Haoran Li

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Education

Ph.D. in Mathematics, University of Maryland, Graduated Oct 2024 (GPA 4.0/4.0)
B.S. in Mathematics and Applied Mathematics, Sun Yat-sen University, Graduated Jun 2018 (GPA 3.7/4.0)

Skills

Programming: Python, C++, C, Java, SQL, MATLAB, Git, LaTeX, Mathematica
Skills: Tensorflow, PyTorch, Keras, Regression analysis, Time series analysis, Credit risk assessment, Stochastic calculus, Derivative pricing, Linux, Git, Excel

Experience

Fixed Income Quant Researcher, LSEG, New York City — Feb 2025 - Present

- Submitted change request to codebase, thoroughly tested and successfully integrated into the production release.
- Conducted P&L portfolio optimization on corporate bonds, using ex-ante analysis.

Software Engineer Intern, Wolfram|Alpha, Remote — Jun 2023 – Aug 2023

- Developed step-by-step functions to solve sums and partial sums of several types of series, utilizing Visual Studio Code and Sourcetree, worked within the established framework and protocol of the Wolfram|Alpha Math team.
- Designed efficient algorithms to handle both standard and novel inputs, ensuring flexibility and accuracy.
- Conducted rigorous iterative testing to refine the functions, enhancing their robustness and reliability.
- Initiated pull requests and sought peer reviews, continuously revising the code until achieving unanimous approval. Successfully integrated selected implementations into the Wolfram|Alpha codebase for user access.

Graduate Assistant, University of Maryland, College Park, MD — Sep 2018 – Dec 2024

- Constructed models for integral motivic cohomology with multiple polylogarithms and associated Hodge structures. Proved pertinent theorems. Devised algorithms and developed packages for computations.

Instructor & Teaching Assistant, University of Maryland, College Park, MD — Sep 2018 – Dec 2024

- Developed comprehensive lecture notes and slides. Managed and maintained my teaching page.
- Proficient in making, grading tests and managing course using Canvas, Gradescope and Matlab Grader.
- Held regular office hours and review sessions.

Publications

The Lie coalgebra of multiple polylogarithms. Zachary Greenberg, Dani Kaufman, Haoran Li, Christian K. Zickert. J. Algebra, vol. 645, pp. 164-182.
Hopf algebras of multiple polylogarithms, and holomorphic one-forms. Zachary Greenberg, Dani Kaufman, Haoran Li, Christian K. Zickert. arxiv:2211.08337

Awards & Honors

- Dean's Fellowship, University of Maryland
- Hauptman Summer Fellowship, University of Maryland
- Aziz Osborn Gold Medal in Teaching Excellence, University of Maryland
- Scholarship of Canadian Alumni Association (Hong Kong)
- First prize on China Undergraduate Mathematical Contest in Modeling (CUMCM-2016)
- First-Class Scholarships, Sun Yat-sen University