

# QI QI

Room 341, Phillip E. Austin Building, University of Connecticut, Storrs, CT, 06269  
+1(860)771-3086 ♦ qi.2.qi@uconn.edu ♦ <https://www.qiqi-stat.com>

## EDUCATION

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**University of Connecticut** 2017 - 2020 (expected)  
Ph.D. Statistics, Department of Statistics  
GPA: 3.97/4.0

**University of Connecticut** 2015 - 2017  
M.S. Statistics, Department of Statistics  
GPA: 4.0/4.0

**Renmin University of China** 2011 - 2015  
B.S. Statistics, School of Statistics  
GPA: 3.15/4.0

## WORK EXPERIENCE

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**Research Fellow: Boehringer - Ingelheim** Nov 2019 - present

- Conduct exploratory analyses based on simulation or historical data to address regulatory authorities' comments and questions.
- Establish change point model with survival time adjustment.
- Utilize semi-parametric bootstrap to determine appropriate endpoints to select optimal dose for CKD Phase II dose finding clinical trials.
- Conduct research for potential type I error inflation if using Chronic slope to assess treatment effect.

**Internship: Boehringer - Ingelheim** May 2019 - Aug 2019

- Established change point detection model based on stochastic process and applied to Chronic Kidney Disease (CKD) data.
- Completed two manuscripts.

**Research Assistant: Albert Einstein College of Medicine** Aug 2017 - present

- Conducted analyses to evaluate a new memory impairment test and investigated the prediction performance on AD neuropathy outcome.

**Statistical Consultant: University of Connecticut** Aug 2017 - May 2019

- Presented workshops: *Variable Selection with Demos in R* and *Survival Study Design and Analysis*.
- Completed several full projects, provided walk-in and online service.

## RESEARCH INTERESTS

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Longitudinal Data Analysis, Survival Analysis, Joint Modeling, Multi-stage Analysis, Stochastic Models, Data Visualization, Bayesian Methods, Machine Learning, Statistical Computing.

## RESEARCH EXPERIENCE

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**Bayesian Zero-inflated Mixture Model for Multidimensional Microbiome Data** 2019  
Construct Bayesian zero-inflated mixture model and apply machine learning approach to cluster subjects and investigate effects from different treatments.

**Bayesian Joint Models of Longitudinal Ordinal Outcomes and Time-to-event Data** 2018-2019  
Construct joint models and ROC curves to evaluate predictive performance of a new classification for Alzheimer's Disease and compare with other markers. Poster was presented at *the 33rd New England Statistics Symposium*.

**A Multi-stage Stochastic Transitional Model in the Analysis of Longitudinal Data** 2018-2019  
Construct the stochastic multi-stage model to estimate transition probability among five stages from the

new classification of memory impairment and establish reversible model, which was invited to present at *Conference on Bayesian Modeling, Computation and Applications*.

**Interactive Visualization of Difficulties of Scheduling Classes** 2019  
Conducted R shiny apps (demo: <https://qiqi7777.shinyapps.io/registrar/>) to visualize the occupancy of classrooms at University of Connecticut. Built a web-page for registrar office to describe the difficulties of classroom schedule and analyze the compliance of standard meeting pattern.

**Interactive Visualization of Changes in Housing Condition in NYC** 2019  
Built R shiny apps (demo: <https://qiqi7777.shinyapps.io/nyc.housing/>) to describe the changes in housing conditions for the first generation and second generation immigrant householders living in New York City. R shiny apps were presented at *Joint Statistical Meeting 2019*.

**Change Point Detection and Slope Estimation for eGFR** 2019  
Constructed random change point models using stopping time of Poisson process for estimating two/three intersecting lines.

**Bayesian Mixture Model on Determination of Root Cause Frequency** 2018  
Conducted Bayesian Gaussian mixture model using power prior method to estimate the proportion of root cause and compared with EM algorithm.

**Change Point Detection of Reputation Damage** 2018  
Constructed change point analysis to detect the change of customers' emotion and investigated reputation damage of United Airline based on high dimensional data obtained by text mining on the customers' comments from Facebook.

**Cost-Benefit Study on Ovarian Cancer** 2017  
Conducted cost-effectiveness analysis and subgroup analysis on the SEER data.

**Competing Risk Analysis Based on SEER Breast Cancer Data Set** 2017  
Estimated CIF and test the equality between different cause of death. Constructed semiparametric proportional hazards model for the cause-specific functions.

## TECHNICAL SKILLS

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R (mainly using packages *nimble*, *ggplot2*, *shiny*, *dplyr*, *R2jags*, *vegan*, *phyloseq*, etc.), SAS, BUGS, JAGS, SPSS, AMOS, Matlab, Stata, L<sup>A</sup>T<sub>E</sub>X, Github, Mathematica

## LEADERSHIP AND SCIENTIFIC ACTIVITIES

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- **Volunteer:** BI-Uconn Summer Academy 2019
- **Committee Member:** Conference on Bayesian Modeling, Computation and Applications 2018
- **Session Chair:**
  - Joint Statistical Meeting 2019
  - Conference on Bayesian Modeling, Computation and Applications 2018

## HONORS AND AWARDS

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- Research Fellowships: Obtained from Boehringer-Ingelheim (1 year funding) and from Albert Einstein College of Medicine (2 years funding)
- Doctoral Student Travel Fellowship: Awarded to fund travel to present research on conferences
- Service Award: Awarded for excellent statistical consulting service at Uconn

## WORKING PAPERS

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- Qi Qi, Lynn Kuo, Susan Resnick, Ellen Grober. Bayesian Joint Modeling of Longitudinal Ordinal Outcomes and Time-to-Event Data.
- Qi Qi, Guanyu Hu. Bayesian Mixture Model and Determination of Root Cause Frequency.
- Yaoshi Wu, Wansuk Choi, Qi Qi, Zhichao Sun, Qiqi Deng, Brian Jin. A random change point model using stopping time of Poisson process for estimating two intersecting lines.

- Yaoshi Wu, Qi Qi. A random two-change-point model using stopping time of Poisson process and estimation function for estimating three intersecting lines.

## WORK IN PROGRESS

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- Qi Qi, Lynn Kuo, Susan Resnick, Ellen Grober. Multi-stage Stochastic Transitional Models with Application to Baltimore Longitudinal Study of Aging.
- Qi Qi, Lynn Kuo, Sinyu Shen. Bayesian Zero-inflated Mixture Model with Application to High-dimensional Microbiome Data.

## PRESENTATIONS

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**Interactive Visualization of Housing Condition Changes in NYC** 2019  
Speed presentation and e-poster for data challenge competition: *Joint Statistical Meeting (JSM)*

**Predicting Alzheimer's Disease Using a New Classification System Based on Objective Memory Impairment Assessment** 2019  
Poster session for student paper competition: *the 33rd New England Statistics Symposium (NESS)*

**A Multi-Stage Stochastic Model in the Analysis of Longitudinal Data** 2018  
Invited presentation: *Conference on Bayesian Modeling, Computation and Applications*

## TEACHING EXPERIENCE

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- Instructor, Introduction to Mathematical Statistics II (STAT 3345)
  - Spring 2019, Teaching Evaluation: 4.0 out of 5, Class Size: 41
- Instructor, Discussion Section of Introduction to Statistics (STAT 1000Q) and Elementary Concepts of Statistics (STAT 1100Q)
  - Fall 2018, Spring 2018, Fall 2017, Spring 2017, Class Size: 12
- Teaching Assistant, Advanced Probability (STAT 6325)
  - Fall 2018