

# Victor Reis

<https://www.math.ias.edu/~voreis/>

Contact: vrstcs@gmail.com

**Work Experience**      **Microsoft Research (Redmond, WA)**      (Sep 2024 - present)  
Senior Researcher in the Algorithms group

**Institute for Advanced Study (Princeton, NJ)**      (Sep 2023 - Jun 2024)  
Member of Computer Science and Discrete Mathematics

**Education**      **University of Washington (Seattle, WA)**      (Sep 2018 - Aug 2023)  
Ph.D. in Theoretical Computer Science, advised by Thomas Rothvoss  
Thesis: Vector Balancing and Integer Programming

**Cornell University (Ithaca, NY)**      (Aug 2014 - May 2018)  
B.A. in Computer Science and Mathematics      (GPA 3.92/4.00)

**Internships**      **Research Intern at Microsoft Research (Redmond)**      (Summer 2023)  
Optimal online discrepancy minimization  
**Research Intern at Google**      (Summer 2021)  
Faster heuristics for multigraph edge partition  
**Quantitative Research Intern at Five Rings Capital**      (Summer 2017)  
Strategies for hedging positions in interest rate futures  
**Software Engineering Intern at Facebook**      (Summer 2016)  
Realtime data analysis development in Java

**CS Awards**      **Best Paper Award at FOCS 2023**      (Nov 2023)

**Coach of the UW ACM-ICPC Programming team**      (Sep 2019 – Feb 2023)  
Problem Setter for the UW Programming Contest      (Sep 2019 – Feb 2023)  
Participation at the 2023 ICPC World Finals (Luxor) as a coach  
Participation at the 2022 ICPC North American Championship (Orlando) as a coach  
Participation at the 2022 ICPC Pacific Northwest Regional Contest as a coach (1st place)  
Participation at the 2021 ICPC Pacific Northwest Regional Contest as a coach  
Participation at the 2019 ICPC Pacific Northwest Regional Contest as a coach

Paul G. Allen School First-Year Ph.D. Fellowship      (Sep 2018 - May 2019)

**Coach of the Cornell ACM-ICPC Programming team**      (Jan 2016 – May 2018)  
Participation at the 2018 ICPC World Finals (Beijing) as a coach  
Participation at the 2017 ICPC Greater NY Regional Contest as a coach (1st place)  
Participation at the 2017 ICPC World Finals (Rapid City) as a coach  
Participation at the 2016 ICPC Greater NY Regional Contest as a coach  
Participation at the 2016 ICPC World Finals (Phuket) as a contestant (top 40)  
Participation at the 2014 ICPC Greater NY Regional Contest as a contestant (1st place)  
Participation at the 2015 ICPC World Finals (Marrakesh) as a contestant (top 100)  
Participation at the 2014 ICPC Greater NY Regional Contest as a contestant (2nd place)

