Sepehr Assadi

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Personal Data

PROFESSIONAL
EXPERIENCE

◇ **Associate Professor** July 2023 to present
University of Waterloo, Cheriton School of Computer Science
Faculty of Mathematics Research Chair

◇ **Visiting Professor** July 2024 to present
Rutgers University, Department of Computer Science

◇ **Assistant Professor** September 2019 to July 2024
Rutgers University, Department of Computer Science

◇ **Postdoctoral Researcher** January 2019 to August 2019
Princeton University, Department of Computer Science
Supported by the Simons Collaboration on Algorithms and Geometry

◇ **Summer Intern** June 2017 to August 2017
Google Research (NYC), Algorithms & Optimization team

EDUCATION

◇ **PhD in Computer and Information Science**, August 2013 to December 2018
University of Pennsylvania, Department of Computer and Information Science

- Advisor: Sanjeev Khanna
- Thesis: Combinatorial Optimization on Massive Datasets: Streaming, Distributed, and Massively Parallel Computation
    * *EATCS Distinguished Dissertation Award*
    * *ACM-EATCS Principles of Distributed Computing Doctoral Dissertation Award*
    * *Rubinoff Dissertation Award from University of Pennsylvania*

◇ **B.Sc. in Computer Engineering**, September 2008 to July 2013
Sharif University of Technology, Department of Computer Engineering

- Thesis: The Rectangle Escape Problem
- Thesis supervisor: Hamid Zarrabi-Zadeh

HONORS AND
AWARDS

◇ Best Paper Award at Symposium on Theory of Computing, STOC 2025
– *Vizing's Theorem in Near-Linear Time*

◇ Best Paper Award at Symposium on Simplicity in Algorithms, SOSA 2025
– *Simple Sublinear Algorithms for $(\Delta + 1)$ Vertex Coloring via Asymmetric Palette Sparsification*

◇ IEEE Senior Member, 2024

◇ Outstanding Performance Award from University of Waterloo, 2024

◇ Alfred P. Sloan Research Fellowship, 2023

◇ Faculty of Mathematics Research Chair, University of Waterloo, 2023

◇ Individual Fulcrum Award from Rutgers Research Council, 2022

◇ Google Research Scholar Program Award, 2021

◇ National Science Foundation Faculty Early Career Development (CAREER) Award, 2020

◇ Best Paper Award at International Symposium on Distributed Computing, DISC 2020
 – *Improved Bounds for Distributed Load Balancing*

◇ ACM-EATCS Principles of Distributed Computing Doctoral Dissertation Award, 2019

◇ EATCS Distinguished Dissertation Award, 2019

◇ Rubinoff Dissertation Award, University of Pennsylvania, 2019

◇ Best Paper Award at Symposium on Discrete Algorithms, SODA 2019
 – *Sublinear Algorithms for $(\Delta + 1)$ Vertex Coloring*

◇ Best Paper Award at Symposium on Parallelism in Algorithms and Architectures, SPAA 2017
 – *Randomized Composable Coresets for Matching and Vertex Cover*

◇ Best Student Paper Award at Symposium on Principles of Database Systems, PODS 2017
 – *Tight Space-Approximation Tradeoff for the Multi-Pass Streaming Set Cover Problem*

◇ Best Paper Award at Conference on Web and Internet Economics, WINE 2015
 – *Fast Convergence in the Double Oral Auction*

◇ Ranked 8th in the Asia Regional ACM-ICPC Contest, Tehran, Iran, 2012

◇ Gold Medal in the Scientific Olympiad for University Students in Computer Science, Iran, 2012

◇ Ranked 10th in National Entrance Exam for M.Sc in Computer Science, Iran, 2010

Research and Scholarship

RESEARCH
INTERESTS

My research interest is in theoretical computer science, primarily algorithm design and complexity theory for modern models of computation. Most of my work is on **sublinear algorithms and lower bounds** in various models for processing massive datasets such as streaming, distributed, massively parallel, and sublinear time algorithms. More broadly, I am also interested in algorithmic graph theory, communication complexity, online algorithms, and algorithmic game theory.

SUMMARY OF
PUBLICATIONS

Metrics: According to Google Scholar, as of May 2025, my papers have been cited over 2400 times and my h-index is 29.

