

Tyler Chen

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<https://chen.pw>

Education

University of Washington 2017 - Present
Ph.D. in Applied Mathematics

- My research is focused on the design and analysis of conjugate gradient and Lanczos type algorithms in exact and finite precision arithmetic.

University of Washington 2017 - 2018
M.Sc. in Applied Mathematics

Tufts University 2013 - 2017
B.S. Summa Cum Laude in Mathematics and Physics; Minor in Studio Art

Publications

- [3] **Tyler Chen**. *Random variables in finite precision*. 2020. arXiv: 2007.11041 [math.ST]. [intro]
- [2] Anne Greenbaum, Hexuan Liu, and **Tyler Chen**. *On the Convergence Rate of Variants of the Conjugate Gradient Algorithm in Finite Precision Arithmetic*. 2019. arXiv: 1905.05874 [cs.NA]. [intro]
- [1] **Tyler Chen** and Erin C. Carson. "Predict-and-recompute conjugate gradient variants". In: *SIAM Journal on Scientific Computing* 42.5 (Jan. 2020), A3084–A3108. DOI: 10.1137/19m1276856. arXiv: 1905.01549 [cs.NA]. [intro]
 - abridged version was Student Paper Competition winner at 16th Copper Mountain Conference on Iterative Methods.

Talks and Posters

- [4] **Tyler Chen**, Erin C. Carson, and Anne Greenbaum. *Analyzing the Effects of Local Roundoff Error on Predict-and-Recompute Conjugate Gradient Variants*. Poster at Householder Symposium (Cancelled). June 2020.
- [3] **Tyler Chen**. *Predict-and-recompute conjugate gradient variants*. Presentation at Copper Mountain Student Paper Award Session (Cancelled). Mar. 2020.
- [2] **Tyler Chen** and Erin C. Carson. *Predict-and-recompute conjugate gradient variants*. Presentation at SIAM Parallel Processing. Feb. 2020. [pdf]
- [1] **Tyler Chen**. *Symmetric Preconditioner Refinement Using Low Rank Approximations*. Presentation at Baidu Research. Feb. 2019. [pdf]

Teaching

Instructor, Interdisciplinary Writing/Natural Science (UW ENGL 199) Autumn 2020
TA, Probability and Statistics for Computational Finance (UW CFRM 410) Winter 2019
TA, Calculus with Analytic Geometry I (UW MATH 124) Autumn 2018
TA, Calculus with Analytic Geometry II (UW MATH 12) Winter 2018
TA, Calculus with Analytic Geometry II (UW MATH 125) Autumn 2017
Lab TA, Electronics (Tufts PHY 41) Spring 2017
Lab TA, Electronics (Tufts PHY 41) Spring 2016
Grader, Discrete Mathematics (Tufts MATH 61) Spring 2016

Grader, Calculus III (Tufts MATH 42)	<i>Fall 2015</i>
Grader, Differential Equations (Tufts MATH 51)	<i>Spring 2015</i>
Grader, Calculus III (Tufts MATH 42)	<i>Fall 2014</i>

Awards & Honors

Boeing Research Award (UW Department of Applied Mathematics)	<i>2020</i>
Student Paper Competition winner (Copper Mountain Conference on Iterative Methods)	<i>2020</i>
Graduate Research Fellowship (NSF)	<i>2019</i>
Top Scholars Fellowship (UW)	<i>2017</i>
The Audrey Butvay Gruss Science Award (Tufts)	<i>2017</i>
Phi Beta Kappa (Tufts)	<i>2017</i>
Sigma Pi Sigma Physics Honors Society (Tufts)	<i>2016</i>
The Howard Sample Prize Scholarship in Physics (Tufts)	<i>2015</i>
Dean's List (Tufts)	<i>2013 - 2017</i>

Service and Outreach

Minisymposium Organizer	<i>Feb. 2020</i>
High performance Krylov subspace methods: Theory, Implementation, and Application (at SIAM Parallel Processing 20)[program]	
Graduate Student Representative	<i>2019 - 2020</i>
Represent interests of graduate students to the department	
Diversity Committee Departmental Climate Orientation	<i>Oct. 2019</i>
Pannelist for event focused on building an inclusive department culture	
Washington Directed Reading Program	<i>Autumn 2019</i>
Mentor undergraduate student in independent reading project	
Numerical Analysis Research Club	<i>2019-2020</i>
Organize and plan weekly meetings for NARC	
SIAM UW Mental Health Conversation and Resources	<i>Oct. 2018</i>
Organize and facilitate a discussion about mental health in grad school	

Software

PETSc (<https://www.mcs.anl.gov/petsc/>)
 Contribute [PIPEPRCG](#). This method can be used by with the flag `-ksp_type pipeprcg`.

Professional

Tufts Conference and Events Services	<i>2014 - 2017</i>
<i>Reservations Manager, Registrar, Facilitator</i>	
Oversee all housing reservations at Tufts University during the summer conference season; Coordinate and assist clients with logistical details relating to conferences; perform supervisory role overseeing and training new staff; schedule employee shifts (implemented a VBA/excel system to automate much of this process); prepare individualized printed materials for upcoming conferences.	
Tisch Library Digital Design Studio	<i>2014 - 2017</i>

Student Supervisor

Provide supervision to student workers; staff front desk at the Digital Design Studio; assist patrons with large format printing, recording, digitization equipment, and software.