Curriculum Vitae

Qihuang Zhang

CONTACT INFORMATION
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EDUCATION

University of Waterloo

Ph.D. Candidate, Statistics, Sep 2017 - Present

- Thesis: *Inference Methods for Noisy Correlated Responses with Measurement Error*
- Advisor: Grace Y. Yi, Ph.D

M.Math, Biostatistics, Sep 2015 - May 2017

- Thesis: *SIMEX* R *Package for Mixed Measurement Error and Misclassification in Covariates*
- Advisor: Grace Y. Yi, Ph.D

Southwestern University of Finance and Economics

B.Econ., Financial Statistics and Risk Management, Sep 2011 - Jun 2015

WORK EXPERIENCE

University of Pennsylvania, Philadelphia, PA

Post-doctoral Fellow Jan 2021 - Present

- Develop deep learning algorithm in recovering location for sc-RNA data based on spatial transcriptomic data.

University of Western Ontario, London, ON

Lecturer Sep 2020 - Dec 2020

- Teach the course *Statistical Concepts* (SS 1023A).
- Teach the course *Statistics for Health Science* (SS 2037A).

Post-doctoral Fellow Sep 2020 - Dec 2020

- Participated in establishing COVID-19 dashboard of Canada.
- Conducted sentiment analysis on the Twitter users of Canada regarding COVID-19 and the associated anti-pandamic measures.

University of Waterloo, Waterloo, ON

Teaching Assistant Sep 2015 - Aug 2020

- Held office hour sessions, discussion and tutorial sessions.
- Graded the assignments and midterms.

Research Assistant Sep 2017 - Present

- Conducted research on the measurement error issue in the NHANES and CCHS dietary data.

Princess Margaret Cancer Centre, Toronto, ON

Research Intern May 2016 - Sep 2016

- Conducted genetic quality control and genotype imputation. Constructed predictive models to study the influence of genetic variation on the association between treatment (Statin and Metformin) and prostate cancer risk.
- Proposed a recursive partitioning method to define subgroups based on genetic data. Constructed a regression tree model split by multiple variables. Proposed a bootstrap pruning algorithm to select the optimal tree
- Supervisor: Wei Xu, Ph.D

Refereed Journal Publications

1. **Q. Zhang** and G. Y. Yi (2021). Marginal analysis of bivariate mixed responses with measurement error and misclassification. To appear in *Statistical Methods in Medical Research*.
2. **Q. Zhang** and G. Y. Yi (2020). Genetic association studies with bivariate mixed responses subject to measurement error and misclassification. *Statistics in Medicine*, 39(26): 3700-3719.
3. L.-P. Chen*, **Q. Zhang***, G. Y. Yi, W. He (2020). Model-based forecasting for Canadian COVID-19 data. *PLOS ONE*, 16(1): e0244536..
4. D. Liu, Y. Du, Y. Charvadeh, J. Cui, L.-P. Chen, G. Deng, **Q. Zhang**, K. Cai, J. He, W. He, G. Y. Yi (2020). A real time and interactive web-based platform for visualizing and analyzing COVID-19 in Canada. *International Journal of Statistics and Probability*, 9(5): 1-23.
5. **Q. Zhang** and G. Y. Yi (2019). R package for analysis of data with mixed measurement error and misclassification in covariates: augSIMEX. *Journal of Statistical Computation and Simulation*, 89, 2293-2315.
6. L.-P. Chen, G. Y. Yi, **Q. Zhang**, W. He (2019). Multiclass analysis and prediction with network structured covariates. *Journal of Statistical Distributions and Applications*, 6(1), 6.
7. L. Eng, D. Alton, Y. Song, J. Su, **Q. Zhang**, J. Che, D. Farzanfar, R. Mohan, O. Krys, W. Xu, D. Goldstein, M. E. Giuliani, G. Liu (2018). Awareness of the harms of continued smoking among cancer survivors. *Supportive Care in Cancer*, 1-11.
8. O. Faluyi, L. Eng, X. Qiu, J. Che, **Q. Zhang**, D. Cheng, N. Ying, A. Tse, W. Xu, A. Azad, G. Liu (2017). Validation of micro RNA pathway polymorphisms in esophageal adenocarcinoma survival. *Cancer Medicine*, 6(2), 361-373.
9. R. Gama, Y. Song, **Q. Zhang**, M. Brown, J. Wang, S. Habbous, L. Tong, S. Huang, B. O'Sullivan, J. Waldron, W. Xu, D. Goldstein, G. Liu (2017). Body mass index and prognosis in patients with head and neck cancer. *Head and Neck*, 39(6), 1226-1233.
10. V. Jayalath, A. Finelli, M. Komisarenko, N. Timilshina, **Q. Zhang**, W. Xu, N. Fleshner, R. Hamilton (2017). Association between germline genetic variation and progression in men with low-risk prostate cancer on active surveillance. *The Journal of Urology*, 197(4), 516-517.