Primary publication venues: Conferences: *STOC, FOCS, SODA*; Journals: *SICOMP*.
In theoretical computer science, the most important venues of publications are conferences and not journals. *STOC* and *FOCS* are widely recognized as the most prestigious conferences in the field worldwide, followed by *SODA* which is the top conference dedicated to algorithm design.

Journal Invitations: Invited journal articles which are considered to be from the top 5-10 papers in a given conference, primarily as part of special issues:

SODA 2025 (TALG), SOSA 2025 (TheoretiCS), STOC 2024 (SICOMP), SOSA 2024 (TheoretiCS), SODA 2023 (TALG), FOCS 2022 (SICOMP), RANDOM 2020 (Theory of Computing), STOC 2020 (SICOMP), FOCS 2019 (SICOMP), SODA 2019 (TALG), SPAA 2017 (TOPC), EC 2017 (TEAC), STOC 2016 (SICOMP), EC 2016 (TEAC), WINE 2015 (TEAC), ISAAC 2012 (Algorithmica)

Lifetime summary of publications: The table lists all my publications starting from 2012:

	Submitted	Published
Conference papers	0	85
Journal papers	2	13
Editorial notes, etc.	0	4
Total	2	98
Keynotes		2
Invited talks at Workshops		25
Seminars and Colloquia		26
Conference talks		20
Total		73

PUBLICATIONS   In the following, as is the convention in theoretical computer science (TCS), all authorships are in alphabetical order with a few exception that are outside TCS and are marked explicitly.

Journals:

[13] *A Simple $(1-\epsilon)$-Approximation Semi-Streaming Algorithm for Maximum (Weighted) Matching*
S. Assadi
TheoretiCS Journal, 2025
Invited paper from SOSA 2024

[12] *Tight Bounds for Monotone Minimal Perfect Hashing*
S. Assadi, M. Farach-Colton, W. Kuzmaul
ACM Transaction on Algorithms (TALG), 2024
Invited paper in the **special issue** for SODA 2023 papers

[11] *Rounds vs Communication Tradeoffs for Maximal Independent Sets*
S. Assadi, G. Kol, Z. Zhang
SIAM journal on Computing (SICOMP), 2024
Invited paper in the **special issue** for FOCS 2022 papers

[10] *Brooks' Theorem in Graph Streams: A Single-Pass Semi-Streaming Algorithm for Δ-Coloring*
S. Assadi, P. Kumar, P. Mittal
TheoretiCS Journal, 2023

[9] *Improved Truthful Mechanisms for Combinatorial Auctions with Submodular Bidders*
S. Assadi, S. Singla
SIAM journal on Computing (SICOMP), 2022
Invited paper in the **special issue** for FOCS 2019 papers

[8] *Separating the Communication Complexity of Truthful and Non-Truthful Combinatorial Auctions*
S. Assadi, H. Khandeparkar, R. Saxena, M. Weinberg
SIAM journal on Computing (SICOMP), 2022
Invited paper in the **special issue** for STOC 2020 papers

[7] *Tight Bounds for Single-Pass Streaming Complexity of the Set Cover Problem*
S. Assadi, S. Khanna, Y. Li

SIAM journal on Computing (SICOMP), 2021
Invited paper in the **special issue** for STOC 2016 papers

[6] *Combinatorial Auctions Do Need Modest Interaction*
S. Assadi
ACM Transactions on Economics and Computation (TEAC), 2020
Invited paper in the **special issue** for EC 2017 papers

[5] *The Stochastic Matching Problem with (Very) Few Queries*
S. Assadi, S. Khanna, Y. Li
ACM Transactions on Economics and Computation (TEAC), 2019
Invited paper in the **special issue** for EC 2016 papers

[4] *Fast Convergence in the Double Oral Auction*
S. Assadi, S. Khanna, Y. Li, R. Vohra
ACM Transactions on Economics and Computation (TEAC), 2018
Invited paper in the **special issue** for WINE 2015 and EC 2016 papers

[3] *On the Rectangle Escape Problem*
A. Ahmadinejad, S. Assadi, E. Emamjomeh-Zadeh, S. Yazdanbod, H. Zarrabi-Zadeh
Theoretical Computer Science (TCS), 2017

