Yan Liu

yanliu2386@gmail.com
(864) 650-8056
Google Scholar Profile

Professional Experience

- **Tempus Labs**
  Principal Biostatistician: November 2022 – present

- **University of Nevada Reno, School of Public Health**−Reno, NV
  Assistant Professor (Tenure-track): July 2017 – November 2022

Education

- **Clemson University (2012-2017)**−Clemson, SC
  Ph.D. in Mathematical Sciences

  − Emphasis area: **Statistics**

  − Advisors: Drs. Christopher S. McMahan, Robert B. Lund, and Colin M. Gallagher

- **University of Chinese Academy of Sciences (2009-2012)**−Wuhan, China
  M.S. in Applied Mathematics

  − Emphasis areas: **Nonlinear Systems and Computational Biology**

- **Sun Yat-sen University (2005-2009)**−Guangzhou, China
  B.S. in Mathematics

Current Research Interests

- Survival/longitudinal data analysis

- Infectious disease screening method design

- Biomarker/Biomonitoring analysis and evaluation

- Spatial/spatio-temporal modeling for vector-borne infectious diseases

- Causal inference

- Epidemiological/Environmental health applications

- Statistical computing: Penalization techniques, Machine learning algorithms, Bayesian hierarchical modeling

Publications – Statistics Method and Application

1. **Liu, Y.**, Wang, D., Li, L., Li, D. (2023). Assessing disparities in Americans' exposure to PCBs and PBDEs based on NHANES pooled biomonitoring data. *Journal of the American Statistical Association, Applications & Case Studies*. DOI: 10.1080/01621459.2023.2195546.

2. Wang, D., Mou, X., and **Liu, Y.** (2022). Varying coefficient regression analysis for pooled biomarker data. *Biometrics*, 78(4), 1328-1341.

3. Lu, M., **Liu, Y.**, Chen, C., and Sun, J. (2022). An efficient penalized estimation approach for semi-parametric linear transformation models with interval-censored data. *Statistics in Medicine*. 2022; 1- 17. doi:10.1002/sim.9331.

4. **Liu, Y.**, McMahan, C., Tebbs, J., Gallagher, C., and Bilder, C. (2021). Generalized additive regression for group testing data. *Biostatistics*, 22(4), 873-889.

5. **Liu, Y.**, Lu, M., and McMahan, C. (2021). A penalized likelihood approach for efficiently estimating a partially linear additive transformation model with current status data. *Electronic Journal of Statistics*. 15(1) 2247–2287, 2021.

6. Patrick, H., **Liu, Y.**, Matthew, S., and Li, D. (2021). A cross-sectional analysis of associations between environmental indices and asthma in U.S. counties from 2003 to 2012. *Journal of Exposure Science and Environmental Epidemiology*. 32(2), 320-332.

7. Lu, M., **Liu, Y.**, Li, C.S. (2020). Efficient estimation of a linear transformation model for current status data via penalized splines. *Statistical Methods in Medical Research*. 9(1), 3-14.

8. **Liu, Y.**, Nordone, S., Yabsley, M., Meshnick, S., Lund, R., McMahan, C., and Gettings, J. (2019). Quantifying the relationship between human Lyme disease and Borrelia burgdorferi exposure in domestic dogs. *Geospatial Health*, 14(1).

9. **Liu, Y.**, Watson, S., Lund, R., Nordone, S., McMahan, C., and Yabsley, M. (2017). A Bayesian spatio-temporal model for forecasting *Anaplasma* species seroprevalence in domestic dogs within the contiguous United States. *PLOS ONE*, 12(7): e0182028.

10. Watson, S., **Liu, Y.**, Gettings, J., Lund, R., Nordone, S., McMahan, C., and Yabsley, M. (2017). A Bayesian Spatio-Temporal Model for Forecasting the Prevalence of Antibodies to *Borrelia burgdorferi*, Causative Agent of Lyme Disease, in Domestic Dogs within the Contiguous United States. *PLOS ONE*, 12(5): e0174428.

