Curriculum Vitae

Qihuang Zhang

CONTACT
INFORMATION

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APPOINTMENT AND PROFESSIONAL EXPERIENCE

Assistant Professor
Department of Epidemiology, Biostatistics and Occupational Health, McGill University, Montreal, QC   Aug 2022 - Present
Associate Investigator
Centre for Outcomes Research and Evaluation, Research Institute of McGill University Health Centre, Montreal, QC   Aug 2023 - Present
Post-doctoral Fellow
University of Pennsylvania, Philadelphia, PA   Jan 2021 - Jul 2022

– Advisor: Mingyao Li, Ph.D and Rui Xiao, Ph.D

University of Western Ontario, London, ON   Sep 2020 - Dec 2020

– Advisor: Grace Y. Yi, Ph.D

Lecturer
University of Western Ontario, London, ON   Sep 2020 - Dec 2020

– Taught the courses *Statistical Concepts* (SS 1023A) and *Statistics for Health Science* (SS 2037A).

EDUCATION

University of Waterloo

Ph.D., Statistics, Sep 2017 - Sep 2020

- 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

REFEREED JOURNAL PUBLICATIONS

1. **Q. Zhang**, S. Jiang, A. Schroeder, J. Hu, K. Li, B. Zhang, D. Dai, E. B. Lee, R. Xiao, M. Li (2023). Leveraging spatial transcriptomics data to recover cell locations in single-cell RNA-seq with CeLEry. *Nature Communications*, 14(1), 4050. https://doi.org/10.1038/s41467-023-39895-3

2. A. Sen, J. D. Baker, **Q. Zhang**, R. R. Agarwal, and J.-P. Lam (2023). Do more stringent policies reduce daily COVID-19 case counts? Evidence from Canadian provinces. *Economic Analysis and Policy* 78: 225-242. https://doi.org/10.1016/j.eap.2023.03.006

3. **Q. Zhang**, G. Y. Yi, L.-P. Chen, W. He (2023). Sentiment Analysis and Causal Learning of COVID-19 Tweets prior to the Rollout of Vaccines. *PLOS ONE*. 18(2): e0277878. https://doi.org/10.1371/journal.pone.0277878

4. J. Fan, Y. Lyu, **Q. Zhang**, X. Wang, M. Li, R. Xiao (2022). MuSiC2: cell type deconvolution for multicondition bulk RNA-seq data. *Briefings in Bioinformatics*, 23(6):1-10. https://doi.org/10.1093/bib/bbac430

5. **Q. Zhang** and G. Y. Yi (2022). Zero-inflated Poisson model with measurement error in the response. *Biometrics*. https://doi.org/10.1111/biom.13657

6. **Q. Zhang** and G. Y. Yi (2022). Generalized network structured model with mixed responses subject to measurement error and misclassification. *Biometrics*. https://doi.org/10.1111/biom.13623

7. **Q. Zhang** and G. Y. Yi (2022). Sensitivity analyses of COVID-19 data under autoregressive model with measurement error. *Journal of Applied Statistics*:1-24. https://doi.org/10.1080/02664763.2022.2034760

8. **Q. Zhang** and G. Y. Yi (2021). Marginal analysis of bivariate mixed responses with measurement error and misclassification. *Statistical Methods in Medical Research*, 30(5): 1155-1186. https://doi.org/10.1177/0962280220983587

9. N. Stevens, A. Sen, F. Kiwon, P. P. Morita, S. H. Steiner and **Q. Zhang** (2021). Estimating the Effects of Non-Pharmaceutical Interventions (NPIs) and Population Mobility on Daily COVID-19 Cases: Evidence from Ontario. *Canadian Public Policy*. 48(1):144-161.

10. **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. https://doi.org/10.1002/sim.8688

11. L.-P. Chen*, **Q. Zhang***, G. Y. Yi, W. He (2020). Model-based forecasting for Canadian COVID-19 data. *PLOS ONE*, 16(1): e0244536. https://doi.org/10.1371/journal.pone.0244536

12. 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): 23-29.

13. **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(12), 2293-2315. https://doi.org/10.1080/00949655.2019.1615911

14. 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. https://doi.org/10.1186/s40488-019-0094-2

15. 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.

16. 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.

17. 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.

18. 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.

SOFTWARE
DEVELOPMENT

1. **Q. Zhang** and G. Y. Yi (2021). ZIPBayes: Bayesian Methods in the Analysis of Zero-Inflated Poisson Model. *R package version 1.0.1.*
https://CRAN.R-project.org/package=ZIPBayes

2. **Q. Zhang** and G. Y. Yi (2020). GeneErrorMiss: Addressing Measurement Error and Misclassification in Bivariate Response Models. *R package version 1.0.0.*
https://github.com/QihuangZhang/GeneErrorMis

3. **Q. Zhang** and G. Y. Yi (2019). augSIMEX: Analysis of Data with Mixed Measurement Error and Misclassification in Covariates. *R package version 3.7.4.*
https://CRAN.R-project.org/package=augSIMEX

ACCEPTED
ABSTRACT

1. R. Woo, E. Chan, C. Vanderwater, C. Cho, J Wong., W. Xu, **Q. Zhang**, G. Liu, B. Zhang, A. Cheung, A. Lee, P. P. Chacko, E. Fadhel, Z. Kassam. "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
GRANTS

- **McGill Start-up Grant**   Sep 2022 - Aug 2025
  Department of Epidemiology, Biostatistics and Occupational Health, McGill University, Montreal, Quebec, Canada

- **NSERC Discovery Award** *[Principal Investigator]*   Apr 2023 - Mar 2028
  "Statistical modeling and computational methods for spatial genomic data"
  Natural Sciences and Engineering Research Council of Canada

