

FEI YANG

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RESEARCH INTERESTS

High-dimensional Statistics, Variable Selection, Nonparametric Statistics, Simultaneous Tolerance Interval

EDUCATION

The University of Manchester, Manchester, United Kingdom

Ph.D. Candidate in Statistics, Department of Mathematics

Anticipated Sept. 2027

Beihang University, Beijing, China

Master of Science in Statistics, GPA 3.65 /4.0, Major GPA: 3.74/4.0

Jun. 2023

Bachelor of Engineering in Mechanical Engineering Design, Major GPA: 3.69/4.0

Jun. 2020

· Graduated with First Class Honors (top 4%)

Israel Institute of Technology, Haifa, Israel

Visiting Student, Faculty of Electrical & Computer Engineering

Aug. 2019

Fuwai Hospital, State Key Laboratory of Cardiovascular Disease, Beijing, China

Visiting Student, Department of Epidemiology

Feb. 2022

PUBLICATIONS

Fei Yang, Yang Han, Wei Liu.(2025⁺). Bayesian simultaneous credible bands for polynomial regression
(Working Paper)

- To quantify the plausible range of an unknown function, we propose a Bayesian framework for constructing simultaneous credible bands (SCBs) for the true regression function $x^T\theta$ in univariate polynomial regressions over a given finite interval of the covariate x .
- Three approaches are considered to derive the posterior distribution of the parameters of interest, which are based on: the normal-gamma conjugate prior, the non-informative prior, and the Hamiltonian Monte Carlo (HMC) method separately.
- Simulation studies when $p = 1, 2, 3$ and real data analysis in dose-response studies verify the effectiveness of the proposed framework.

Zhichao Wang, Shanshan Wang, Wei Cao & Fei Yang.(2025⁺).Robust optimal reconciliation for hierarchical time series forecasting with M-estimation. *International Journal of Forecasting*. (Under Review)

- We incorporate the M estimation to obtain the reconciled forecasts by minimizing a robust loss function of transforming a group of base forecasts subject to the aggregation constraints. The related minimization procedure is developed and implemented through a modified Newton-Raphson algorithm via local quadratic approximation.
- Responsible for real data analysis (Section 4), including independently coding, computation with high-performance computing platforms, visualizing the results, and writing the initial draft.

Fei Yang & Shanshan Wang.(2023). Feature screening for high-dimensional generalized additive model with application. *Master's Dissertation*

- Developed a new type of variable selection framework for high-dimensional additive models with five methods. The approaches combined ideas from sparse additive models(SpAM),penalized additive model(penGAM) and the recent work in 3 types of coefficients of correlationto relax the smoothness assumption of the smooth functions.
- This framework is capable of capture nonlinear signals and oscillatory trajectory regardless of the distribution of the response. It is shown to enjoy the sure screening property. Extensive simulation studies and real-data analysis demonstrate its effectiveness.

RESEARCH EXPERIENCES

Ensemble Learning for Early Sepsis Prediction from Clinical Data **Beihang University**— Sept 2022

- Independently proposed an ensemble framework of XGBoost, Decision Tree to detect the presence of Sepsis using multi-source data, which surpassed traditional scoring systems by 4 hours.

Cardiovascular Risk Factors Prediction **Fuwai Hospital**— Feb. 2022

Predicting lifetime risk for developing atherosclerotic cardiovascular disease in Chinese population

- Compared proteomics-enabled ML algorithms with classical and clinical risk prediction methods for all-cause mortality in cohorts of patients with cardiovascular risk factors.

Data Mining in Learning Analytics **Carnegie Mellon University**— Aug. 2021

- Conducted statistical tests for computational models of human learning and performed Bayesian knowledge tracing to increase domain understanding.
- Presented work at a poster session in the LearnLab Summer School at CMU.

SELECTED HONORS & AWARDS

LMS Early Career Research Travel Grant —London Mathematical Society	Apr. 2025
FSE Doctoral Training and Development Support Fund —The University of Manchester	Dec. 2024
China Scholarship Council-The University of Manchester (CSC-UoM) Joint Scholarship	Jun. 2023
Outstanding Graduates —Beihang University	2020, 2023
Academic Scholarship —Beihang University	2018-2021
Graduate Scholarship —Beihang University	Aug. 2020
Merit Student, Excellent Student Cadre(Top 4%) —Beihang University	2017,2018,2019
National Patent(First Inventor)	Aug. 2019
Vice President— Beihang University Student Council, Department of Design	2017-2018
Class President—School of Mechanical Engineering & Automation,Beihang University	2017-2019

RESEARCH AFFILIATIONS

Student Member of International Society for Computational Biology

Student Member of The Econometric Society

Participant in International Workshop on Complex Functional Data Analysis Jun. 2022

TEACHING ASSISTANTSHIPS

Mathematics OF2 Teaching Lead	
<i>The University of Manchester</i> , Department of Mathematics	Spring 2025
Mathematics and Applications of Machine Learning Lab Assistant	
<i>The University of Manchester</i> , Department of Mathematics	Spring 2025
Practical Statistics Teaching Assistant	
<i>The University of Manchester</i> , Department of Mathematics	Fall 2024
Statistics I Teaching Assistant	
<i>The University of Manchester</i> , Department of Mathematics	Spring 2024
Non-parametric Statistics Teaching Assistant	
<i>Beihang University</i> , Department of Economics and Management	Spring 2022

COURSE HIGHLIGHTS

High-dimensional Data Analysis | Statistical Computing | Deep Learning | Compressed Sensing |Time Series Analysis| Statistical learning theory | Multivariate Statistical Analysis | Calculus | Linear Algebra | Probability Theory | Matrix Theory | Social Network Analysis |Generalized Linear Model|Convex Optimization and Approximation | Pattern Recognition and Image Processing| Microeconomics |

INDUSTRY INTERNSHIPS

Tencent Data Analyst Intern CSIG Department Tencent Automotive Intelligence Team	Jun. 2021 - Dec. 2021
BMW China Automotive Trading Ltd. Database Engineer Intern E-Mobility Department Intelligence & Steering Team	Jan. 2021 - May 2021
Xiaomi Technology Co., Ltd AI Product Intern Artificial Intelligence Department Xiaoi Team	May 2020 - Nov. 2020

SKILLS

Languages	TOEFL 106 (Best Score:111 R:29 L:30 S:25 W:27) GRE 323 (V:154 Q:169 AW:3.5)
Programming	C, Python, R, MATLAB, VBA, JavaScript, HTML + CSS + JavaScript, SQL, LaTeX. Qualification Certificate of Proficiency in Database System Engineer