John, Jun ZHAI

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Education

National University of Singapore — Aug 2024 – Present
PhD in Mathematics, AI4Math
Advisor: Prof. Liu YANG, NUS.
Co-advisor: Prof. Xinliang AN, NUS.

Courses Taken: Modeling and Numerical Simulations, 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

Scientific AI in solving PDEs/ODEs, In-Context Operator Learning, AlphaEvolve, AI theorem proving.

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, Lean (novice), LaTeX
- Languages: English (fluent), Chinese (native)

Current Awards & Funding

NUS Research Scholarship — 2024 – Present