* Co-first authorship

Submissions for Publications

1. **Q. Zhang** and G. Y. Yi (2021). Generalized network structured model in discovering gene network with mixed responses subject to measurement error and misclassification. In revision to *Biometrics*.
2. **Q. Zhang** and G. Y. Yi (2021). Zero-inflated Poisson model with measurement error in response. In revision to *Biometrics*.
3. **Q. Zhang** and G. Y. Yi (2021). Sensitivity analyses of COVID-19 data under autoregressive model with measurement error. Submitted.
4. **Q. Zhang**, G. Y. Yi, L.-P. Chen, W. He (2021). Text Mining and Sentimental Analysis of COVID-19 Tweets. Submitted.

Accepted Abstract

1. R. Woo, E. Chan, C. Vanderwater, C. Cho, J Wong., W. Xu, **Q. Zhang** et al. "Quality of life (QOL) in esophageal cancer patients treated with tri-modality therapy: Is the CROSS protocol better?" *2017 Gastrointestinal Cancers Symposium.*
2. E. Tam, J. Chen, **Q. Zhang** et al. "Routine physical function assessment through a Branching Logic Electronic Symptom Survey (BLESS) vs. the 32-combined item HAQ-DI + WHODAS (HW) survey: A quality improvement controlled trial." *2017 ASCO Quality Care Symposium.*

Research Awards

- **Best Presentation Award** March 2020
  "Generalized Network Structured Model in Discovering Gene Network."
  Department of Statistics and Actuarial Science, University of Waterloo, Waterloo, Ontario, Canada
- **Winner of Case Study** May 2018
  "Prediction of Popularity of TED Talks: a Comprehensive Text Mining Case Study"
  The 46^{th} Annual Meeting of the Statistical Society of Canada, McGill University, Montreal, Quebec, Canada
- **Best posters of the SSC student conference** May 2016
  "Estimation of Genotyping Misclassification Rate for Pedigree Data: a Bayesian approach"
  The 44^{th} Annual Meeting of the Statistical Society of Canada, Brock University, St. Catharines, Ontario, Canada
- **Outstanding Undergraduate Thesis** May 2015
  "Spatial Association between the Clustering of Start-up Firms and Venture Capital Institutions: a Point Process Approach"
  Southwestern University of Finance and Economics, Chengdu, China

Other Awards

University of Waterloo

- Statistics & Actuarial Science Chair's Award Spring 2016, Winter 2017, Fall 2018, Winter 2019, Spring 2019, Fall 2019, Winter 2020
- Statistics & Actuarial Science Doctoral Entrance Award Fall 2017

Southwestern University of Finance and Economics

- National Scholarship Nov 2012

Other Award

- Meritorious Winner of 2014 Mathematical Contest in Modeling (top 10%), Mar 2014
  Consortium of Mathematics and Its Applications, Bedford, MA, US
- The third prize in 2013 National Statistical Modeling Contest (top 3%), Sep 2013
  Statistical Education Society of China