Publications	<b>Optimal Online Discrepancy Minimization</b>	
	with Janardhan Kulkarni and Thomas Rothvoss, <i>STOC 2024</i> .	
	<b>Linear-Sized Sparsifiers via Near-Linear Time Discrepancy Theory</b>	
	with Arun Jambulapati and Kevin Tian, <i>SODA 2024</i> .	
	<b>The Subspace Flatness Conjecture and Faster Integer Programming</b>	
	with Thomas Rothvoss, <i>FOCS 2023 Best Paper Award</i> . <a href="#">Quanta article</a> .	
	<b>The Vector Balancing Constant for Zonotopes</b>	
	with Rainie Bozzai and Thomas Rothvoss, <i>FOCS 2023</i> .	
	<b>Approximate Carathéodory bounds via Discrepancy Theory</b>	
	with Thomas Rothvoss, arXiv.	
	<b>A New Framework for Matrix Discrepancy: Partial Coloring Bounds via Mirror Descent</b>	
	with Daniel Dadush and Haotian Jiang, <i>STOC 2022</i> .	
	<b>Vector Balancing in Lebesgue Spaces</b>	
Service	with Thomas Rothvoss, <i>Random Structures &amp; Algorithms 2022</i> .	
	<b>A Tighter Relation Between Hereditary Discrepancy &amp; Determinant Lower Bound</b>	
Selected Talks	with Haotian Jiang, <i>SOSA 2022</i> .	
	<b>Tight bounds on the Fourier growth of bounded functions on the hypercube</b>	
	with Siddharth Iyer, Anup Rao, Thomas Rothvoss and Amir Yehudayoff, arXiv.	
	<b>An Elementary Exposition of Pisier's Inequality</b>	
	with Siddharth Iyer, Anup Rao, Thomas Rothvoss and Amir Yehudayoff, arXiv.	
	<b>Linear Size Sparsifier and the Geometry of the Operator Norm Ball</b>	
	with Thomas Rothvoss, <i>SODA 2020</i> .	
	Program Committee member FOCS (2024)	
	Reviewer FOCS (2019, 2023), STOC (2021, 2022), SODA (2023, 2024), SIDMA (2022, 2023), SICOMP (2024)	
	<b>STOC 2024:</b> Optimal Online Discrepancy Minimization	(Jun 2024)
	<b>Princeton Theory Lunch:</b> Optimal Online Discrepancy Minimization	(Mar 2024)
	<b>Princeton DM Seminar:</b> The Subspace Flatness Conjecture and Faster Integer Programming	(Feb 2024)
	<b>IAS CSDM Seminar:</b> Optimal Online Discrepancy Minimization	(Jan 2024)
	<b>NYU Theory Seminar:</b> Optimal Online Discrepancy Minimization	(Nov 2023)
	<b>EPFL Theory Seminar:</b> The Subspace Flatness Conjecture and Faster Integer Programming	(Nov 2023)
	<b>FOCS 2023:</b> The Subspace Flatness Conjecture and Faster Integer Programming	(Nov 2023)
	<b>TCS+:</b> The Subspace Flatness Conjecture and Faster Integer Programming	(Nov 2023)
	<b>Michigan Theory Talk:</b> The Subspace Flatness Conjecture and Faster Integer Programming	(Oct 2023)
	<b>Michigan Theory Seminar:</b> Optimal Online Discrepancy Minimization	(Oct 2023)
	<b>Rutgers Theory Seminar:</b> Optimal Online Discrepancy Minimization	(Oct 2023)
	<b>IAS Short Talk:</b> The Subspace Flatness Conjecture	(Oct 2023)
	<b>Probability and Analysis Webinar:</b> The Subspace Flatness Conjecture	(Sep 2023)
	<b>MSR Foundations Seminar:</b> Optimal Online Discrepancy Minimization	(Jul 2023)
	<b>CWI N&amp;O Seminar:</b> The Subspace Flatness Conjecture and Faster Integer Programming	(May 2023)
	<b>UW Theory Seminar:</b> The Subspace Flatness Conjecture and Faster Integer Programming	(Apr 2023)
	<b>UW Theory Lunch:</b> Approximate Carathéodory bounds via Discrepancy Theory	(Jul 2022)
	<b>STOC 2022:</b> A New Framework for Matrix Discrepancy	(Jun 2022)
	<b>UW Theory Lunch:</b> Solving Linear Recurrences and the Berlekamp-Massey algorithm	(Apr 2022)
	<b>SOSA 2022:</b> A Tighter Relation Between Hereditary Discrepancy and detLB	(Jan 2022)
	<b>BIRS Combinatorial and Geometric Discrepancy</b> Vector Balancing in Lebesgue Spaces	(Oct 2020)
	<b>UNT Banach Spaces Webinar:</b> An Elementary Exposition of Pisier's Inequality	(Oct 2020)
	<b>UW Theory Lunch:</b> Approximating Cut Norm via Grothendieck's Inequality	(Apr 2020)
	<b>UW Theory Seminar:</b> Discrepancy Theory & Graph Sparsification	(Oct 2019)

## Math Awards

Honorable Mention in the 2014 & 2017 Putnam Math Competition (top 70)  
1st place at the 2017 & 2018 Rochester Math Olympiad  
1st place at the 2015 Cornell Freshman Math Prize  
Bronze Medal at the 2014 International Math Olympiad (IMO) in Cape Town  
Silver Medal at the 2013 International Math Olympiad (IMO) in Santa Marta  
Gold Medal at the 2013 Cono Sur (Cone Sul) Math Olympiad in Asunción  
Silver Medal at the 2013 Iberoamerican Math Olympiad in Ciudad del Saber  
Bronze Medal at the 2013 Romanian Master of Mathematics in Bucharest  
Gold Medal (top 4) at the 2013 Brazilian Math Olympiad (OBM)  
Silver Medal at the 2012 Brazilian Math Olympiad

## Teaching

Teaching Assistant for Lattices (CSE 599)	(UW, Winter 2023)
Teaching Assistant for Advanced Toolkit for Modern Algorithms (CSE 422)	(UW, Spring 2022)
Teaching Assistant for Introduction to Algorithms (CSE 421)	(UW, Fall 2021)
Guest Lecturer for Introduction to Computing (CSE 311)	(UW, Spring 2019)
Teaching Assistant for Introduction to Algorithms (CS 4820)	(Cornell, Spring 2018)
Teaching Assistant for Introduction to Algorithms (CS 4820)	(Cornell, Spring 2017)
Teaching Assistant for Data Structures and Functional Programming (CS 3110)	(Cornell, Spring 2016)

## References

Thomas Rothvoss, Associate Professor at UW	(Ph.D. advisor)
Anup Rao, Associate Professor at UW	(Research collaborator)
Daniel Dadush, Senior Researcher at CWI	(Research collaborator)