- **CANSSI Postdoctoral fellowship** *[Co-Supervisor]*   Sep 2023 - Aug 2025
  "Semi-supervised learning for high-dimensional functional data integration with measurement error" Trainee: Chi-Kuang Yeh
  Canada Statistical Science Institute

- **CANSSI-Banting Discovery Award** *[Principal Investigator]*   (Applied)
  "Bayesian method for spatial compositional data with machine-generated measurement error"
  Canada Statistical Science Institute and Banting Research Foundation

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 46th 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 44th 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** "Zero-inflated Poisson models with measurement error in the response."
   Aug 2023
   Joint Statistical Meeting,
   Toronto, Ontario, Canada

2. **Q. Zhang** " Cell location recovery with CeLEry: a supervised deep-learning algorithm
   for unveiling spatial origins in scRNA-seq." Jul 2023
   ICSA China Statistics Conference,
   Chengdu, Sichuan, China

3. **Q. Zhang** "A supervised deep-learning algorithm for discovering spatial origins in
   scRNA-seq." Jun 2023
   North America Machine Learning, Optimization and Statistics Symposium,
   Vancouver, British Columbia, USA

4. **Q. Zhang** " Cell location recovery with CeLEry: a supervised deep-learning algorithm
   for unveiling spatial origins in scRNA-seq." Jun 2023
   ICSA Applied Statistics Symposium,
   Ann Arbor, Michigan, USA

5. **Q. Zhang** "Zero-inflated Poisson models with measurement error in the response."
   Jun 2023
   Statistical Data Science Conference, University of British Columbia Okanagan,
   Kelowna, British Columbia, Canada

6. **Q. Zhang** "Generalized Network Structured Models with Mixed Responses subject to Measurement Error and Misclassification." May 2023
   The 50th Annual Meeting of the Statistical Society of Canada, Charleton University, Ottawa, Ontario, Canada

7. **Q. Zhang** "Leveraging spatial transcriptomics data to recover cell locations in single-cell RNA-seq with CeLEry." Oct 2022
   Mathematics and Statistics Seminar Series, University of Victoria, Victoria, British Columbia, Canada

8. **Q. Zhang** "Generalized Network Structured Model in Discovering Gene Network." March 2020
   University Presentation Day, University of Waterloo, Waterloo, Ontario, Canada

9. **Q. Zhang** and G.Y. Yi "Analysis of Bivariate Responses in Genetic Association Studies with Measurement Error and Misclassification" May 2019
   The 48th Annual Meeting of the Statistical Society of Canada, University of Calgary, Calgary, Alberta, Canada

10. **Q. Zhang** and L.-P. Chen "Prediction of Popularity of TED Talks: a Comprehensive Text Mining Case Study" June 2018
    The 46th Annual Meeting of the Statistical Society of Canada, McGill University, Montreal, Quebec, Canada

11. **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

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

TEACHING EXPERIENCE

Instructor, McGill University
- EPIB 694: Statistical and Machine Learning in Health Sciences
- EPIB 613: Introduction to Statistical Software

Instructor, University of Western Ontario
- SS 1023: Statistical Concepts
- SS 2037: Statistics for Health Science

RESEARCH TRAINEE

Postdoctoral Fellow
Chi-Kuang Yeh, Sep 2023 - Present
CANSSI Distinguished Postdoctoral Fellow
(co-supervisor: Yi Yang and Peijun Sang)

Doctoral Degree Supervision
Mingchi Xu, Sep 2023 - Present
Ph.D. Biostatistics
(co-supervisor: Alexandra Schmidt)

Master Degree Supervision

Qicheng Zhao,   Sep 2023 - Present
Master Biostatistics (Thesis)

Anji Deng,   May 2023 - Aug 2023
Master Biostatistics (Non-Thesis)

Fio Vialard,   Sep 2022 - Present
Master Epidemiology (Thesis)
(co-supervisor: Nitika Pant Pai)

THESIS
COMMITTEE

Thesis Committee

Candidate Name	Degree	University
Shomoita Alam	PhD	McGill University
Paritosh Kumar Roy	PhD	McGill University
Yasmin Jolasun	MS	McGill University
Wenmin Zhang	PhD	McGill University

MENTORSHIP

Course Mentorship

Fall 2023 EPIB 613 Instuctors,   Sep 2023 - Present
Haoyu Wu, Junwei Shen and Victoire Michal

ACADEMIC
SERVICE

Conference Organization and 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

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

Statistical Community Service

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

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

Editorial Service

Guest Editor,   May 2023 - Present

- Frontiers in Epigenetics and Epigenomics

Journal Reviewer (# of work reviewed),

- Journal of the American Statistical Association (#1)

- Journal of Applied Statistics (#1)

- Journal of the American Medical Informatics Association (#3)

- Bioinformatics (#1)

- Statistics in Biosciences (#2)

PROFESSIONAL DEVELOPMENT	Workshop: *Fundamental University Teaching*, Teaching Center, University of Waterloo	2019
	Workshop: *Statistical Analysis of Large Administrative Health Databases: Emerging Challenges and Strategies*, Banff International Research Station	2018
	Workshop: *Informatics and Statistics for Metabolomics*, Bioinformatics Education Programs in Canada	2018
	Microbiome Summer School: *Big Data Analytics for Omics Science*, Bioinformatics Education Programs in Canada	2017

ACADEMIC MEMBERSHIP		
	Society of Statistics Canada (SSC)	2016-present
	American Statistical Association (ASA)	2021-present
	Institute of Mathematical Statistics (IMS)	2022-present
	International Chinese Statistical Association (ICSA)	2022-present

PROGRAMMING SKILLS	R, Python, SAS, C++, Perl, UNIX shell scripting