

FEIYAN MA

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EDUCATION

Tsinghua University
Undergraduate at Weiyang College
Major in Mathematics and Physics

Sep. 2021 - Jun. 2026 (expected)
Overall GPA: 3.88/4.00

SKILLS

Programming R, Python, \LaTeX , Git
Language Chinese (native), English (TOEFL 108 [R30/L26/S23/W29]), French

PUBLICATIONS & PREPRINTS

(indicates equal contribution.)*

(Preprint) Xinyuan Fan*, Feiyan Ma*, Chenlei Leng, Weichi Wu. “Low-Rank Approaches to Graphon Modeling in Networks”. (In submission. It will soon appear on arXiv, by around January 30th.)

RESEARCH EXPERIENCE

Low-Rank Approaches to Graphon Modeling in Networks Mar 2024 - Dec 2024
Supervised by Prof. Weichi Wu *DSDS, Tsinghua University*

- We propose a novel approach that directly leverages a low-rank representation of the graphon for parsimonious modeling. This representation naturally yields both a low-rank connection probability matrix and a low-rank graphon — two tasks that are often infeasible in existing literature — while also addressing the well-known identification issues in graphon estimation.
- By exploiting the additive structure of this representation, we develop an efficient sequential fitting algorithm that estimates the low-rank connection matrix using subgraph counts and reconstructs the graphon function through interpolation.
- We provide the convergence rate of our method, and validate its computational efficiency and estimation accuracy through comprehensive simulation studies.

RELEVANT COURSES

Undergraduate Core Courses: Probability Theory (1) (A+), Measures and Integrals (A), Numerical Analysis (A), Basic Functional Analysis (A), Linear Regression Analysis (A-), Statistical Inference (A-), Reliability Data and Survival Analysis (A), ...

Other Relevant Courses: Abstract Algebra (A), Topology (A), Differential Geometry (A), Financial Statistics (A+), Operation Research (A), Intro to Biostatistics (A), Intro to Optimization Theory (A-), Topics in Logics (A), Advanced Topics in Linear Algebra (A-), Partial Differential Equations (ongoing), ...

Graduate-Level Courses: Advanced Mathematical Statistics I (A), Advanced Mathematical Statistics II (A-), Computational Probability (A), Probability (2) (B+), Statistical Analysis of Network Data (ongoing), Advanced Statistical Methodology (ongoing)

HONORS & AWARDS

Honorable Mention , 2024 Mathematical Contest in Modeling	Feb 2024
Gold Medal , The 19th China Girls Mathematical Olympiad (CGMO)	Aug 2020
First Prize , National High School Mathematics League, Shanghai Region	Sep 2020