

# Guanghao Ye

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Last updated: Sept. 2022

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RESEARCH INTERESTS

- ◇ Design and Analysis of Algorithms
- ◇ Convex Optimization
- ◇ Spectral Graph Theory
- ◇ Learning Theory

EDUCATION

**Massachusetts Institute of Technology, Cambridge, MA**    **Sept.2021 – Present**  
Ph.D. student in Mathematics  
Advisor: Jonathan A. Kelner

**University of Washington, Seattle, WA**    **Mar. 2020 – Jun. 2021**  
M.S. in Computer Science  
Advisor: Yin Tat Lee  
Thesis: *A Nearly-Linear Time Algorithm for Linear Programs with Small Treewidth*

**University of Washington, Seattle, WA**    **Sept. 2017 – Mar. 2020**  
B.S. in Computer Science with Honors; B.S. in Mathematics  
Cum Laude  
Advisor: Yin Tat Lee  
Thesis: *Fast Algorithm for Solving Structured Convex Programs*

PAPERS

Following conventions of math and theoretical computer science, all author names are listed alphabetically.

**Decomposable Non-Smooth Convex Optimization with Nearly-Linear Gradient Oracle Complexity**

with Sally Dong, Haotian Jiang, Yin Tat Lee, and Swati Padmanabhan  
Neural Information Processing Systems (NeurIPS), 2022    arXiv: 2208.03811

**A Gradient Sampling Method with Complexity Guarantees for Lipschitz Functions in High and Low Dimensions**

with Damek Davis, Dmitriy Drusvyatskiy, Yin Tat Lee, and Swati Padmanabhan  
Neural Information Processing Systems (NeurIPS), 2022    arXiv: 2112.06969

**Nested Dissection Meets IPMs : Planar Min-Cost Flow in Nearly-Linear Time**

With Sally Dong, Yu Gao, Gramoz Goranci, Yin Tat Lee, Richard Peng, and Sushant Sachdeva  
Symposium on Discrete Algorithms (SODA), 2022    arXiv: 2205.01562

**A Nearly-Linear Time Algorithm for Linear Programs with Small Treewidth: A Multiscale Representation of Robust Central Path**

With Sally Dong and Yin Tat Lee    arXiv: 2011.05365  
Symposium on Theory of Computing (STOC), 2021

**Invited to SICOMP Special Issue**

**Robust Gaussian Covariance Estimation in Nearly-Matrix Multiplication Time**

with Jerry Li.    arXiv: 2006.13312  
Neural Information Processing Systems (NeurIPS), 2020

HONORS AND AWARDS	<ul style="list-style-type: none"> <li>◇ MIT Presidential Fellowship</li> <li>◇ Herbold Data Science Fellowship</li> <li>◇ UW Allen School Best Senior Thesis (Honorable Mention)</li> <li>◇ Microsoft Endowed Scholarship</li> <li>◇ 1<sup>st</sup> place in the ICPC UW Programming Contest</li> <li>◇ 5<sup>th</sup> place in the ICPC Pacific Northwest Regional</li> </ul>	<p>2021 – 2022</p> <p>2020 – 2021</p> <p>2020</p> <p>2018 – 2020</p> <p>2019</p> <p>2017/2018</p>
RESEARCH EXPERIENCE	<p><b>Research Intern</b></p> <p>May 2022 – Aug. 2022</p> <p>hosted by Zhao Song</p>	Adobe Research
INDUSTRY EXPERIENCE	<p><b>Software Engineer Intern</b></p> <p>June 2019 – Sept. 2019</p> <p>Payment Team</p>	Airbnb Seattle, WA
TALKS AND PRESENTATIONS	<p><b>Nested Dissection Meets IPMs : Planar Min-Cost Flow in Nearly-Linear Time</b></p> <p>MIT SPAMS, Cambridge, MA</p> <p>Huawei TCS Lab, Virtual</p> <p><b>A Nearly-Linear Time Algorithm for Linear Programs with Small Treewidth: A Multiscale Representation of Robust Central Path</b></p> <p>STOC, Virtual</p> <p><b>Robust Gaussian Covariance Estimation in Nearly-Matrix Multiplication Time</b></p> <p>NeurIPS, Virtual</p> <p><b>Finding Correlated Pairs</b></p> <p>UW Theory Lunch, Seattle, WA</p>	<p>Feb. 2022</p> <p>July 2022</p> <p>June 2021</p> <p>Dec. 2020</p> <p>Nov. 2019</p>
TEACHING	<p><b>CSE 421: Introduction to Algorithms:</b> Majors</p> <p>Spring 2018, Autumn 2018, Spring 2019, Winter 2020</p> <p><b>CSEP 521: Applied Algorithms:</b> Graduate Level</p> <p>Winter 2019</p>	
SERVICE	Conference review: STOC 2022, SODA 2022, AAAI 2023	
REFERENCES	Available upon request	