YIFU ZHANG

+44 7778826772 | yifu.zhang@univ.ox.ac.uk

Oxford, UK

Research Interests

Numerical analysis; numerical and randomised linear algebra; approximation theory and Chebyshev approximation.

Education

- **University of Oxford** *Oct 2022-Jun 2026*
  Master of Mathematics Oxford, UK
  - First Class in all three years, final rank 24/126
  - Selected Coursework: Information Theory (79%); Functional Analysis II (74%); Probability, Measure and Martingale (79%).
  - Future Coursework: Numerical Linear Algebra; Random Matrix Theory; Continuous Optimisation; Finite Element Methods for PDE, and more.
- **Keystone Academy** *Graduated Jun 2022*
  International Baccalaureate Diploma Beijing, China
  - Final Grade: 43/45

Publications

C=Conference, J=Journal S=In Submission, T=Thesis

[S.1] Nakatsukasa, Yuji; Zhang, Yifu. 2025. "Efficient Function Approximation Under Heteroskedastic Noise." arXiv:2508.08683 [math.NA].

Research experiences

- **Efficient Function Approximation Under Heteroskedastic Noise** *Oct 2024-Jul 2025*
  Supervised by Prof. Yuji Nakatsukasa, University of Oxford [GitHub]
  - Developed HeteroChebtrunc, adapting Chebyshev-based approximation to non-uniform noise variance.
  - Proved high-probability sup-norm bounds under heteroskedastic sampling (for subgaussian noise).
  - Consistently lower sup-norm error across noise profiles; $O(N)$ runtime compared with its predecessor's $O(N \log N)$.
  - Open-sourced MATLAB code.
- **Project in Analytic Number Theory** *Jun 2024-Sept 2024*
  Supervised by Dr. Ofir Gorodetsky
  - Studied structural links between permutation groups and integers.
  - Generalised an asymptotic bound of Eberhard–Green–Ford (2016) under Ewens θ measure with $0 < \theta \leq 1$.
  - Extended key parts of the Ford (2016) framework from the uniform to Ewens θ measure.

Honors and Awards

- **Scholar (2025, 2024) and Exhibitioner (2023)**
  University College, University of Oxford
  - For outstanding performance in examinations. Awarded £300 each year.
- **Shing-Tung Yau High School Mathematics Award (2021)**
  Tsinghua University
  - Top 10 globally out of over 200 teams/individuals, for original research paper in coding theory.
- **Keystone Scholarship (2021, 2022)**
  Keystone Academy
  - Highest distinction awarded for academic performance and leadership
  - Full tuition coverage for final HS year and first undergraduate year.

Skills

Languages: English (Fluent), French (B1), Mandarin (Native).
Coding: Python (numpy, scipy), MATLAB (Chebfun)
Teaching: Tutoring for mock interviews; maths classes for summer school students (70+ hrs); creation of problem sets and exam papers.

References

Available upon request.