11. **Liu, Y.**, McMahan, C., and Gallagher, C. (2017). A general regression framework for the regression analysis of pooled biomarker assessments. *Statistics in Medicine*, 36(15), 2363-2377.

12. **Liu, Y.**, Lund, R., Nordone, S., Yabsley, M., and McMahan, C. (2017). A Bayesian spatio-temporal model for forecasting the prevalence of antibodies to *Ehrlichia* in domestic dogs within the contiguous United States. *Parasites & Vectors*, 10:138.

13. Bowman, D., **Liu, Y.**, McMahan, C., Nordone, S., Yabsley, M., and Lund, R. (2016). Forecasting United States heartworm (*diroflaria immitis*) prevalence in dogs. *Parasites & Vectors*, 9:540.

Publications – Collaboration

1. Patrick, H., Matthew, S., **Liu, Y.**, and Li, D. (2023+). Environmental injustice in cancer risk estimates from modeled airborne toxics exposure across United States communities. Submitted to *Environmental Research*.

2. Qiu, S., **Liu, Y.**, Adetunji, D., Hartzell, S., Larson, M., and Friedman, S. (2023). Dose changes for long-term opioid patients following a state opioid prescribing policy. *Medical Care.* Accepted.

3. Hartzell, S., Keller, M., Albertson, E., **Liu, Y.**, Friedman, S. (2023). Variation in Harm Mitigating Urine Drug Testing Among Nevada Primary Care Providers Serving Medicaid Patients. *Journal of Substance Use and Addiction Treatment*, 145, 208940.

4. Apanga, P., Christiansen, E., Weber, A., Darrow, L., Riddle, M., Tung, W., **Liu, Y.**, Kohen, T., and Garn., J. (2022). The role of breastfeeding laws and programs on exclusive breastfeeding practice among mothers in the special supplemental nutrition program for Women, Infants, and Children (WIC). *International Breastfeeding Journal.* 17, 46. https://doi.org/10.1186/s13006-022-00490-9

5. Apanga, P., Weber, A., Darrow, L., Riddle, M., Tung, W., **Liu, Y.**, and Garn, J. (2021). The interrelationship between water access, exclusive breastfeeding and diarrhea in children: a cross-sectional assessment across 19 African countries. *Journal of Global Health.* 11.

6. Huang, M., Strickland, M., Richards, M., Holmes, H., Newman, A., Garn, J., **Liu, Y.**, Warren, J., Chang, H., and Darrow, L. (2021). Acute Associations between Heatwaves and Preterm and Early-term Birth in 50 US Metropolitan Areas in the 1980s: A Matched Case-Control Study. *Environmental Health.* 20, 47. https://doi.org/10.1186/s12940-021-00733-y

7. Friedman, S., Patel, K., **Liu, Y.**, Hartzell, S., and Keller, M. (2020). Urine Drug Testing Among Opioid-Naïve and Long-Term Opioid Nevada Medicaid Beneficiaries. *Substance Use & Misuse*, 55:14, 2314-2320, DOI: 10.1080/10826084.2020.1805467.

8. Self, S., **Liu, Y.**, Nordone, S., Yabsley, M., Walden, H., Lund, R., Bowman, D., Carpenter, C., McMahan, C., and Gettings, J. (2019). Canine vector-borne disease: mapping and the accuracy of forecasting using big data from the veterinary community. *Animal Health Research Reviews*, 1-14. doi:10.1017/S1466252319000045

9. Wang, Y.Z., Han, Y., Zhao, J.J., Du, Y., Zhou, Y., **Liu, Y.**, Zhang, Y.F. and Li, L., (2019). Brain activity in patients with deficiency versus excess patterns of major depression: A task fMRI study. *Complementary therapies in medicine*, 42, pp.292-297.

10. Yao, C., **Liu, Y.**, and Zhan, M. (2011). Frequency-resonance-enhanced vibrational resonance in bistable systems, *Physical Review E,* **83,** 061122.

11. Zhao, Q., Yi, M. and **Liu, Y.** (2011). Spatial distribution and dose-response relationship for different operation modes in a reaction-diffusion model of the MAPK cascade, *Physical Biology,* **8,** 055004.

