

HAO WANG

3219 Roy Key Ave, Ames, IA, 50010 | (970) 825-3373 | halewang@iastate.edu
<http://www.linkedin.com/in/haowang47> | <http://haowang47.github.io>

EDUCATION

Iowa State University Doctor of Philosophy in Statistics Teaching/Research Assistant	Ames, Iowa December 2023 (Expected) GPA: 3.83/4.0
Iowa State University Master of Science in Statistics	Ames, Iowa December 2019
Colorado State University Bachelor of Science in Statistics	Fort Collins, Colorado May 2018

WORK EXPERIENCE

Biostatistician Intern at BeiGene Biostatistician intern, Statistics for Heme CD-US	Iowa, U.S. (Remote) June 2023 – August 2023
<ul style="list-style-type: none">Reviewed literature on adaptive clinical design and Multiple Criteria Decision Analysis (MCDA)Proposed new dose optimization procedure customized in an inferential seamless adaptive Phase II/III clinical trialsConducted and designed simulation studies to validate the proposed decision-making procedureImplemented the proposed procedure in R, created shiny App, and prepared the manuscript for submissionLearned day-to-day activities of biostatistician, designs and operations of oncology clinical trials	
Statistician at Corteva Agriscience Contract statistician in Seeds & Crop Protection Data Science	Iowa, U.S. May 2021 – May 2023
<ul style="list-style-type: none">Researched dose proportionality detection for TK study, and proposed a new statistical approach for locating kinetically derived maximal dose (KMD)Designed and conducted simulation studies on various settings in R to test approaches for locating KMDDrafted an internal white paper for KMD analysis with recommended methods in different casesAnalyzed Ecotoxicology dose-response data with non-linear models for determining effective concentrations, developed statistical protocol and implemented SAS macro per regulatory guidelinesResearched Benchmark Dose (BMD) analysis, reviewed and interpreted USEPA & EFSA guidelines including model selection, model averaging, and Bayesian BMD analysis, assisted colleagues in understanding and implementing different methodologiesDeveloped protocol for statistical analysis of BMD for different endpoints from avian reproduction studyWrote R code for non-linear model and model averaging and designed simulation studies to compare 4 existing software/packagesQuality-checked statistical reports of Composition Expression Agronomic (CEA) trials for regulatory submission	
Research Assistant at Iowa State University Research Assistant	Iowa, U.S. January 2019 – May 2021
<ul style="list-style-type: none">Designed and conducted simulation studies to evaluate model performance for gene network analysisProposed novel network inference procedure and reconstructed gene network with real plant transcriptomic dataAggregated large scale multi-omics data in R, conducted statistical learning per research questions, including assessing treatments' effect on metabolome profiles, testing feature associations and network analysis of microbiome and metabolomeCollaborated with 2 research scientists for defining core leaf and root metabolomes for sorghum grownImplemented machine learning methods in R for the prediction of biomass to learn how to maximize plant growthCoded and documented solutions in R for reproduction	
Teaching Assistant at Iowa State University Teaching Assistant	Iowa, U.S. January 2021 – May 2021
<ul style="list-style-type: none">STAT 501 Multivariate Statistical Methods; STAT 571 Design of ExperimentsDuties include holding office hours, grading homework and exams, explaining difficult homework/lab problems	
Researcher at Principal Financial Group Part-time researcher in Statistics	Iowa, U.S. August 2019 – Dec 2019
<ul style="list-style-type: none">Aggregated and pre-processed stock return data, transformed the stock returns via Gaussianized Distributional TransformationPredicted and ranked massive stock returns data within industrial groups using hierarchical modelsDefined the benchmark and model evaluation procedure, and proposed ensemble models to improve prediction accuracyDocumented reusable code in R, and presented the final report to non-technical audiences	

SELECTED PROJECTS

Association study, at Iowa State University Statistical Consultant	Iowa, U.S. December 2019 – January 2020
<ul style="list-style-type: none">Conducted analyses on clinical data, tested the association between peripheral and central hearing impairment with confounding effect controlledRevised the manuscript and wrote the statistical analysis section	
High dimensional statistical learning, at Iowa State University Statistical Consultant	Iowa, U.S. December 2018 – May 2019
<ul style="list-style-type: none">Researched the importance of women's status for child nutrition in Ghana with a Ph.D. candidate major in NutritionProcessed and cleaned survey data with 5884 observations and 677 variables in R, applied multivariate analysis in RSuccessfully identified most significant factors/covariates corresponding to different response variables	

Statistical consulting, at Colorado State University

Colorado, U.S.

