Curriculum Vitae
Yongkai Chen

310 Herty Drive, Department of Statistics, Athens, GA 30602
Email: YongkaiChen@uga.edu
Phone Number: (706)-751-5521
Personal Website: https://statcyk.github.io/

Education

- Ph.D. in Statistics, University of Georgia, GA 08/2019-present
- Visiting student in Department of Radiology, Massachusetts General Hospital, Harvard University, MA 11/2021-12/2022
- B.S. in Mathematical Statistics, Nankai University, Tianjin, China 09/2015-07/2019

Major Research Areas

- Nonparametric regression
- Quantum Machine Learning and Deep Learning
- Medical Imaging and Computer Vision
- Network Data analysis
- Bioinformatics

Academic Experience

- **Research Assistant** Big Data Analytics Lab Fall. 2019 – Present
  University of Georgia, Athens, GA
- **Lab Assistant** Big Data Analytics Lab, Department of Statistics Fall. 2020 – Present
  University of Georgia, Athens, GA
- **Teaching Assistant** Intro Statistics, Advanced Statistical Computing Fall 2019-Present
  University of Georgia, Athens, GA
- **Teaching Assistant** Statistical Computing, Statistical Software Fall 2018 - Spring 2019
  Nankai University, Tianjin, China

Publications

- Published

[1] **Yongkai Chen***, Yufang Liu*, Haoran Lu, Wenxuan Zhong, Guocheng Yuan, Ping Ma. (2024) Orthogonal Multimodality Integration and Clustering in Multimodal Single-cell Data. *BMC bioinformatics* (* Joint-first Author)

[2] Mengrui Zhang*, **Yongkai Chen***, Jingyi Zhang, Wenxuan Zhong, Ping Ma. (2023) Elucidation of Cell Lineages and Dynamic Gene Networks in Time Course Single-cell Expression Data. *AI in life science.*

[3] Ping Ma, **Yongkai Chen**, Xinlian Zhang, Xin Xing, Jingyi Ma, and Michael Mahoney. (2022) Asymptotic Analysis of Sampling Estimators for Randomized Numerical Linear Algebra Algorithms. *Journal of Machine Learning Research. 23(177):1–45.*

[4] Cheng Meng, Jun Yu, **Yongkai Chen**, Wenxuan Zhong, and Ping Ma. (2022) Smoothing Splines Approximation Using Hilbert Curve Basis Selection, *Journal of Computational and Graphical Statistics*, DOI: 10.1080/10618600.2021.2002161

[5] Jingyi Zhang, Huolan Zhu, **Yongkai Chen**, Huimin Cheng, Yi Li, Wenxuan Zhong, Fang Wang. (2021) Ensemble machine learning approach for screening of coronary heart disease based on echocardiography and risk factors. *BMC Med Inform Decis Mak* 21, 187 .

[6] Ganzen, Logan, Mee Jung Ko, Mengrui Zhang, Rui Xie, **Yongkai Chen**, Liyun Zhang, Rebecca James, Jeff Mumm, Richard M. van Rijn, Wenxuan Zhong, Chi Pui Pang, Mingzhi Zhang, Motokazu Tsujikawa and Yuk Fai Leung. Drug screening with zebrafish visual behavior identifies carvedilol as a potential treatment for an autosomal dominant form of retinitis pigmentosa. *Scientific reports* 11, no. 1 (2021): 1-14.

- Under Review

[1] **Yongkai Chen***, Luyang Fang*, Wenxuan Zhong, Ping Ma. Bayesian Knowledge Distillation: A Bayesian Perspective of Distillation with Uncertainty Quantification. (under revision in ICML 2024, avg. score 6.75)

[2] Ping Ma*, **Yongkai Chen***, Haoran Lu, Wenxuan Zhong. Bisection Grover's Search Algorithm and Its Application in Analyzing CITE-seq Data. (under revision in Journal of the American Statistical Association, applications and case studies)

[3] **Yongkai Chen**, Wenxuan Zhong, Ping Ma. Universal Uncertainty Quantification by Quantum-Powered Statistical Inference.(submit to Nature Machine Intelligence)

[4] **Yongkai Chen**, Shushan Wu, Ping Ma, and Wenxuan Zhong. Fluid Correlation: A Novel Way to Assess the Dynamic Association. (submit to The Annals of Applied Statistics)

[5] Yang Liu*, **Yongkai Chen***, Carly Rose Duffy*, Ping Ma, Peter A Kner, James D Lauderdale. Reduced GABA levels result in increased neural connectivity. (submit to Frontiers of Neuroscience)

[6] Huimin Cheng*, **Yongkai Chen***, Ping Ma, and Wenxuan Zhong. Graphon Cross-Validation: Assessing Models on Network Data (submit to JASA)

[7] Bo Zheng, Yaokun Liu, Jingyi Zhang, Terry T Ma, Yun Zhou, **Yongkai Chen**, Ying Yang, Wei Ma, Fangfang Fan, Jia Jia, Yan Zhang, Jianping Li, and Wenxuan Zhong. A Machine Learning Model Using Echocardiographic Myocardial Strain to Detect Myocardial Ischemia (submit to Circulation)

- Manuscript in Preparation

[8] **Yongkai Chen**, Wenxuan Zhong, Ping Ma. Quantum isoform Hunting.

