

YUZE ZHAO

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Education

- **Beijing Normal University (BNU)** Beijing, China
M. S. - Fundamental Mathematics; GPA: 3.83/4 (90.5/100) Sep. 2023 – Now
Advisors: Prof. Dachun Yang and Prof. Wen Yuan
- **Dalian University of Technology (DUT)** Dalian, China
B. S. - Mathematics and Applied Mathematics; GPA: 3.42/4 (84.2/100); Sep. 2019 – Jul. 2023
Advisors: Prof. Junfeng Li and Dr. Suqing Wu

Papers

- F. Bu, D. Yang, W. Yuan and **Y. Zhao**, **Matrix Weights, Maximal Operators, Calderón–Zygmund Operators, and Besov–Triebel–Lizorkin-Type Spaces — A Survey**, Anal. Theory Appl. (to appear).
- S. Wu and **Y. Zhao**, **Truncations of Logarithmic Besov Spaces**, finished and currently under revision.

Awards

- 1st Prize Academic Scholarship, Beijing Normal University (CNY 12,000) 2024
- 1st Prize Freshman Scholarship, Beijing Normal University (CNY 10,000) 2023
- Hua Luogeng Scholarship, Chinese Academy of Sciences (CNY 2,300) 2022

Honors

- Outstanding TA for Undergraduate Courses, Beijing Normal University 2024
- Outstanding Undergraduate Thesis Award, Dalian University of Technology 2023
- Excellent Campers of Summer Camp, Shanghai Jiao Tong University 2022
- Excellent Campers of Summer Camp, Beijing Normal University 2022
- 3rd Prize of Undergraduate Mathematical Contest in Modeling, Liao Ning Province 2021
- 3rd Prize of Chinese Mathematics Competitions, Liao Ning Province 2020

Research Experiences

- **Qualitative and Quantitative Matrix-Weighted inequalities** Jan. 2023 – Oct. 2025
Advisor: Dachun Yang and Wen Yuan
 - **Matrix Weights:** establish new characterizations of A_∞ -matrix weights; collect characterizations of both scalar and matrix weights.
 - **Maximal Operators:** survey the maximal operators associated with matrix weights as well as weighted-norm inequalities.
 - **Fractional Integral Operators and Calderón–Zygmund Operators:** investigate the boundedness of fractional integral operators and Calderón–Zygmund operators.
 - **Dimensions of Weights:** recall the concepts of dimensions of weights; propose some open question.
- **Truncations of Logarithmic Besov Spaces** Sept. 2022 – Jun. 2023
Advisor: Junfeng Li and Suqing Wu
 - **Interpolation:** establish the interpolation of logarithmic Besov spaces with $p \in (0, 1)$.
 - **Boundedness of the Truncation Operator on Besov Spaces:** establish the boundedness on the Besov space of the truncation operator.

- **Quantitative strategy research with artificial intelligence**
Advisor: Mingsong Cheng and Ben Duan *Mar. 2021 – Apr. 2022*
 - **The Undergraduate Student Innovation Practice Program:**
 - (i) studied key machine learning algorithms (decision trees and SVM);
 - (ii) developed and implemented a dual moving average trading strategy;
 - (iii) backtested the strategy on historical market data, achieving relatively stable returns.

Conference

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- **BNU Harmonic Analysis Forum** Virtual
Participant *2024-Now*
 - **Harmonic Analysis and Its Applications** Beijing, China
Organizer *Oct. 2023*
 - **Beijing Workshop on Harmonic Analysis** Beijing, China
Participant *Aug. 2023*
 - **International Congress of Basic Science 2023** Beijing, China
Participant *Jul. 2023*

TA Experience

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- **Mathematical Analysis III** BNU
Organize Q & A and exercise classes for over 110 students. *Sep. 2023 – Dec. 2023*
 - **Mathematical Analysis I (Outstanding TA in 2024)** BNU
Organize Q & A and exercise classes for over 30 students. *Sep. 2024 – Dec. 2024*

Relevant Coursework

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| <ul style="list-style-type: none"> • Mathematical Analysis • Functional Analysis • Fourier Analysis | <ul style="list-style-type: none"> • Graph Theory • Numerical Approximation • Numerical Algebra | <ul style="list-style-type: none"> • Time Series Analysis • Python Programming • C++ Programming |
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Skills

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- **Programming:** Proficient in Matlab, Python, Markdown and L^AT_EX. Familiar with C++, R and SQL.
 - **Languages:** English (TOEFL - 103); Chinese (Native speaker).