

# Tyler Chen

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<http://chen.pw>

## Education

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

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

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

## Research

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

**Soft Matter Theory (under Tim Atherton, Chris Burke)** ..... *April 2015 - January 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

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*New communication hiding conjugate gradient variants.* **Tyler Chen.** In preparation.  
[arxiv:1905.01579](https://arxiv.org/abs/1905.01579). 2019.

*On the Convergence Rate of Variants of the Conjugate Gradient Algorithm in Finite Precision Arithmetic.* Anne Greenbaum, Hexuan Liu, **Tyler Chen.** Submitted to SISC. [arxiv:1905.05874](https://arxiv.org/abs/1905.05874). 2019.

## Posters and Talks

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*Symmetric Preconditioner Refinement Using Low Rank Approximations.* **Tyler Chen.** at Baidu Research. February 2019.

## Teaching

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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

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Graduate Research Fellowship (NSF) ..... *2019-2022*  
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

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**Numerical Analysis Research Club** ..... *Spring 2019*  
Organize and plan weekly meetings for NARC research club

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

## Graduate Coursework

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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 1 (Tufts MATH 215) ..... *Fall 2016*

## Professional

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**Tufts Conference and Events Services** ..... *May 2014 - August 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** ..... *August 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.