

# Jing Zhao

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## Summary

Currently a Master's candidate major in Statistics and a statistical consultant who provides guidance to graduate students, postdocs, and faculty across the university. Strong expertise in computer application with R/SAS. Adept at modeling in different experimental designs using regression, general and generalized linear model, mixed model, multinomial, reliability, and non-parametric analysis. Enthusiastic in machine learning, optimization (LP), and prediction. Proved ability in applying statistical knowledge in a variety of contexts including engineering, science, and social sciences.

## Education

- **Iowa State University** Expected: 2019  
• *Master Candidate in Statistics* 2017 - Present

## Consulting in Statistics

- **Iowa State University**
  - *Graduate statistical Consultant*
    - Consulted with clients (graduate students) about thesis projects from 14 different departments of Iowa State University including engineering, science, social science
      - \* Guide in experimental design
      - \* Choose the proper model for data analysis based on existing design/observational study
      - \* Write SAS/R code with respect to each research question
      - \* Provide interpretation from analysis result (SAS/R output)

## Programming Skills

- R programming (4+yrs), Markdown, Shiny app
  - Data cleaning, manipulation, and visualization (tidyverse, reshape2, etc)
  - Data analysis (lme4, emmeans, etc.)
  - Supervised / unsupervised machine learning (Logistic regression, LASSO, ridge regression, random forest, supportive vector machine, PCA, K-means, hierarchical clustering).
- SAS programming (3+yrs), JMP
  - Data analysis for general or generalized linear/mixed model, nonparametric analysis, multinomial analysis, effective sample size calculation, categorical data analysis, survival data analysis, pairwise comparison and multiple testing correction etc.
- Matlab, Python, Gusek, Octave
- Latex, SQL

## Applied Statistical Projects

- **Ongoing project:Forecasting covariance matrix for factor portiforlio** **Principal**
  - Covariance matrix among factor portiforlio is an crucial input for mean-variance model that use to optimize the allocation of portifolio in stock market. Three strategies including baseline, time series(M-GARCH),and machine learning are planed to implement. RMSE will be used to evaluate the precison of covariance matrix in the current project, and mean-variance plug in will be used as the final evaluation in the market.
- **Optimization in customer satisfaction for housing experience**
  - Multiple crateria of the house such as price, location, number of bedroom, year of construction etc were considered and weighted by customer. Optimization models were created to maximize the satisfaction of a customer and then provide the potential best option.
- **Supervised machine learning in “Santander-Customer Satisfaction”**
  - Using logistic regression, SVM, Random forest, cross validation
  - The big issue of this project was unbalanced response (Dissatisfied /Satisfied),and it was solved using sub-sampling strategy
- **Shiny app for Ames Housing Sales**
  - Visualization on Ames housing sales under diverse perspective using R Shiny (borrow the idea of Zillow)
  - Sales overview, sale by month/year for individual house
  - Sale vs Location (Geographically visualize the sale price across location)
- **Does Ebola become a big deal?**
  - Data cleaning, manipulating, and visualization using dplyr, ggplot, reshape, etc
  - Geographic display to understand the footprint of how Ebola spread using “leaflet”
  - Understand people’s attitude about Ebola through extracting data from twitter using R

## Awards

- Research Excellent Award, Iowa State University
- Dissertation Enhancement Award,Iowa State University-department of agronomy
- Profession Development Grant,Iowa State University-GPSS

## Leadership

- Co-Chair, R-Ladies Ames, a branch of a global organization  
<https://www.meetup.com/R-ladies-Ames/>
- Chair of Technology Committee, R.F. Baker Plant Breeding Symposium DuPont Pioneer - Department of Agronomy, Iowa State University

## Publications

- **Zhao, J.**, Wang, C., Totton, S., Cullen, J., and O’Connor, A.M. (2018) The rationale and implications of approaches to analysis of repeated measurement design elements reported in biomedical experiments. In press.
- **Zhao, J.**, Mantilla Perez, M.B., Hu, J., and Salas Fernandez, M.G. (2016). Genome-wide association study for nine plant architecture traits in sorghum bicolor. The Plant Genome 9(2). doi:10.3835/plantgenome2015.06.0044.
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