

# TENG FEI

## School Address

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## EDUCATION

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### *Doctor of Philosophy in Biostatistics*

Aug 2016 - Expected May 2021

Emory University, Atlanta, GA

Dissertation: Latent Class Methods for Complex Chronic Disease Data. Advisor: Dr. Limin Peng.

### *Bachelor of Science (First Class Honours) in Computing Mathematics*

Sept 2012 – July 2016

City University of Hong Kong, Hong Kong

## METHODOLOGICAL RESEARCH

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### **Latent class analysis methods, with Drs. Limin Peng and John Hanfelt** May 2017 – Present

- Innovated latent class analysis (LCA) methods incorporating **longitudinal and time-to-event** data, motivated by real data scenarios of the Uniform Data Set of **mild cognitive impairment** patients.
- Developed solid **asymptotic theories** for the proposed LCA methods.
- Addressed significant **computational** challenges in original R packages SLTCA, timeregLC and LSCA.

### **Batch effect adjustment for omics data, with Dr. Tianwei Yu**

Nov 2016 – Feb 2020

- Proposed distance matrix based methods for batch effect adjustment for **single-cell** RNA-seq datasets.
- Implemented novel algorithms of quantile normalization and block coordinate descent in R packages QuantNorm and scBatch.

## COLLABORATIVE RESEARCH

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### **Biostatistics Collaborative Core (BCC) service with Dr. René Moore** July 2018 – Feb 2020

- Project 1: Applied **conditional logistic regression** to mitigate confounding effects when investigating the association between health literacy, intervention and medication adherence in patients with inflammatory bowel disease. PI: Dr. Heba Iskandar, Emory School of Medicine.
- Project 2: Composed statistical analysis protocol in IRB review and served as a **co-investigator** on project “Association Between Frequency of Travel and Risk of Chronic Disease”. PI: Dr. Sharon Bergquist, Emory Executive Health.

### **Winship Cancer Institute service with Dr. Jeffery Switchenko**

Oct 2017 – Apr 2019

- Conducted **survival analysis and propensity score analysis**, so as to compare treatment strategies for anaplastic thyroid carcinoma. PI: Dr. Kristin Higgins, Emory Winship Cancer Institute.

### **Multi-institutional research project with Dr. Tianwei Yu**

Nov 2016 – June 2018

- **Evaluated batch effect** and conducted bioinformatics analysis for the single-cell RNA-seq data obtained by our collaborated lab in Tongji University, Shanghai, China.

## INDUSTRIAL RESEARCH

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**Virtual summer internship at Takeda Pharmaceutical, Cambridge MA**      May 2020 - Aug 2020

- Performed **multi-state process modeling** motivated by a novel endpoint of clinical trial.
- Conducted **simulation** studies to compare the efficacy test results at interim and final analyses.

## TEACHING EXPERIENCES

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### Course instructor

1. **QTM 210 Probability and Statistics (Lab)**      Spring 2020
  - Part of my service as an **Emory Advanced Graduate Teaching Fellow**. Under this fellowship, I received training in **evidence-based undergraduate STEM teaching**, offered by Center for the Integration of Research, Teaching and Learning (CIRTL).
  - Served as lab instructor for the introductory undergraduate probability and statistics course in Department of Quantitative Theory and Methods, Emory University. **Enrollment: 37**.
  - Conducted a **teach as research (TAR) project** on achieving effective mutual feedback between students and instructor via optional survey incorporated in lab assignments.

### Teaching assistant

1. BIOS 534 Machine Learning      Spring 2019
2. BIOS 522 Survival Analysis (nominated for departmental TA award)      Fall 2018
3. BIOS 511 Statistical Inference I      Spring 2018
4. BIOS 500/500L, Statistical Methods I      Fall 2017

## PROFESSIONAL SERVICES

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### Mentoring services

1. Jialu Ran, PhD anticipated 2024, in academic mentoring and advising.
2. Qi Meng, MPH 2020, in Biostatistics Collaborative Core (BCC) project 'Association Between Frequency of Travel and Risk of Chronic Disease'.
3. Daniel Yoo, BA/MSPH 2018, in Biostatistics Collaborative Core (BCC) project 'Assessment of health literacy, medication adherence, and a multi-component pilot intervention to improve medication adherence in patients with Inflammatory Bowel Disease'.

### Community services

1. **Biostatistics student ambassador at Virtual Learning about Laney Visitation**      Sept 2020
  - Provided PhD program information to prospective students from under-represented groups.
  - Encouraged prospective students to pursue higher education at Emory.
2. **Biostatistics student council member**      Jan 2017 – Sept 2018
  - Devoted to collecting student voices and communicating with the Chair.
  - **Co-chair**, 2018 Departmental Teaching Award committee.
3. **Local volunteer at ENAR Spring Meeting 2018**      Mar 2018
4. **Local volunteer at Georgia Statistics Day 2017**      Oct 2017
5. **Editor of departmental weekly newsletter, Bios Buzz**      Sept 2016 – May 2017

## PUBLICATIONS

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### Methodological works

1. **Fei T**, Hanfelt J, Peng L<sup>#</sup> (202x) Latent Class Analysis with Proportional Hazards Submodel for Time-to-event Data. Under preparation.
2. **Fei T**, Hanfelt J, Peng L<sup>#</sup> (202x) A Time-Dependent Structural Model Between Latent Classes and Competing Risks Outcomes. Under Review by *Annals of Applied Statistics*.
3. Hart K\*, **Fei T**\*, Hanfelt J<sup>#</sup> (2020) Scalable and Robust Latent Trajectory Class Analysis Using Artificial Likelihood. *Biometrics*, <https://doi.org/10.1111/biom.13366>.
4. **Fei T**, Yu T<sup>#</sup> (2020) scBatch: Batch Effect Correction of RNA-seq Data through Sample Distance Matrix Adjustment. *Bioinformatics*, 36(10):3115-3123.
5. **Fei T**, Zhang T, Shi W<sup>#</sup>, Yu T<sup>#</sup> (2018) Mitigating the adverse impact of batch effects in sample pattern detection. *Bioinformatics*, 34(15):2634-2641.

