

# Tyler Chen

---

chentyl@uw.edu  
<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 - August 2016*  
Design and implement a short range underwater acoustic communication protocol for the Hong Kong company ePropulsion

## Publications

---

- [2] Tyler Chen. *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

---

- [1] Tyler Chen. *Symmetric Preconditioner Refinement Using Low Rank Approximations*. Presentation at Baidu Research. 2019.

## 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*

## 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

## Outreach

---

<b>Graduate Student Representative</b> .....	Sept. 2019 - Sept. 2020
Represent interests of graduate students to the department	
<b>Numerical Analysis Research Club</b> .....	Spring 2019
Organize and plan weekly meetings for NARC research club	
<b>SIAM UW Mental Health Conversation and Resources</b> .....	October 2018
Organize and facilitate a discussion about mental health in grad school	

## Graduate Coursework

---

Randomized Algorithms and Probabilistic Analysis (UW CSE 525) .....	Spring 2019
Optimization: Fundamentals and Applications (UW AMATH 515) .....	Winter 2019
Design and Analysis of Algorithms (UW CSE 521) .....	Autumn 2018
Numerical Analysis of Time Dependent Problems (UW AMATH 586) .....	Spring 2018
Inferring Structure of Complex Systems (UW AMATH 563) .....	Spring 2018
Numerical Analysis of Boundary Value Problems (UW AMATH 585) .....	Winter 2018
Advanced Stochastic Processes (UW AMATH 562) .....	Winter 2018
Networks and Combinatorial Optimization (UW AMATH 514) .....	Winter 2018
Applied Linear Algebra and Introductory Numerical Analysis (UW AMATH 584) .....	Autumn 2017
Applied Complex Analysis (UW AMATH 567) .....	Autumn 2017
Introduction to Probability and Random Processes (UW AMATH 561) .....	Autumn 2017
Algebra 2 (Tufts MATH 216) .....	Spring 2017
Algebra I (Tufts MATH 215) .....	Fall 2016

## Professional

---

<b>Tufts Conference and Events Services</b> .....	May 2014 - Aug. 2017
<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.	
<b>Tisch Library Digital Design Studio</b> .....	Aug. 2014 - May 2017
<i>Student Supervisor</i>	
Provide supervision to student workers; staff front desk at the Digital Design Studio; assist patrons with large format printing, recording, digitization equipment, and software.	