Funded Grants

Pending Grants

- *Moving towards engaging providers in opioid deprescribing decisions.* Submitted to Mountain West Clinical & Translational Research Infrastructure Network (MW CTR-IN). Co-I.

- *Regression analysis for pooled biomonitoring data (RAPID) subject to right skewness: Development and application.* Resubmitted to NIH R01. 33$^{\text{th}}$ percentile in first submission. 06/2023-05/2028. $1,414,753. Subaward Principal Investigator at the University of Nevada, Reno.

- *Integrated nanasensors and miniaturized fluorescent microscopy for rapid identification of foodborne bacterial in live cell assays.* Submitted to NIH R01. 06/2023-05/2026. $643,036. Co-I.

Other Grant Activity (not funded)

- *RAPID: Modeling the spread of COVID-19 with an individual-based stochastic model.* NSF. Co-PI. Submitted March 2020,

- *Combining Air Pollution Datasets to Predict Health Outcomes: The Air Health Index.* NIH R03. Co-I. Submitted February 2020.

- *Understanding the spatial and temporal relationship between obesogens emissions, socioeconomic status, and obesity in the United States.* Sponsored by University of Nevada Reno. Co-PI. Submitted March 18, 2019.

- *Effects of the Health-Enhancing After-school Program on At-risk Childrens Physical Activity, Fitness, and Motivation.* Sponsored by University of Nevada Reno. Co-PI. Submitted April 20, 2018.

Honors and Awards

- Excellence in Graduate Research, Department of Mathematical Sciences, Clemson University, 2017.

- Distinguished Student Paper Awards, International Biometric Society Eastern North American Regions (ENAR), 2017.

- Professional Enrichment Grant, Graduate School, Clemson University, 2016.

- Outstanding undergraduates, Sun Yat-sen University, 2009.

- Outstanding Student Scholarship, Sun Yat-sen University, 2006-2008.

Research Presentations

- Use of urine drug testing among Nevada Medicaid primary care providers with opioid-prescribed patients: Identifying characteristics associated with higher use. American Public Health Association 2021 Annual Meeting & Expo. Denver, Colorado (Oct 24-27, 2021). Poster presentation by Sarah Hartzell

- Environmental Injustice in Cancer Risk using the USEPAs National Air Toxics Assessments (NATA). The International Society of Exposure Science Virtual Conference (September, 2021). Oral presentation by Patrick Hurbain.

- Varying-coefficient regression with pooled biomonitoring data. ENAR Spring Meetings (March, 2021). Oral presentation by Dewei Wang.

- The relationship between water access, exclusive breastfeeding and diarrhea in children: a cross-sectional assessment across 19 African countries. UNC Water & Health Conference, Virtual (October, 2020). Poster presentation by Paschal Apanga.

- Retrospective Analysis of Association Between Existing Environmental Indices and Prevalent Respiratory Illness across U.S. Counties from 2003 to 2012. The International Society of Exposure Science Virtual Conference (September, 2020). Poster presentation by Patrick Hurbain.

- An Additive Regression Model For Group Testing Data. Invited. INFORMS Annual Meeting 2019 (October, 2019). Oral presentation by Christopher McMahan.

- Quantifying the relationship between human Lyme disease and Borrelia burgdorferi exposure in domestic dogs. Georgia Veterinary Medical Association One Health Symposium. Athens, GA (2019). Oral presentation by Jenna Gettings.

- Penalized Estimation of Generalized Additive Cox Model for Interval-Censored Data. ENAR Spring Meetings, Atlanta, GA (March, 2018). Oral presentation

- A Bayesian Generalized Additive Model for Group Testing Data. ENAR Spring Meetings, Atlanta, GA (March, 2018). Oral presentation by Christopher McMahan.

- A general framework for the regression analysis of pooled biomarker assessments. ENAR Spring Meetings, Washington DC (March, 2017). Oral presentation.

