

John, Jun ZHAI

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Education

National University of Singapore

Aug 2024 – Present

PhD in Mathematics

Courses Taken: Representation Theory, Commutative and Homological Algebra, Lie Theory, Logic and Foundation of Mathematics II, Graduate Algebra I, Graduate Algebra II, Complex Analysis.

National University of Singapore

Aug 2020 – May 2024

B.Sc. in Mathematics and Physics (Honours, Highest Distinction).

Thesis: Large Cardinals

Keywords: Mathematical logic, consistency hierarchy, Zermelo-Fraenkel set theory.

Advisor: Prof. CHONG Chi Tat, NUS.

- Special Programme in Mathematics, a rigorous programme specially designed for a select group (≈ 10) of students who have a strong passion and aptitude for the mathematical sciences, especially pure mathematics.
- Achievements include Tin Ka Ping Foundation Scholarship, Tham Kai Shui Excelsior Scholarship, Dean's Lists (Top 5% students), etc.

Research Interests

Broadly in the areas of scientific AI and Mathematical Physics.

Other Research Experience

Advanced Undergraduate Research Opportunity Programme, NUS

2022

Thesis: Gauss Sums

Keywords: Number theory, Gauss sum, complex analysis, representation theory, weil representation.

Advisor: Prof. LOKE Hung Yean, NUS.

Young Science and Engineering Researchers Program, Tokyo Institute of Technology

2023

Project: Pseudospheres and Bäcklund transform

Keywords: Differential geometry, breather surface, Bäcklund transform, soliton theory.

Advisor: Prof. YAMADA Kotaro, Tokyo Tech.

Teaching Experience

Undergraduate/ Graduate Teaching Assistant, NUS

2023 – Present

- Assisted in undergraduate courses in calculus and quantitative finance.
- Graded assignments and exams.

Skills

- Programming: Python, Mathematica, MATLAB
- Typesetting: LaTeX, Overleaf
- Languages: English (fluent), Chinese (native)

Current Awards & Funding

NUS Research Scholarship

2024 – Present