[2] *A Compile-Time Optimization Method for WCET Reduction in Real-Time Embedded Systems
through Block Formation*
M. Mohajjel, M. Taram, S. Assadi, A. Ejlali (* in contribution order)
ACM Transactions on Architecture and Code Optimization (TACO), 2016

[1] *The Minimum Vulnerability Problem*
S. Assadi, E. Emamjomeh-Zadeh, A. Norouzi-Fard, S. Yazdanbod, H. Zarrabi-Zadeh
Algorithmica, 2014
Invited paper in the **special issue** for ISAAC 2012 papers

Conferences:

[85] *An Improved Fully Dynamic Algorithm for Counting 4-Cycles in General Graphs using Fast
Matrix Multiplication*
S. Assadi, V. Shah
Symposium on Principles of Database Systems, **PODS 2025**

[84] *Vizing's Theorem in Near-Linear Time*
S. Assadi, S. Behnezhad, S. Bhattacharya, M. Costa, S. Solomon, T. Zhang
57th ACM Symposium on Theory of Computing, **STOC 2025**
Best Paper Award
Invited Talk at **TCS+**

[83] *Covering Approximate Shortest Paths with DAGs*
S. Assadi, G. Hoppenworth, N. Wein
57th ACM Symposium on Theory of Computing, **STOC 2025**

[82] *Correlation Clustering and (De)Sparsification: Graph Sketches Can Match Classical Algorithms*
S. Assadi, S. Khanna, A. Putterman
57th ACM Symposium on Theory of Computing, **STOC 2025**

[81] *Simple Sublinear Algorithms for $(\Delta+1)$ Vertex Coloring via Asymmetric Palette Sparsification*
S. Assadi, H. Yazdanyar
SIAM Symposium on Simplicity in Algorithms, **SOSA 2025**
Best Paper Award
Invited to **TheoretiCS journal** for SOSA 2025 papers

[80] *Settling the Pass Complexity of Approximate Matchings in Dynamic Graph Streams*
S. Assadi, S. Behnezhad, C. Konrad, K. Naidu, J. Sundaresan
The 36th Annual ACM-SIAM Symposium on Discrete Algorithms, **SODA 2025**

[79] *Faster Vizing and Near-Vizing Edge Coloring Algorithms*
S. Assadi
The 36th Annual ACM-SIAM Symposium on Discrete Algorithms, **SODA 2025**

[78] *Streaming and Communication Complexity of Load-Balancing via Matching Contractors*
S. Assadi, A. Bernstein, Z. Langley, L. Lau, R. Wang
The 36th Annual ACM-SIAM Symposium on Discrete Algorithms, **SODA 2025**

[77] *Improved Bounds for Fully Dynamic Matching via Ordered Ruzsa-Szemerédi Graphs*
S. Assadi, S. Khanna, P. Kiss
The 36th Annual ACM-SIAM Symposium on Discrete Algorithms, **SODA 2025**

[76] *Polynomial Pass Semi-Streaming Lower Bounds for K-Cores and Degeneracy*
S. Assadi, P. Ghosh, B. Loff, P. Mittal, S. Mukhopadhyay
39th Computational Complexity Conference, **CCC 2024**

[75] *The Best Arm Evades: Near-optimal Multi-pass Streaming Lower Bounds for Pure Exploration in Multi-armed Bandits*
S. Assadi, C. Wang
37th Annual Conference on Learning Theory, **COLT 2024**

[74] *$\mathcal{O}(\log \log n)$ Passes is Optimal for Semi-Streaming Maximal Independent Set*
S. Assadi, C. Konrad, K. Naidu, J. Sundaresan
56th ACM Symposium on Theory of Computing, **STOC 2024**
Invited to **SICOMP** for STOC 2024 papers

[73] *Optimal Multi-Pass Lower Bounds for MST in Dynamic Streams*
S. Assadi, G. Kol, Z. Zhang
56th ACM Symposium on Theory of Computing, **STOC 2024**