Statistical Consultant

January 2018 - May 2018

- Worked with Dr. Johnson identifying treatment effect on superficial digital flexor tendon (SDFT) injuries in horses
- Analyzed the longitudinal clinical data and developed a linear mixed model in SAS
- Found the overall quadratic trend in time, estimated horse random effect, identified non-significant treatment fixed effect

SKILLS/QUALIFICATIONS

- Proficient in Statistics & Math theory and application through academic coursework, passed Ph.D. written exams (in 2020)
- Skillful in using R, SAS, and GitHub (6 years' experience), familiar with R Shiny (3 years' experience)
- Familiar with Python, MATLAB, C++, SQL and high-performance computing platform (Amazon AWS)
- Fluent in Chinese and English (written and verbal)
- Research focusing on network analysis, high-dimensional inference, mixed-effect model, omics-data analysis, multivariate data analysis, statistical learning, causal inference and missing data

PUBLICATIONS (* indicating advisors/managers)

- **Wang, H.**, Liu, P.* , Qiu, Y.* , 2023. Variable Selection and REML estimation for High-dimensional Linear Mixed-effects Model. Under preparation. Method implemented in R.
- **Wang, H.**, Qiu, Y.* , Guo, H., Yin, Y., Liu, P.* , 2023. Constructing Large Scale Gene Networks by Partial Correlation Graphs with Information Incorporation. To be submitted. Method implemented in R and freely available at <https://github.com/HaoWang47/GenePCG>.
- Wang, Z., Zhang, L., Huang, T., Yang, R., Cheng, H., **Wang, H.**, Yin, H. and Lyu, J., 2023. Developing an explainable machine learning model to predict the mechanical ventilation duration of patients with ARDS in intensive care units. *Heart & Lung*, 58, pp.74-81.
- Wang, Z., Zhang, L., Ma, W., **Wang, H.**, Yin, H. and Lyu, J., 2022. Association Between Blood Pressure During Vasopressor Weaning and Hospital Survival: What are the Optimal Targets of Vasopressor Support?. *EMERGENCIAS*, 34(5).
- Zhang, L., Wang, Z., Xu, F., Ren, Y., **Wang, H.**, Han, D., Lyu, J. and Yin, H., 2021. The Role of Glucocorticoids in the Treatment of ARDS: A Multicenter Retrospective Study Based on the eICU Collaborative Research Database. *Frontiers in medicine*, 8.
- Bao, J., Yu, Y., Li, H., Hawks, J., Szatkowski, G., Dade, B., **Wang, H.**, Liu, P.* , Brutnell, T., Spehar, B. and Tye-Murray, N., 2020. Evidence for independent peripheral and central age-related hearing impairment. *Journal of Neuroscience Research*, 98(9), pp.1800-1814.

PRESENTATIONS/POSTERS

SETAC Europe 33rd Annual Meeting

Apr 30 – May 4, 2023

Software and Model Evaluation of Benchmark Dose Modeling (BMD) for Avian Reproduction Studies, Sopko, X.* , **Wang, H.**, Green, J., Zhang, C.

Department of Statistics 75th Anniversary, at Iowa State University

Sep 2022

Constructing Large Scale Gene Networks by Partial Correlation Graphs with Information Incorporation, **Wang, H.**, Qiu, Y.* , Guo, H., Yin, Y., Liu, P.*

68th Conference on Mass Spectrometry and Allied Topics

June 1 – 12, 2020

Defining Core Leaf and Root Metabolomes for Sorghum Grown in the Midwestern United States, Amy Sheflin, Daniel P. Schachtman, Ellen L. Marsh, Peng Liu*, **Hao Wang**, Corey D Broeckling, Jessica E Prenni

Stat-Genetics Group at Iowa State University

Oct 2019

Gene Network Analysis with c-level Partial Correlation Graph, **Wang, H.**, Qiu, Y.* , Wang, C., Liu, P.*

ORGANIZATIONS

ASA

Student membership

September 2018 - Present

STATers

Iowa State University

Member

September 2018 - Present