Research

I work in the field of Numerical Linear Algebra, specifically on Krylov subspace methods. I'm interested in incorporating probabilistic techniques into classical algorithms to develop methods which are fast and reliable, both in theory and in practice. I'm committed to making my research accessible and to facilitating the reproducibility of my work. Please feel free to contact me with any questions or concerns about my research.

I am advised by Anne Greenbaum.

This page contains a collection of the things I've been working on recently. In general, I try to include a preprint and a description of the work which is readable by a broader audience interested in learning about or keeping up with recent advancements in the field. I also have some short introductory pieces on some interesting topics.

Publications

On the Convergence of Conjugate Gradient Varients in Finite Precision Arithmetic.

Anne Greenbaum, Hexuan Liu, and Tyler Chen.

In preparation.

Introductions to some topics I think are interesting

- The Conjugate Gradient Algorithm (pdf with everything below)
  - Introduction to Linear Systems/Krylov subspaces
  - Arnoldi and Lanczos methods
  - Derivation of CG
  - CG is Lanczos in disguise
  - Error bounds for CG
  - Finite precision CG
  - Current Research
- The Remez Algorithm

Collaboration

I'm always interested in finding things to collaborate on and people to collaborate with.

If you are an undergrad student interested in research or grad school, please feel free to reach out; I'd be happy to try to help you find something to work on! You may also be interested in the Women in Applied Mathematics Mentorship Program.