332-256-5929
New Haven
haiyang.wang1024@gmail.com
Personal Website

Haiyang Wang

GitHub:
haiyangwang-1
LinkedIn:
haiyang-wang-hnsy

Education

Yale University **Aug 2023 - May 2027**
Ph.D in Applied Mathematics
Research Area: Information Theory, Decision Trees, Statistical Learning, Deep Learning.
Advisors: Yihong Wu and Ronald Coifman.

New York University **Aug 2018 - Dec 2022**
BA in Mathematics and BA in Computer Science
Advisor: Leslie Greengard

Work Experience

Simons Foundation **New York City**
Research Analyst (Advisor: Leslie Greengard) *Jan - July 2023*

- 100 times speed up for solving Stokes flow in large scale channel geometry.
- Fast algorithm for Helmholtz Equation, Lippmann Schwinger Equation, and Stokes Equation.
- Development of the software package Chunkie.

Projects and Papers

Theory of the XGBoost **2025**
With Yihong Wu

- Understanding of the convergence rate of XGBoost in simple settings, leads to principled parameter selection.
- Sharp characterization of XGBoost's consistency in the presence of missing values.
- Quantitative bound on the approximation error when inconsistent.
- Work in progress.

Scaling Law of the Uninformative Prior **2025**
With Alex Dytso, Luca Barletta, Yihong Wu

- Improved the lower bounds from previous works, arxiv:1901.03264 and arxiv:1705.01166.
- Pre-print available. In the process of being submitted to the *International Symposium on Information Theory* and *Transactions on Information Theory.*

Scattering Matrix for Stokes Flow **2023**
With Prof. Leslie Greengard, Simons Foundation

- 100 times speed up in solving large-scale channel geometry Stokes flow.
- Pre-print available. In the process of being submitted to the Journal of Computational Physics.

Skills

Programming Python, Pandas, NumPy, SciPy, JAX, PyTorch