

HAO WANG

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EDUCATION

Iowa State University

Doctor of Philosophy in Statistics

Teaching/Research Assistant

Ames, Iowa

July 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

Statistician Intern at Corteva Agriscience

Iowa, U.S.

Statistician in Seeds & Crop Protection Data Science

May 2021 – Present

- Worked on TK data, reviewed approaches for dose proportionality detection, proposed new approach for locating kinetically derived maximal dose, design and conducted simulation study and drafted internal white paper
- Worked on Ecotoxicology study, analyzed dose-response data with non-linear model, developed SAS macro to auto-run different non-linear models with model performance, and generated reports per regulatory guidelines
- Worked on benchmark dose analysis, reviewed and explained USEPA & EFSA guidelines
- Developed protocol for statistical analysis of benchmark dose for different endpoints
- Quality-checked statistical reports for Seed Regulatory Science

Research Assistant at Iowa State University

Iowa, U.S.

Research Assistant

January 2019 – May 2021

- Proposed new gene network inference approach, conducted 32 simulation studies to evaluate model performance, and reconstructed gene network with real plant transcriptomic data
- Aggregated multi-omics data, conducted statistical learning per biologists' questions, including assessing treatments effect on hundreds metabolome profiles, predicting biomass by omics features, reducing dimension and testing feature associations
- Coded and documented solutions with R for reproduction

Teaching Assistant at Iowa State University

Iowa, U.S.

Teaching Assistant

January 2021 – May 2021

- STAT 501 Multivariate Statistical Methods, STAT 571 Design of Experiments
- Duties includes holding office hours, grading homework and exams, explaining difficult homework/lab problems

Remote Researcher at Principal Financial Group

Iowa, U.S.

Researcher

August 2019 – Dec 2019

- Worked on predicting and ranking massive stock returns data within industrial groups using hierarchical models
- Aggregated and pre-processed stock return data, transformed the stock returns via Gaussianized Distributional Transformation
- Developed linear mixed effect model, defined the benchmark and model evaluation procedure, documented reusable code with R
- Presented final report to non-technical audiences

SELECTED PROJECTS

Association study, at Iowa State University

Iowa, U.S.

Statistical Consultant

December 2019 – January 2020

- Conducted analyses on clinical data, tested the association between peripheral and central hearing impairment with confounding effect controlled
- Revised the manuscript and wrote the statistical analysis section, paper published in *Journal of Neuroscience Research* as co-author

High dimensional statistical learning, at Iowa State University

Iowa, U.S.

Statistical Consultant

December 2018 – May 2019

- Studied the importance of women's status for child nutrition in Ghana with a Ph.D. candidate major in Nutrition
- Processed and cleaned survey data with 5884 observations and 677 variables with R
- Applied multivariate analysis technique like factor analysis, multivariate regression, stepwise model selection with R
- Successfully identified most significant factors/covariates corresponding to different response variables

Statistical consulting, at Colorado State University

Colorado, U.S.

Team Member

January 2018 - May 2018

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

ORGANIZATIONS

ASA

Student membership

September 2018 - Present

STATers

Member

Iowa State University

September 2018 - Present

SKILLS/QUALIFICATIONS

- Proficient in Statistics & Math theory and application through academic coursework, passed Ph.D. written exams
- Skillful in using SAS, R and GitHub (5 years' experience), familiar with R Shiny
- Familiar with Python, MATLAB, and high-performance computing platform (Amazon AWS)
- Fluent in Chinese and English (written and verbal)
- Research interests including network analysis, high-dimensional inference, mixed model, omics-data analysis, multivariate analysis, statistical learning

PUBLICATIONS (* indicating major professors)

- **Wang, H.**, Qiu, Y.*, Liu, P.*, 2022. Variable Selection and Iterative REML Algorithm for High-dimensional Linear Mixed-effects Model. Under preparation.
- **Wang, H.**, Qiu, Y.*, Wang, C., Guo, H., Yin, Y., Liu, P.*, 2022. Constructing Large Scale Gene Networks by Partial Correlation Graphs with Information Incorporation. To be submitted to Bioinformatics.
- Wang, Z., Zhang, L., Huang, T., Yang, R., **Wang, H.**, Yin, H. and Lyu, J., 2022. Developing an Explainable Machine Learning Algorithm to Predict the Mechanical Ventilation Duration of Patients with ARDS in Intensive Care Units.
- Wang, Z., Zhang, L., Wa, 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

Department of Statistics 75th Anniversary, at Iowa State University

Sep 2022

Constructing Large Scale Gene Networks by Partial Correlation Graphs with Information Incorporation

Stat-Genetics Group at Iowa State University

Oct 2019

Gene Network Analysis with c-level Partial Correlation Graphs