[72] *A Simple $(1-\epsilon)$-Approximation Semi-Streaming Algorithm for Maximum (Weighted) Matching*
S. Assadi
SIAM Symposium on Simplicity in Algorithms, **SOSA 2024**
Invited to **TheoretiCS journal** for SOSA 2024 papers

[71] *Streaming Algorithms and Lower Bounds for Estimating Correlation Clustering Cost*
S. Assadi, V. Shah, C. Wang
37th Conference on Neural Information Processing Systems, **NeurIPS 2023**

[70] *Hidden Permutations to the Rescue: Multi-Pass Semi-Streaming Lower Bounds for Approximate Matchings*
S. Assadi, J. Sundaresan
64th IEEE Symposium on Foundations of Computer Science, **FOCS 2023**

University of Waterloo Faculty of Mathematics **Graduate Research Excellence Award**

[69] *Evaluating Stability in Massive Social Networks: Efficient Streaming Algorithms for Structural Balance*
V. Ashvinkumar, S. Assadi, C. Deng, J. Gao, C. Wang
Approximation, Randomization, and Combinatorial Optimization, **RANDOM 2023**

[68] *On Constructing Spanners from Random Gaussian Projections*
S. Assadi, M. Kapralov, H. Yu
Approximation, Randomization, and Combinatorial Optimization, **RANDOM 2023**

[67] *Fine-Grained Buy-Many Mechanisms Are Not Much Better Than Bundling*
S. Assadi, V. Kher, G. Li, A. Schvartzman
24th ACM Conference on Economics and Computation, **EC 2023**

[66] *Coloring in Graph Streams via Deterministic and Adversarially Robust Algorithms*
S. Assadi, A. Chakrabarti, P. Ghosh, M. Stoeckl
Symposium on Principles of Database Systems, **PODS 2023**

[65] *(Noisy) Gap Cycle Counting Strikes Back: Random Order Streaming Lower Bounds for Connected Components and Beyond*
S. Assadi, J. Sundaresan
55th ACM Symposium on Theory of Computing, **STOC 2023**

[64] *On Regularity Lemma and Barriers in Streaming and Dynamic Matching*
S. Assadi, S. Behnezhad, S. Khanna, H. Li
55th ACM Symposium on Theory of Computing, **STOC 2023**

[63] *All-Norm Load Balancing in Graph Streams via the Multiplicative Weights Update Method*
S. Assadi, A. Bernstein, Z. Langley
14th Innovations in Theoretical Computer Science, **ITCS 2023**

[62] *Tight Bounds for Monotone Minimal Perfect Hashing*
S. Assadi, M. Farach-Colton, W. Kuzmaul
The 34th Annual ACM-SIAM Symposium on Discrete Algorithms, **SODA 2023**
Invited to **TALG special issue** for SODA 2023 papers

[61] *Tight Bounds for Vertex Connectivity in Dynamic Streams*
S. Assadi, V. Shah
The SIAM Symposium on Simplicity in Algorithms, **SOSA 2023**

[60] *Generalizing Greenwald-Khanna Streaming Quantile Summaries for Weighted Inputs*
S. Assadi, N. Joshi, M. Prabhu, V. Shah
26th International Conference on Database Theory, **ICDT 2023**

[59] *Single-pass Streaming Lower Bounds for Multi-armed Bandits Exploration with Instance-sensitive Sample Complexity*
S. Assadi, C. Wang
36th Conference on Neural Information Processing Systems, **NeurIPS 2022**

[58] *Rounds vs Communication Tradeoffs for Maximal Independent Sets*
S. Assadi, G. Kol, Z. Zhang
The 63rd IEEE Symposium on Foundations of Computer Science, **FOCS 2022**

Invited to **SICOMP special issue** for FOCS 2022 papers

[57] *Asymptotically Optimal Bounds for Estimating H-Index in Sublinear Time*
with Applications to Subgraph Counting
S. Assadi, H. Nguyen
Approximation, Randomization, and Combinatorial Optimization, **APPROX 2022**

[56] *Hierarchical Clustering in Graph Streams: Single-Pass Algorithms and Space Lower Bounds*
S. Assadi, V. Chatziafratis, J. Lacki, V. Mirrokni, C. Wang
35th Annual Conference on Learning Theory, **COLT 2022**

[55] *Decremental Matching in General Graphs*
S. Assadi, A. Bernstein, A. Dudeja
49th International Colloquium on Automata, Languages and Programming, **ICALP 2022**

[54] *Deterministic Graph Coloring in the Streaming Model*
S. Assadi, A. Chen, G. Sun
54th ACM Symposium on Theory of Computing, **STOC 2022**

[53] *Brooks' Theorem in Graph Streams: A Single-Pass Semi-Streaming Algorithm for Δ-Coloring*
S. Assadi, P. Kumar, P. Mittal
54th ACM Symposium on Theory of Computing, **STOC 2022**

[52] *SPINE: Scaling up Programming-by-Negative-Example for String Filtering and Transformation*
C. Zuo, S. Assadi, D. Deng (* in contribution order)
ACM International Conference on Management of Data, **SIGMOD 2022**

[51] *An Asymptotically Optimal Algorithm for Maximum Matching in Dynamic Streams*
S. Assadi, V. Shah
The 13th Innovations in Theoretical Computer Science, **ITCS 2022**

[50] *Sublinear Time and Space Algorithms for Correlation Clustering via*
Sparse-Dense Decompositions
S. Assadi, C. Wang
The 13th Innovations in Theoretical Computer Science, **ITCS 2022**

[49] *A Two-Pass (Conditional) Lower Bound for Semi-Streaming Maximum Matching*
S. Assadi
The 33rd Annual ACM-SIAM Symposium on Discrete Algorithms, **SODA 2022**

[48] *Semi-Streaming Bipartite Matching in Fewer Passes and Optimal Space*
S. Assadi, A. Jambulapati, Y. Jin, A. Sidford, K. Tian
The 33rd Annual ACM-SIAM Symposium on Discrete Algorithms, **SODA 2022**

[47] *Ruling Sets in Random Order and Adversarial Streams*
S. Assadi, A. Dudeja
International Symposium on Distributed Computing, **DISC 2021**

[46] *On the Robust Communication Complexity of Bipartite Matching*
S. Assadi, S. Behnezhad
Approximation, Randomization, and Combinatorial Optimization, **RANDOM 2021**

[45] *Graph Connectivity and Single Element Recovery via Linear and OR Queries*
S. Assadi, D. Chakrabarty, S. Khanna
European Symposium on Algorithms, **ESA 2021**

[44] *Fully Dynamic Set Cover via Hypergraph Maximal Matching: An Optimal Approximation Through a Local Approach*
S. Assadi, S. Solomon
European Symposium on Algorithms, **ESA 2021**

[43] *Beating Two-Thirds for Random-Order Streaming Matching*
S. Assadi, S. Behnezhad
48th International Colloquium on Automata, Languages and Programming, **ICALP 2021**

[42] *Graph Streaming Lower Bounds for Parameter Estimation and Property Testing via a Streaming XOR Lemma*
S. Assadi, V. N
53rd ACM Symposium on Theory of Computing, **STOC 2021**

[41] *Improved Truthful Mechanisms for Subadditive Combinatorial Auctions: Breaking the Logarithmic Barrier*
S. Assadi, T. Kesselheim, S. Singla
The 32nd Annual ACM-SIAM Symposium on Discrete Algorithms, **SODA 2021**

[40] *A Simple Semi-Streaming Algorithm for Global Minimum Cuts*
S. Assadi, A. Dudeja
The SIAM Symposium on Simplicity in Algorithms, **SOSA 2021**

[39] *An Auction Algorithm for Bipartite Matching in Streaming and Massively Parallel Computation Models*
S. Assadi, C. Liu, R. Tarjan
The SIAM Symposium on Simplicity in Algorithms, **SOSA 2021**

[38] *Near-Quadratic Lower Bounds for Two-Pass Graph Streaming Algorithms*
S. Assadi, R. Raz
The 61st IEEE Symposium on Foundations of Computer Science, **FOCS 2020**

[37] *Multi-Pass Graph Streaming Lower Bounds for Cycle Counting, MAX-CUT, Matching Size, and Other Problems*
S. Assadi, G. Kol, R. Saxena, H. Yu
The 61st IEEE Symposium on Foundations of Computer Science, **FOCS 2020**

[36] *Improved Bounds for Distributed Load Balancing*
S. Assadi, A. Bernstein, Z. Langley
International Symposium on Distributed Computing, **DISC 2020**
Best Paper Award

[35] *Palette Sparsification Beyond $(\Delta + 1)$ Vertex Coloring*
N. Alon, S. Assadi
Approximation, Randomization, and Combinatorial Optimization, **RANDOM 2020**

[34] *Lower Bounds for Distributed Sketching of Maximal Matchings and Maximal Independent Sets*
S. Assadi, G. Kol, R. Oshman
ACM Symposium on Principles of Distributed Computing, **PODC 2020**

[33] *Exploration with Limited Memory: Streaming Algorithms for Coin Tossing, Noisy Comparisons, and Multi-Armed Bandits*
S. Assadi, C. Wang
52nd ACM Symposium on Theory of Computing, **STOC 2020**

[32] *Separating the Communication Complexity of Truthful and Non-Truthful Combinatorial Auctions*
S. Assadi, H. Khandeparkar, R. Saxena, M. Weinberg
52nd ACM Symposium on Theory of Computing, **STOC 2020**
Invited to **SICOMP special issue** for STOC 2020 papers

[31] *Improved Truthful Mechanisms for Combinatorial Auctions with Submodular Bidders*
S. Assadi, S. Singla
60th Annual IEEE Symposium on Foundations of Computer Science, **FOCS 2019**
Invited to **SICOMP special issue** for FOCS 2019 papers
Invited to **Highlights Beyond EC** in EC'20
Invited research article in **SIGecom Exchanges**

[30] *Secretary Ranking with Minimal Inversions*
S. Assadi, E. Balkanski, R. Paes Leme
33rd Conference on Neural Information Processing Systems, **NeurIPS 2019**

[29] *Massively Parallel Algorithms for Finding Well-Connected Components*
S. Assadi, X. Sun, O. Weinstein
ACM Symposium on Principles of Distributed Computing, **PODC 2019**

[28] *Distributed Weighted Matching via Randomized Composable Coresets*
S. Assadi, M. Bateni, V. Mirrokni
36th International Conference on Machine Learning, **ICML 2019**

[27] *When Algorithms for Maximal Independent Set and Maximal Matching Run in Sublinear Time*
S. Assadi, S. Solomon.
46th International Colloquium on Automata, Languages and Programming, **ICALP 2019**

[26] *Distributed and Streaming Linear Programming in Low Dimensions*
S. Assadi, N. Karpov, Q. Zhang.
38th Annual ACM Symposium on Principles of Database Systems, **PODS 2019**
Invited to **TODS special issue** for PODS 2019 papers

[25] *Polynomial Pass Lower Bounds for Graph Streaming Algorithms*
S. Assadi, Y. Chen, S. Khanna.
51st ACM Symposium on Theory of Computing, **STOC 2019**

[24] *A Simple Sublinear-Time Algorithm for Counting Arbitrary Subgraphs via Edge Sampling*
S. Assadi, M. Kapralov, S. Khanna.
10th Innovations in Theoretical Computer Science, **ITCS 2019**
Invited Talk at **TCS+**

[23] *Sublinear Algorithms for* $(\Delta + 1)$ *Vertex Coloring*
S. Assadi, Y. Chen, S. Khanna.
30th Annual ACM-SIAM Symposium on Discrete Algorithms, **SODA 2019**
Best Paper Award
Invited to Highlights of Algorithms, **HALG 2020**

[22] *Coresets Meet EDCS: Algorithms for Matching and Vertex Cover on Massive Graphs*
S. Assadi, M. Bateni, A. Bernstein, V. Mirrokni, C. Stein
30th Annual ACM-SIAM Symposium on Discrete Algorithms, **SODA 2019**

[21] *Fully Dynamic Maximal Independent Set with Sublinear in n Update Time*
S. Assadi, K. Onak, B. Schieber, S. Solomon.
30th Annual ACM-SIAM Symposium on Discrete Algorithms, **SODA 2019**

[20] *Stochastic Submodular Cover with Limited Adaptivity*
A. Agarwal, S.Assadi, S. