Baode GAO

100 Haven Ave, New York, NY 10032
(+1)917-470-7259 bg2715@columbia.edu

EDUCATION

Mailman School of Public Health, Columbia University, New York, US Sept. 2021 – May 2023

- Master's in Biostatistics
- Core Courses: Data Science / Biostatistics Method / Statistical Inference / Deep Learning

Department of Mathematical Science, Xi'an Jiaotong-Liverpool University (XJTLU), China Sept. 2016 – July. 2020

- Bachelor's in Applied Mathematics
- Contributed an article (**as first author**) to a known ACM conference
- Core Courses: Multivariable Calculus / Advanced Linear Algebra / Programming in Java / Statistical Distribution Theory / Numerical Analysis / Partial Differential Equations / Complex Analysis

RESEARCH EXPERIENCE

Subgroup Analysis Under Cure Rate Model Sep. 2021 – Jan. 2022

XJTLU | Department of Mathematical Science | Research Assistant

Advisor: Xiaojun Zhu, Lecturer at Department of Mathematical Science, XJTLU

- Deduced the likelihood function, expectations of latent variables, the approximation of the marginal likelihood and the estimation of baseline survival function
- Employed cox proportional-hazards model and logistic model to obtain the initial value of parameters of survival, cure rate and grouping functions
- Calculated baseline survival function and expectations of latent variables in E-step and estimated parameters by maximum likelihood estimation in M-step
- Compared our approach (AIC 1083.046) with Peng's model (AIC 1090.103, Likelihood ratio 13.057)
- Studied bootstrap inference by resampling conditional on the covariates and the censoring pattern

Link Prediction Based on Graph Neural Network Mar. 2021 – July 2021

BNU | Research Center for Mathematics | Research Assistant

Advisor: Shengxin Zhu, Associate Professor at School of Mathematical Science, BNU

- Learned fundamental principles behind graph neural network and applied GCN to MNIST data set
- Employed graph auto-encoders to solve link prediction task with MovieLens dataset (AUC 0.89, AP 0.87) and proposed a model based on message passing among topological structure and feature structure
- Delivered a presentation on graph neural network at the seminar of research center

Learning Linear Mixed Model for Group Recommendation System June 2018 – Nov. 2018

XJTLU | Department of Mathematical Science | Research Assistant

Advisor: Shengxin Zhu, Lecturer at Department of Mathematical Science, XJTLU

- Estimated the coefficients implying the latent association between items' attributes and users' characteristics
- Verified the choice of fixed effects and random effects with AIC, BIC, LogL and compared nested models by ANOVA test
- Tested the prediction accuracy of the model and compared with Fusion Heterogeneous Information Network
- Contributed a first-author paper to the International Conference on Machine Learning and Computing 2019

PUBLICATIONS

- Gao, B., Zhan, G., Wang, H., Wang, Y., & Zhu, S. (2019, February). Learning with Linear Mixed Model for Group Recommendation Systems. In *Proceedings of the 2019 11th International Conference on Machine Learning and Computing* (pp. 81-85). ACM.

AWARDS

- Honorable title of XJTLU Outstanding Student (2017-18, top 2.5%)
- Conference Travel Fellowship (2019, XJTLU)

SKILLS

- Read, tidied and visualized (R Shiny) data from web
- Mastered in R, Python