Presentations

1. **Q. Zhang** "Generalized Network Structured Model in Discovering Gene Network." March 2019
   University Presentation Day, University of Waterloo, Waterloo, Ontario, Canada
2. **Q. Zhang** and G.Y. Yi "Analysis of Bivariate Responses in Genetic Association Studies with Measurement Error and Misclassification" May 2019
   The 48^{th} Annual Meeting of the Statistical Society of Canada, University of Calgary, Calgary, Alberta, Canada
3. **Q. Zhang** "Statistical Learning in Hidden Markov Model" March 2019
   Grace-Wenqing Data Science Research Group Meeting, Waterloo, Ontario, Canada

4. **Q. Zhang** "High-throughput Sequencing, RNA-seq Data Analysis and Zero-Inflated Poisson Model" Nov 2018
Grace-Wenqing Data Science Research Group Meeting,
Waterloo, Ontario, Canada

5. **Q. Zhang** and L.-P. Chen "Prediction of Popularity of TED Talks: a Comprehensive Text Mining Case Study" June 2018
The 46^{th} Annual Meeting of the Statistical Society of Canada, Brock University,
St. Catharines, Ontario, Canada

6. **Q. Zhang** "Introduction of Genome-wide Association Study." March 2018
Grace-Wenqing Data Science Research Group Meeting,
Waterloo, Ontario, Canada

7. **Q. Zhang** and W. Xu "The Influence of Genetic Variation on the Association between Statin and Prostate Cancer Risk: a Genome-wide Association Study" Aug 2016
Cancer Outcomes Medicine Biostatistics Informatics Epidemiology Laboratory,
Toronto, ON, Canada

8. **Q. Zhang** and G.Y. Yi . "Estimation of Genotyping Misclassification Rate for Pedigree Data: a Bayesian approach" May 2016
The 44^{th} Annual Meeting of the Statistical Society of Canada, Brock University,
St. Catharines, Ontario, Canada

Academic Service

Conference Organizing Co-Chair, Nov 2019
The 1*st* Waterloo Student Conference in Statistics, Actuarial Science and Finance

Keynote Session Chair, Nov 2019
The 1*st* Waterloo Student Conference in Statistics, Actuarial Science and Finance

Student Representative, Sep 2019
The student and recent graduate committee of the Society of Statistics Canada

Conference Volunteer, Jul 2013
IMS-China International Conference on Statistics and Probability

Data Investigator, Mar 2012
School of statistics, Southwestern University of Finance and Economics

Professional Development

Workshop: *Fundamental University Teaching*, 2019
Teaching Center, University of Waterloo

Workshop: *Statistical Analysis of Large Administrative Health Databases: Emerging Challenges and Strategies*, 2018
Banff International Research Station

Workshop: *Informatics and Statistics for Metabolomics*, 2018
Bioinformatics Education Programs in Canada

Microbiome Summer School: *Big Data Analytics for Omics Science*, 2017
Bioinformatics Education Programs in Canada

Teaching Experience

Teaching Assistant, University of Waterloo

- STAT 230 - Probability — Fall 2018
- STAT 330 - Mathematical Statistics — Winter 2019, Winter 2020
- STAT 331 - Applied Linear Model — Winter 2016, Fall 2017
- STAT 333 - Applied Probability — Fall 2015, Fall 2018

- STAT 337 - Introduction to Biostatistics — Fall 2015
- STAT 340 - Computer Simulation of Complex Systems — Fall 2018
- STAT 431 - Generalized Linear Model — Winter 2017, Spring 2018, Spring 2019
- STAT 441 - Statistical Learning — Winter 2017
- STAT 845 - Statistical Concepts for Data Science — Winter 2019, Winter 2020

Microteaching Session, Teaching Centre, University of Waterloo

- Convex Set — Nov 2019

Academic Membership	*Society of Statistics Canada*	2016-present
Programming Skills	SAS, R, C++, Perl, UNIX shell scripting, Python	