Tyler Chen

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https://chen.pw

Education

University of Washington . . . . *Sept. 2017 - Present*
Ph.D. in Applied Mathematics (in progress)

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

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

Research

University of Washington (under Anne Greenbaum) . . . . *Mar. 2018 - Present*
Study the behavior of communication hiding/avoiding implementations of the conjugate gradient
algorithm in finite precision.

Soft Matter Theory . . . . *Apr. 2015 - Jan. 2017*
Optimize Monte Carlo simulations of rigid balls constrained to the surface of deformable ellipsoids

Research in Industrial Projects for Students Hong Kong . . . . *May 2016 - Aug. 2016*
Design and implement a short range underwater acoustic communication protocol for the Hong Kong
company ePropulsion

Publications

[2] **Tyler Chen** and Erin C. Carson. *Predict-and-recompute conjugate gradient variants.* 2019. arXiv: `1905.01549 [cs.NA]`.

[1] 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]`.

Talks and Posters

[2] **Tyler Chen**. *Symmetric Preconditioner Refinement Using Low Rank Approximations.* Presentation at Baidu Research. Feb. 2019. [pdf].

[1] **Tyler Chen**. *Predict-and-recompute conjugate gradient variants.* Presentation at Parallel Processing. Feb. 2020. [pdf].

Awards & Honors

Graduate Research Fellowship (NSF) . . . . *June 2019 - June 2022*
Top Scholars Fellowship (UW) . . . . *Fall 2017*
The Audrey Butvay Gruss Science Award (Tufts) . . . . *April 2017*
Phi Beta Kappa (Tufts) . . . . *April 2017*
Sigma Pi Sigma Physics Honors Society (Tufts) . . . . *May 2016*
The Howard Sample Prize Scholarship in Physics (Tufts) . . . . *April 2015*
Dean's List (Tufts) . . . . *All Semesters*

Teaching

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) . . . . *Fall 2015*
Grader, Differential Equations (Tufts MATH 51) . . . . *Spring 2015*
Grader, Calculus III (Tufts MATH 42) . . . . *Fall 2014*

Service and Outreach

Minisymposium Organizer . . . . *Feb. 2020*
High performance Krylov subspace methods: Theory, Implementation, and Application (at SIAM Parallel Processing 20) [program]

Graduate Student Representative . . . . *2019 - 2020*
Represent interests of graduate students to the department

Diversity Committee Departmental Climate Orientation . . . . *Oct. 2019*
Pannelist for event focused on building an inclusive department culture

Washington Directed Reading Program . . . . *Autumn 2019*
Mentor undergraduate student in independent reading project

Numerical Analysis Research Club *2019-2020*
Organize and plan weekly meetings for NARC

SIAM UW Mental Health Conversation and Resources . . . . *Oct. 2018*
Organize and facilitate a discussion about mental health in grad school

Software

PETSc
Contribute `PIPEPRCG`. This method can be used by with the flag `-ksp_type pipeprcg`.

Professional

Tufts Conference and Events Services . . . . *May 2014 - Aug. 2017*
Reservations Manager, Registrar, Facilitator
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 . . . . *Aug. 2014 - May 2017*
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.