

Yiming (Emmett) Peng

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EDUCATION

- **University of Toronto, Dalla Lana School of Public Health** Sept 2024 – Aug 2026 (Expected)
Master of Science in Biostatistics – Thesis Option; GPA: 4.00/4.00
Thesis: Bayesian Latent Class Models for Estimating the Causal Effects on Multiple Cognitive Trajectories in Aging Populations
◦ Co-supervised by Dr. Kuan Liu and Dr. Zihang Lu

- **Beijing Institute of Technology, Zhuhai** Sept 2020 – Jun 2024
Bachelor of Science in Applied Statistics; GPA: 3.96/4.00 (WES)
Thesis: Deep Learning and Stochastic Modeling of Human Activity Patterns through Smartwatch Sensors for Health Interventions (*Honored as Outstanding Thesis*)
◦ Supervised by Dr. Han C.W. Hsiao

PUBLICATIONS AND PRESENTATIONS

C=CONFERENCE, S=IN SUBMISSION, W=WORKING PAPERS

- [C] Yiming (Emmett) Peng, Victoria Truong, Aoqi Xie, Yu Shi, Pingzhao Hu (2025) **Enhancing Breast Cancer Treatment Response Prediction with Single-Cell RNA Sequencing and Large Language Models.** *2025 Statistical Society of Canada (SSC) Annual Meeting*, p58. May 25 - 28, Saskatoon, Saskatchewan, Canada. [\[Slides\]](#) [\[Poster\]](#)
- [C] Jiahui Zhang, Yu Shi, Aoqi Xie, Yiming (Emmett) Peng, Pingzhao Hu (2025) **Uncertainty-Calibrated Interpretable Tabular Transformer Model for Atrial Fibrillation Prediction with Competing Risk.** *2025 Statistical Society of Canada (SSC) Annual Meeting*, p42. May 25 - 28, Saskatoon, Saskatchewan, Canada. [\[Poster\]](#)
- [S] Yiming (Emmett) Peng*, Victoria Truong*, Aoqi Xie, Yu Shi, Pingzhao Hu (2025) **PRECISE: A Framework for the Prediction of Response using Cell-type Inference and Single-cell Embedding in Breast Cancer Patients Receiving Anti-PD-1 Treatment.** # Submitted to *PLOS Genetics* [\[Code\]](#)
- [W] Yiming (Emmett) Peng, Zihang Lu, Kuan Liu (2025) **Bayesian Latent Class Causal Inference with Nonparametric Covariate Modeling for Endpoint Cognitive Outcomes in Aging Populations.** # An earlier version of this work was invited for presentation at *Data Science Institute Causal Inference Workshop, Toronto, Ontario, Canada, October 22, 2025.* [\[Poster\]](#)
- [W] Daniela Denier, Yiming (Emmett) Peng, Mark Deneau, Kuan Liu, Amanda Ricciuto (2025) **Longitudinal Analysis of Repeated Serum Markers to Identify Clinically Relevant Patient Subgroups in Pediatric Primary Sclerosing Cholangitis: Data from the Pediatric PSC Consortium.**
- [W] Yuxin Jing, Yiming (Emmett) Peng, Ashley Danguecan, Andrea Knight (2025) **Examining the Relationship Between Socioeconomic Factors and Mental Health in Childhood-Onset Systemic Lupus Erythematosus Using a Multilevel Analysis.**
- [W] Jiahui Zhang, Yu Shi, Aoqi Xie, Yiming (Emmett) Peng, Pingzhao Hu (2025) **Predicting New-Onset Atrial Fibrillation with Competing Risks Using an Uncertainty-Calibrated Interpretable Tabular Transformer: Evidence from the Cardiovascular Imaging Registry of Calgary (CIROC).**