### Collaborative works

1. Iskandar H<sup>#</sup>, Mujtaba S, Gardner D, Oppong P, Moore R, **Fei T**, Lui D, Farraye F, Patzer, R (202x) A Behavioral Intervention to Promote Medication Adherence in Inflammatory Bowel Disease – A Prospective Pilot Study. Under Review by *Inflammatory Bowel Diseases*.
2. Zhang T, Xu Y, Imai K, **Fei T**, Wang G, Dong B, Yu T, Satou Y, Shi W<sup>#</sup>, Bao Z<sup>#</sup> (2020) A single-cell analysis of the molecular lineage of chordate embryogenesis. *Science Advances*, 6(45):eabc4773. doi: 10.1126/sciadv.abc4773.
3. Tian S, Switchenko J, **Fei T**, Press RH, Abugideiri M, Saba NF, Owonikoko TK, Chen AY, Beitler JJ, Curran WJ, Gillespie T, Higgins KA<sup>#</sup> (2020) Survival Advantage of Chemoradiotherapy in Anaplastic Thyroid Carcinoma: A Propensity Score Matched Analysis with Multiple Subgroups. *Head and Neck*, 42: 678-687.
4. Tian S, Switchenko J, **Fei T**, Press RH, Abugideiri M, Saba NF, Owonikoko TK, Chen AY, Beitler JJ, Curran WJ, Gillespie T, Higgins KA<sup>#</sup> (2018) Survival Advantage to Combined Modality Therapy Seen in Multiple Subgroups Within Anaplastic Thyroid Carcinoma: A Propensity-Score Matched Analysis of the National Cancer Data Base. *International Journal of Radiation Oncology • Biology • Physics*, 102(3): e356-e357.

<sup>#</sup> corresponding authors; \* equally contributed

## CONFERENCE PRESENTATIONS

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1. **Fei T**, Hanfelt J, Peng L “A Time-Dependent Structural Model Between Latent Classes and Competing Risks Outcomes” (contributed oral, **student paper award winner**). Joint Statistical Meeting 2020, Aug 2-6 2020 on virtual platform.
2. **Fei T**, Hanfelt J, Peng L “A Time-Dependent Structural Model Between Latent Classes and Competing Risks Outcomes” (contributed oral, **student paper award winner**). ENAR Spring Meeting 2020, Mar 22-25 2020 on virtual platform.
3. **Fei T**, Hanfelt J, Peng L “Latent Class Regression Modeling of Competing Risks Data” (poster). Georgia Statistics Day 2019, Oct 14 2019 at Georgia Institute of Technology, Atlanta GA.
4. **Fei T**, Hanfelt J, Peng L “Latent Class Regression Modeling of Competing Risks Data” (poster). ENAR Spring Meeting 2019, Mar 24-27 2019 in Philadelphia PA.

5. **Fei T**, Yu T “Batch Effect Correction of Single-cell RNA-seq through Sample Distance Matrix Correction” (poster, **poster award winner**).  
Georgia Statistics Day 2018, Oct 26 2018 at University of Georgia, Athens GA.
6. **Fei T**, Zhang T, Shi W, Yu T “Mitigating the adverse impact of batch effects in sample pattern detection” (contributed oral).  
ENAR Spring Meeting 2018, Mar 25-28 in Atlanta GA.
7. **Fei T**, Zhang T, Shi W, Yu T “A method for mitigating the adverse impact of batch effects in sample clustering” (poster, **poster award winner**).  
Georgia Statistics Day 2017, Oct 9 2017 at Emory University, Atlanta GA.
8. **Fei T** “A Review Study on the Type I Error of the NRI Test” (poster).  
Georgia Statistics Day 2016, Oct 10 2016 at Georgia Institute of Technology, Atlanta GA.

## HONORS AND AWARDS

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PhD career:

<b>First place award</b> , 2020 Emory Biostatistics senior PhD student presentation competition	Sept 2020
<b>American Statistical Association</b> Lifetime Data Science Section Student Paper Award	Aug 2020
<b>International Biometrics Society ENAR</b> Distinguished Student Paper Award	Mar 2020
<b>Emory Advanced Graduate Teaching Fellowship</b>	Jul 2019
Honorable mention, Georgia Statistics Day 2018 Student Poster Competition	Oct 2018
Runner-up, Georgia Statistics Day 2017 Student Poster Competition	Oct 2017

Undergraduate career:

CityU College of Science and Engineering College Medal, Final list	Sept 2016
CityU Mainland Student Full Tuition Scholarship	2012 - 2016
Dean’s List (seven times since Semester A 2012)	2012 - 2016
CityU College of Science and Engineering Dean’s Scholarships	Feb 2015
CityU Department of Mathematics Outstanding Performance Scholarship	Jun 2014, Jun 2015
HKSAR Government Scholarship Fund - Reaching Out Award	Jun 2013
Alumni Civility Hall JUMP Scholarship	Jun 2013

## PROFESSIONAL AFFILIATIONS

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<b>American Statistical Association</b>	Member since 2016
<b>International Biometrics Society Eastern North American Region</b>	Member since 2017