YIMING LI

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EDUCATION

Fudan University（Shanghai, China） — Sept 2017—June 2021

Bachelor of Science in Information and Computing Science(Computing Math)
Courses : Probability Theory; Statistics; Mathematical Analysis, Real Analysis; Function Analysis; Complex Analysis.

Columbia University — Sept 2021—May 2023

Department: Biostatistics (MS)

RESEARCHES

A Spatially Adaptive Edge-Preserving Denoising Method — June 2020—Aug 2020

Advisor: Prof. Xiaoping Li; University of Electronic Science and Technology of China
Propose new denoising method based on partial differential equation to improve signal to noise ratio in digital signal processing.
Prove the existence and uniqueness of this denoising method in math. Compared with previous signal processing methods and found edge information of our method is more sharpened.

A Double Projection Approach for Safe and Efficient Semi-Supervised Data-Fusion — Nov 2022—current

Advisor: Prof. Molei Liu; Columbia University
Propose an unbiased method to improve the asymptotic variance efficiency of estimator in generalized linear model for data with variable missing and missing label.
Sequentially project score function into the partially complete subset of data to implement unbiased estimation and include more data with variable missing and missing label. Skillfully apply orthogonality between residual and estimation in linear regression to simplify the calculation of asymptotical variance.
Quantify the asymptotic performance of the proposed estimator and show the guaranteed efficiency compared to naive method.

Genetics- Learning Conditional Density with high-dimensional covariates — March 2022—current

Advisor: Prof. Ying Wei; Columbia University
Propose a method to learn the non-linear TWAS association based on Monte Carlo integration.
Construct a supervised non-parametric method using spline method to estimate conditional density of expression level. The optimal number of mixture Gaussian model is obtained.
Consider the residual regression method to realize the dimension reduction for genotype data.

A Adaptive Linear Programming For Quantile Regression With Shared Design Matrix — Aug 2023—current

Advisor: Prof. Ethan Fang; Duke University. Prof. Ying Wei; Columbia University
Propose a novel fast estimating algorithm for quantile regressions that share common covariates. Fit the common variables first and then add or alternate other predictors to fitted results to obtain the optimal solutions efficiently. Further accelerate the algorithm for quantile level sequence by starting from the optimal solution from the previous similar quantile level setting.

A neural network approach for large-scale imputation for data with informative missingness by minimizing re-calibrated Wasserstein distance — March 2022—current

Advisor: Prof. Ying Wei; Columbia University, Mark He, post doc; Columbia University
Propose a re-weighted method to realize the distribution equivalence of missing and observed part within the informative missing case. Consider the Wasserstein distance to measure the quantile function loss in generative adversarial network
Assist in the completion of positive/negative missing direction correction process within the algorithm and finish the simulation in MNAR, MCAR, MAR with normal and heavy tail distribution.

WORKINNG EXPERIENCE

Bond Underwriting Department, China Securities International (Shanghai) — Sept 2020—Nov2020

Learned the knowledge of the fundamental types of bond in China and their registration requirements, including national debt, corporate debt, corporate private equity, short-term bonds, medium-term notes, and financial products from National Association of Financial Market Institutional Investors
Assisted in preparing materials for prospectus review, notified enterprises of approved prospectus

Teaching Assistant in Probability — Sept 2022— Dec 2022

Data analyst in Columbia (Research Assistant) — June 2023 — current

PUBLICATION

Published:
Wang, Dehua， Nieto, Juan J. Li, Xiaoping， Li, Yiming. **A Spatially Adaptive Edge-Preserving Denoising Method Based on Fractional-Order Variational PDEs**; published in IEEE Access, Volume: 8, Page: 163115-163128; electronic ISSN: 2169-3536

Will be submitted to arXiv in the near future:
A Double Projection Approach for Safe and Efficient Semi-Supervised Data-Fusion

***Revision phase after review*:**
A Adaptive Linear Programming For Quantile Regression With Shared Design Matrix

A neural network approach for large-scale imputation for data with informative missingness by minimizing re-calibrated Wasserstein distance (Previous name is **Re-calibrated Wasserstein GAN for large-scale imputation with informative missing**, can be found in OpenReview)

The authorized copies (maybe not the latest version) of the papers and research projects mentioned above can be found in my personal website https://chongchongknight.github.io/

SKILL

Statistical Computing and Data Engineering: Python(& Tensorflow), R, MATLAB, SQL
Languages : Mandarin(Native) and English(Fluent)