- Bayesian Disease Mapping for U.S. Dogs. 3-Minute Thesis Competition, Clemson, SC (October, 2016). Oral presentation.

- Forecasting United States canine heartworm prevalence using a Bayesian spatio-temporal regression model. Clemson University Graduate Student Seminar, Clemson, SC (October, 2016). Oral presentation.

- A general framework for the regression analysis of pooled biomarker assessments. 2016 International Chinese Statistical Association Applied Statistics Symposium, Atlanta, GA (June, 2016). Oral presentation.

- A general framework for the regression analysis of pooled biomarker assessments. South Carolina Chapter of the American Statistical Association Palmetto Symposium, Columbia, SC (March, 2016). Oral presentation.

- Maximum likelihood estimation based on pooled biomarker assessments: A Monte Carlo approach. South Carolina Chapter of the American Statistical Association Meeting, Clemson, SC (November, 2014). Poster presentation.

Graduate Advising
- **Masters Graduate Advising**
  - Kaashifah, M.S. in Biostatistics. "Significance of various demographic factors on survival of breast cancer patients." May 2021.

- **Committee Member**
  - Patrick Hurbain, Ph.D. in Environmental Health. Expected in August 2024.
  - Jingxuan Yang, Ph.D. in Statistics. August 2023.
  - Paschal Apanga, Ph.D. in Epidemiology. "Factors predicting the practice of breastfeeding in Africa and USA". May 2022.
  - Jun Yi, Ph.D. in Computer Sciencces, "Towards the Next Generation Highly Scalable Distributed Machine Learning". May 2022
  - Mengjiao Huang, Ph.D. in Epidemiology. "Investigation of the Short-term Effects of Heatwaves and Air Pollution on Birth Outcomes and Child Health in the U.S". May 2021.

– Matthew LeBlanc, M.S. in Biostatistics. "Bayesian Spike and Slab Logistic Regression: An Application to HIV Testing". May 2021.

– Candee Copeland, Doctor of Nursing Practice, "Violence screening tools: An integrative review". May 2019.

– Jee Lee, Master of Science in Nursing, "Effects of Diet on Gastric Cancer Among Korean". December 2018.

School Service/Volunteer

- Member of Bylaw committee of the School of Community Health Sciences (2017-present)
- Member of admission committee of Master of Public Health (2017-2020)
- Member of admission committee of Master of Biostatistics (2018-2020)
- Member of Search committee for Assistant Professor of Biostatistics (2018)
- Volunteers for "This is Public Health Graduate Recruitment Fair" (01/21/2021)

Teaching

University of Nevada, Reno

CHS 280: Introduction to Biostatistics in Public Health: F18, S19, F19, S20, F20, S21, F21

CHS 765: Survival Analysis for Public Health: F17, F18, F20, F21

CHS 717: Applied Bayesian Statistics: S18, S19, S21

CHS 381: Introduction to Health Data Analysis: F19, S20, S22

Professional Activities

- Reviewer, Biometrical Journal, 4 article (2017-present).
- Reviewer, Brain and Behavior, 2 article (2019-present)
- Reviewer, Current Bioinformatics, 1 article (2019-present)
- Reviewer, Environmetrics, 2 article (2016-present).
- Reviewer, Epidemiology, 1 article (2017-present).
- Reviewer, Journal of Statistical Computation and Simulation, 1 article (2019-present)
- Reviewer, Journal of Applied Statistics, 1 article (2017-present).
- Reviewer, Lifetime Data Analysis, 2 article (2020-present).
- Reviewer, Oncotarget, 1 article (2017-present).
- Reviewer, Statistics in Medicine, 8 article (2017-present).
- Reviewer, Statistical Methods in Medical Research, 10 article (2018-present).

Professional Societies

- Member, International Chinese Statistical Association, (2016-present).
- Member, Institute of Mathematical Statistics, (2016-present).
- Member, Society for Industrial and Applied Mathematics, (2014-present).
- Member, International Biometric Society (2016-present)

Volunteer and Service

- Habitat for Humanity, November 2016, Anderson, SC

Updated August 17, 2023