

# Baode GAO

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## EDUCATION

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

- Master's in Biostatistics
- Core Courses: Data Science 1 / Biostatistics Method

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

- Bachelor's in Applied Mathematics
- WES GPA: 3.84/4.00
- Contributed an article (**as first author**) to a known ACM conference
- Core Courses: Multivariable Calculus / Advanced Linear Algebra / Probability and Statistics / Programming in Java / Statistical Distribution Theory / Partial Differential Equations / Numerical Analysis / Complex Functions

## RESEARCH EXPERIENCE

**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 graph neural network theory and applied GNN to MNIST data set
- Implemented graph auto-encoders to solve link prediction task with MovieLens data set (AUC 0.89, AP 0.87) and a model based on message passing among topological structure and feature structure was proposed
- Delivered a presentation on graph neural network at the seminar of research center

**Subgroup Analysis Under Cure Rate Model** June 2019 – Sept. 2019

XJTLU | Department of Mathematical Science | Research Assistant

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

- Deduced complex formulas of latent variable expression and marginal likelihood function of nonparametric estimation
- Applied cox proportional-hazards model and logistic model to get the initial value of parameters and estimated them with EM algorithm
- Compared our approach (AIC 1083.046) with Peng's model (AIC 1090.103)
- Replaced dataset to support the validity and effectiveness of subgroup model

**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 ANOVA test and compared nested models
- Tested the prediction accuracy of the model (MAE 0.95) and compared with an existing method (MAE 1.35)
- Contributed a first-author paper to the International Conference on Machine Learning and Computing 2019 and delivered a presentation

## 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

- Fluent in English
- Programming Skills: Proficient in R, Python & MATLAB
- Office Applications: Microsoft Office, Microsoft Excel.