

Tianyi Shi

- CONTACT INFORMATION** Center for Applied Mathematics, +1(310)-874-5002
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Ithaca, NY, 14853, USA <https://people.cam.cornell.edu/ts777>
- RESEARCH INTERESTS** Numerical analysis, numerical linear algebra, scientific computing, approximation theory
- EDUCATION** **Center for Applied Mathematics, Cornell University**
Ph.D. Candidate, Applied Mathematics (expected May 2022)
 - Advisor: Prof. Alex Townsend
 - GPA: 3.907**University of California, Los Angeles**
B.S. in Applied Mathematics, June 2017
 - Cumulative GPA: 3.904 (summa cum laude)
 - Minor in statistics, Specialization in computing
- JOURNAL PUBLICATIONS** **T. Shi and A. Townsend, *On the compressibility of tensors*, SIAM J. Mat. Anal. Appl., 42 (2021), pp. 275-298.**
- SUBMITTED MANUSCRIPTS****H. Antil, D.P. Kouri, and T. Shi, *Spectral, tensor, and domain decomposition methods for fractional PDEs*, submitted to *Comput. Methods Appl. Math.***
 - Manuscript can be shared upon request since one of the authors is from Sandia National Laboratory.
 - Received minor revisions after first round of reviews.**T. Shi, M. Ruth, and A. Townsend, *Parallel algorithms for computing the tensor-train decomposition*, submitted to *SIAM J. Sci. Comput.***
- MANUSCRIPTS IN PREPARATION** **N. Boullé, K. Seick, T. Shi, and A. Townsend, *Learning Green's functions of time-dependent operators*, in preparation.**
- PRESENTATIONS** **Conference on Fast Direct Solvers (Virtual)**
 - Talk: Low tensor-train rank methods to solve Sylvester tensor equations. (Oct 2021)**SIAM Annual 2021 (Virtual)**
 - Talk: Parallel algorithms for the tensor-train decomposition. (Jul 2021)**International Congress on Industrial and Applied Mathematics (Valencia, Spain)**
 - Talk: What kind of tensors are compressible: fast Poisson solvers with low rank tensors. (Jul 2019)**28th Biennial Numerical Analysis Conference (University of Strathclyde, Strathclyde, UK)**
 - Talk: What kind of tensors are compressible? (Jun 2019)**Applied and Computational Math Seminar (George Mason University, Fairfax, VA)**
 - Talk: Numerical tensor-train ranks and tensor displacement structure. (Jun 2019)**Scientific Computing and Numerics Seminar (Cornell University, Ithaca, NY)**
 - Talk: Numerical tensor-train ranks and tensor displacement structure. (Apr 2019)
- TEACHING EXPERIENCE** **Instructor of Engineering Summer Math Institute program (Cornell University, Summer 2018)**
 - Mentored ten undergraduates from underrepresented ethnicities and groups in the STEM field in research projects on queueing theory, discrete modeling, and numerical methods.**Teaching Assistant (Cornell University)**
 - Math 2940: Linear Algebra for Engineers (Fall 2019, Spring 2020, Fall 2020)
 - ENGRD 3200: Numerical Methods for Engineers (Spring 2019)
 - Math 2930: Differential Equation for Engineers (Spring 2018)
- INTERNSHIP EXPERIENCE** **Research Assistant at Lawrence Berkeley National Laboratory (Virtual, Summer 2021)**
 - Worked with Dr. Xiaoye Sherry Li and Dr. Yang Liu on tensor equation methods to compute electron correlation energy in quantum chemistry.**Givens associate at Argonne National Laboratory (Virtual, Summer 2020)**
 - Worked with Dr. Zichao Wendy Di on tensor-based second order optimization algorithms with applications in tomography.**Research Assistant with Professor H. Antil (George Mason University, Fairfax, VA, Summer 2019)**

FELLOWSHIPS AND AWARDS

Deans Excellence Fellowship (Cornell University, Ithaca, NY, 2017)

PROFESSIONAL ACTIVITIES

Referee for **LAA**.

GRADUATE COURSEWORK

- Numerical Analysis
- Measure Theory
- Matrix Computations
- Data-sparse Matrices
- Applied Functional Analysis
- Parallel Computing
- Linear Programming
- Probability
- Partial Differential Equations
- Numerical Data Science
- Applied Dynamical Systems

RELEVANT SKILLS

Languages: English, Chinese
Programming: MATLAB, C++, C, Python, R, \LaTeX