PROFESSIONAL EXPERIENCE

- **Knight Lab, The Hospital for Sick Children** Jun 2025 - Present
Clinical Research Project Assistant, supervised by Dr. Andrea Knight Toronto, Canada
 - Implement Bayesian statistical methods in R to investigate socioeconomic and mental health outcomes in childhood-onset systemic lupus erythematosus (cSLE).
 - Collaborate on designing the research framework and lead statistical analyses, including data pre-processing, imputation, and modeling.
 - Provide statistical consulting for interdisciplinary teams and contribute to manuscript drafting for publication.
- **The Hospital for Sick Children** Jun 2025 - Present
Research Volunteer, supervised by Dr. Amanda Ricciuto and Dr. Anne Griffiths Toronto, Canada
 - Implement latent class mixed models in R to analyze longitudinal serum biomarker trajectories in primary sclerosing cholangitis (PSC) patients.
 - Implement survival analysis incorporating latent class membership, showing its statistical and clinical significance in predicting transplant outcomes alongside other covariates.
 - Collaborate with clinicians and biostatisticians to interpret findings and contribute to manuscript preparation.

- **Hu Lab, Dalla Lana School of Public Health, University of Toronto**

Data Science Research Student, supervised by Dr. Pingzhao Hu

 - Developed an integrated multi-stage pipeline in Python combining single-cell RNA-seq data with embeddings from large language models (LLMs) and foundation models to identify cell type-specific biomarkers for breast cancer treatment response.
 - Implemented supervised classification using cell-type-specific biomarkers and cluster-specific bulk gene-expression profiles to predict treatment response, achieving improved predictive performance over baseline methods.
 - Drafted manuscripts and presentations for conferences and peer-reviewed journals.
- **The University of Hong Kong**

Research Volunteer, supervised by Dr. Liwu Zheng

 - Collaborate with clinicians on biostatistical research projects.
 - Provide statistical consulting for clinical studies.

HONORS AND AWARDS

Amounts in Canadian dollars unless otherwise specified

- **Winner – Case Studies in Data Analysis Competition, SSC 2025 - \$2,500 per team** 2025
Statistical Society of Canada (SSC)
- **CSSC 2025 Travel Award - \$150** 2025
Canadian Statistics Student Conference (CSSC), sponsored by CANSSI
- **SGS Conference Grant - \$450** 2025
University of Toronto
- **BITZH President's Scholarship - \$2,000** 2023
Beijing Institute of Technology, Zhuhai
- **College Dean's Honor Scholarship - \$7,000** 2021 - 2024
Beijing Institute of Technology, Zhuhai
- **BITZH Freshman Entrance Scholarship and Continuing Scholarship - \$18,000** 2020 - 2024
Beijing Institute of Technology, Zhuhai
- **BITZH Outstanding Student Scholarship** 2020 - 2024
Beijing Institute of Technology, Zhuhai

SKILLS

- **Programming Languages:** R, Python, MATLAB, C++
- **Tools & Technologies:** Git, LaTeX, RMarkdown, Jupyter Notebook, Eviews, Maple, Mathematica, SQL, Excel
- **Statistics Concepts:** Causal Inference, Latent Class Analysis, Survival Analysis, Longitudinal Data
- **Machine Learning Models:** Transformers, RNNs, Regression (GLM, Penalization), CNNs, Neural Networks
- **Languages:** Native proficiency in Chinese; professional working proficiency in English

COMMUNITY INVOLVEMENT AND LEADERSHIP EXPERIENCE

- **Biostatistics Union of Graduate Students (BUGS)** Sep 2024 - Present
PHSA MSc Representative and Seminar Committee member [🌐]
- **Health Data Working Group** Sep 2024 - Present
Student Member [🌐]
- **Public Health Students' Association, University of Toronto** Sep 2025 - Present
Biostatistics MSc Representative
- **Student Union, College of Global Talent, Beijing Institute of Technology, Zhuhai** Sep 2020 – Jun 2022
Officer

REFERENCES

1. **Kuan Liu**
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2. **Zihang Lu**
Assistant Professor, Department of Public Health Sciences
Queen's University
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Relationship: Thesis Supervisor
3. **Pingzhao Hu**
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University of Toronto
Email: pingzhao.hu@utoronto.ca
Relationship: Practicum Supervisor