

**Qihuang Zhang**

**November 3, 2023**

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APPOINTMENT **Assistant Professor**  
*Department of Epidemiology, Biostatistics and Occupational Health, McGill University, Montreal, QC* Aug 2022 - Present

**Associate Investigator**  
*Brain Repair and Integrative Neuroscience (BRaIN) Program, Research Institute of McGill University Health Centre, Montreal, QC* Aug 2023 - Present  
*Centre for Outcomes Research and Evaluation, Research Institute of McGill University Health Centre, Montreal, QC* Aug 2023 - Present

**Affiliated Researcher**  
*Quantitative Life Sciences Program, McGill University, Montreal, QC* Jan 2023 - Present

PROFESSIONAL EXPERIENCE **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>

## Curriculum Vitae

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. Krysz, 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.

# Curriculum Vitae

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*

# Curriculum Vitae

## RESEARCH AWARDS AND RECOGNITION

- **Featured Paper of Biotechnology and Methods** July 2023  
“Leveraging Spatial Transcriptomics Data to Recover Cell Locations in Single-Cell RNA-seq with CeLEry”  
*Nature Communications*
- **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<sup>th</sup> 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<sup>th</sup> 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. “Leveraging spatial transcriptomics data to recover cell locations in single-cell RNA-seq with CeLEry.” Dec 2023  
*CMSStatistics 2023 Meeting, University of Applied Sciences (Wilhelminenhof campus), Berlin, Germany*
2. “Leveraging spatial transcriptomics data to recover cell locations in single-cell RNA-seq with CeLEry.” Dec 2023  
*University of Western Ontario, London, Ontario, Canada*
3. “Leveraging spatial transcriptomics data to recover cell locations in single-cell RNA-seq with CeLEry.” Oct 2023  
*CRM-StatLab Meeting, Université de Québec à Montréal, Montreal, Quebec, Canada*

## Curriculum Vitae

4. "Modern statistical and machine learning methods for overcoming challenges in genomic data." Oct 2023  
*Department of Statistics Seminar Series, University of Manitoba, Winnipeg, Manitoba, Canada*
5. "Modern statistical and machine learning methods for overcoming challenges in genomic data." Sep 2023  
*Department of Biostatistics Seminar Series, Vanderbilt University, Nashville, Tennessee, USA*
6. "Zero-inflated Poisson models with measurement error in the response." Aug 2023  
*Joint Statistical Meeting, Toronto, Ontario, Canada*
7. "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*
8. "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*
9. "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*
10. "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*
11. "Generalized Network Structured Models with Mixed Responses subject to Measurement Error and Misclassification." May 2023  
*The 50<sup>th</sup> Annual Meeting of the Statistical Society of Canada, Charleton University, Ottawa, Ontario, Canada*
12. "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*
13. "Generalized Network Structured Model in Discovering Gene Network." March 2020  
*University Presentation Day, University of Waterloo, Waterloo, Ontario, Canada*
14. "Analysis of Bivariate Responses in Genetic Association Studies with Measurement Error and Misclassification" May 2019  
*The 48<sup>th</sup> Annual Meeting of the Statistical Society of Canada, University of Calgary, Calgary, Alberta, Canada*
15. "Prediction of Popularity of TED Talks: a Comprehensive Text Mining Case Study" June 2018  
*The 46<sup>th</sup> Annual Meeting of the Statistical Society of Canada, McGill University, Montreal, Quebec, Canada*

# Curriculum Vitae

16. "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*
17. "Estimation of Genotyping Misclassification Rate for Pedigree Data: a Bayesian approach" May 2016  
*The 44<sup>th</sup> 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

### **Guest Instructor**, McGill University

- COMP 565: Machine Learning in Genomics and Healthcare Nov 2023
- CDSI Workshop: Neural Network in R Mar 2023
- EXMD 601: Real World Applications of Data Science and Informatics Mar 2023

### **Instructor**, University of Western Ontario

- SS 1023: Statistical Concepts
- SS 2037: Statistics for Health Science

### **Instructor**, Other Institutions

- Workshop: Neural Network in R (University of Saskatchewan) Nov 2023

## RESEARCH TRAINEE

### **Postdoctoral Fellow**

*Chi-Kuang Yeh,* Sep 2023 - Present  
CANSSI Distinguished Postdoctoral Fellow  
(co-supervisor: Archer Y. 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)

*Hani Rukh E Qamar,* Sep 2023 - Present  
Master Epidemiology (Thesis)  
(co-supervisor: Nitika Pant Pai)

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

*Cathy Shen,* Sep 2023 - Present  
Master Biostatistics (Thesis)  
(co-supervisor: Josée Dupuis)

# Curriculum Vitae

## Undergraduate Supervision

*Jieqi Luo,*  
Bachelor of Computer Science

Sep 2023 - Dec 2023

## MENTORSHIP

### Course Mentorship

*Fall 2023 EPIB 613 Instructors,*  
Haoyu Wu, Junwei Shen and Victoire Michal

Sep 2023 - Present

## THESIS COMMITTEE

### Thesis Committee

Candidate Name	Degree	Program	University	Year
Shomoita Alam	PhD	Statistics	McGill University	2023
Yasmin Jolasun	MSc	Experimental Medicine	McGill University	2023
Wenmin Zhang	PhD	Quantitative Life Science	McGill University	2023
Michael Huang	MSc	Computer Science	McGill University	2023
Huzbah Jagirdar	MSc	Epidemiology	McGill University	2023

### Thesis Protocol Committee

Candidate Name	Degree	Program	University	Year
Paritosh Kumar Roy	PhD (Protocol)	Biostatistics	McGill University	2023
Vanessa McNealis	PhD (Protocol)	Biostatistics	McGill University	2023

### Comprehensive Exam Committee

Candidate Name	Program	University	Year
Yang Lu	Biostatistics	McGill University	2023
Tasneem Alam	Biostatistics	McGill University	2023
Yuming Zheng	Experimental Medicine	McGill University	2023

## ACADEMIC SERVICE

### Conference Organization and Service

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

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

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

### Statistical Community Service

*SSC Fundraising Committee,* Sep 2023 - Present  
Society of Statistics Canada

*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

# Curriculum Vitae

*Journal Reviewer* (# of work reviewed),

- Journal of the American Statistical Association (#2)
- Journal of Applied Statistics (#1)
- Journal of the American Medical Informatics Association (#3)
- Bioinformatics (#1)
- Statistics in Biosciences (#2)
- Statistics in Medicine (#1)
- Bioinformatics (#1)
- Signal Transduction and Targeted Therapy (#2)
- Computational Statistics and Data Analysis (# 1)
- Canadian Journal of Statistics (# 1)
- Computational Biology (# 1)

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

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