Selected projects:

- **Diffuse Large B-Cell Lymphoma (DLBCL) Cell of Origin Assay LoD feasibility study.**
  - The project was to evaluate the LoD of CDx assay for identifying DLBCL subtypes.
  - Participated in assay data read-in and manipulation, exploratory visualization, principal component analysis and probit model.
- **Lung Subtyping Assay (LSA) 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) 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.

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

· Planned and managed more than 50 research projects [list at ziqiangc.github.io/projects] in areas of epidemiology, neuroscience, psychology and genomics study, etc.
· Experienced in collaboration work for statistical consulting and quantitative analysis, including experimental design, clinical trials, observational studies and survey analysis.

· Built an "in-house" R library of various statistical analyses for consulting purpose.
· Selected 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.**
  - Longitudinal analysis with autoregressive linear mixed-effects model, multiple comparisons.
- **Randomized pilot study to improve child asthma care through multiple health centers.**
  - Permutated block randomization, longitudinal analysis with linear mixed-effects model.
- **Air pollution and emergency department visits for asthma in Erie County, 2007-2012.**
  - Power analysis by simulation using autoregressive model.
  - Imputation of missing data in time series for air pollutants.

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

· Supported professors in methodology development in genomics data and survey data.
· Selected projects:

- **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.
- **Logistic regression with misclassification (MC) in both outcome and predictors.**
  - Developed a two-step correction to estimate parameters in logistic regression with MC.
  - Evaluated and compared the new method with some existing methods and applied in National Health and Nutrition Examination Survey (NHANES) 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 study.
  - Developed an R package and corresponding Shiny apps.

PROFESSIONAL SERVICE

Reviewer, *Emerging Infectious Diseases* *2020 - pres.*

COURSEWORKS AND SKILLS

Courses: Statistical Inference, Advanced Modeling, Limit Theory, Large Sample Theory, Experimental Design, Clinical Trials, Epidemiology for the Health Profession, Statistical Data Mining, Bioinformatics, Bayesian Inference.
Skills: Proficient in R, SAS, SPSS, Arc-GIS, Graphpad Prism and MS Office.

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). CHRFAM7A, 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.**, Wildling, G., Vali, K. (2020). Timing of the definitive procedure and ileostomy closure for Total colonic Aganglionosis HD: systematic review. *Journal of Pediatric Surgery*. (In press).

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., Wilding, G. E., Edgerton, M. (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 rocky 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.

Poster, Perry Poster Day, University at Buffalo, Buffalo, NY *Apr 2016*

· A Novel Exact Method for Top-K Family-wise Error Control.