[9] Rui Xie, **Yongkai Chen**, Ping Ma, Shuyang Bai. Leverage Sampling for High-Dimensional Streaming Data.

[10] **Yongkai Chen**, Ping Ma, Wenxuan Zhong. Informative Node Selection for Dynamic Network Regression.

[11] **Yongkai Chen**, Mengrui Zhang, Ping Ma, Mary Ann Moran, Wenxuan Zhong. The Association Study between the Marine Ecosystem and the Environments using Monterey Bay Data.

[12] **Yongkai Chen**, Jingyi Zhang, Ping Ma, Wenxuan Zhong. Anomaly Detection for Medical Imaging.

[13] Zhensheng Hu*, **Yongkai Chen***, Ping Ma, Ximing Xu. Large Language Models Tailored for Pediatrics Using Limited Computing Resources.

[14] **Yongkai Chen**, Xilin Gong, Ping Ma, Wenxuan Zhong. Fully Automatic 3D Cardiac Motion Reconstruction from Multi-view 2D Echocardiogram.

[15] Da Wang, **Yongkai Chen**, Jun S Liu, Huimin Cheng. Network Perturbation Aggregating for Graphon Estimation.

- In Preparation

[16] **Yongkai Chen**, Haoran Lu, Wenxuan Zhong, Ping Ma. Quantum Correlation Pursuit for Analyzing Spatial Transcriptomic.

[17] **Yongkai Chen**, Luyang Fang, Wenxuan Zhong, Ping Ma. Diffuse and Annealing Smoothing Spline for High Dimensional Density Estimation.

[18] **Yongkai Chen**, Xilin Gong, Shushan Wu, Ping Ma, Wenxuan Zhong. Machine Learning-Enabled Standardization of Echo Imaging Analysis for Heart Disease Diagnosis with Statistical Inference Suite.

[19] **Yongkai Chen**, Haoran Lu, Tao Wang, Wenxuan Zhong, Jian Kang, Ping Ma. Interpretable Rest2Task MRI Prediction and Inference with Conditional Stable Diffusion Model.

Research Collaboration

- Yuan Laboratory, Icahn School of Medicine at Mount Sinai — June, 2022 - Present
  Single Cell Multi-Modality Data Analysis
- Li Laboratory, Massachusetts General Hospital — Nov, 2021 - Present
  Survival Analysis on Aortic Stenosis
- Kner Laboratory, University of Georgia — Dec, 2019 - Present
  Calcium Imaging Analysis
- Lauderdale Laboratory, University of Georgia — Dec, 2019 - Present
  Analysis on Gad1b mutant zebrafish

Awards and Honor

- Best senior Ph.D. student *University of Georgia.* 2024
- Student Employee of the Year (team award, honorable mention) *University of Georgia.* 2024
- Summer Research Grant *University of Georgia.* 2023
- Best beginning Ph.D. student *University of Georgia.* 2022
- Honorable award in Georgia Statistics Day 2022
- Honorable award in Georgia Statistics Day 2021
- Xianzi Zeng scholarship. *Nankai University.* 2018

Presentations

- Poster, Georgia Statistics Day. 2021
- Poster, Workshop on Statistical Network Analysis and Beyond. 2022
- Poster, Georgia Statistics Day. 2022
- Contributed presentation, Algorithms for Threat Detection and Algorithms for Modern Power Systems Joint PI Workshop 2023

Teaching

- Teaching Assistant at the Nankai University Fall 2018 - Spring 2019
- Teaching Assistant at the University of Georgia Fall 2019
- GPU System Hands-on Workshop Oct. 2021 - Present
  GPU system hands-on teaching to research collaborators and facility technicians
- Quantum Computing Workshop July. 2022 - Present
  Hands-on tutoring the basics of quantum computing and programming on the IBM quantum computers
- Mentoring junior students (Individual Research) Summer 2023 - Present
  - Mr. Liuxiao Kang, Rice University, graduate.
  - Ms. Xilin Gong, Nankai University, undergraduate.

Professional Activities

- Review for Journal and Conference
  - Statistica Sinica 2020-present
  - Journal of Computational and Graphical Statistics 2021-present
  - Journal of the American Statistical Association 2022-present
  - ICML 2022

Skills

- Quantum Computing, GPU computing, Python, R, C++, Unix/Linux, Latex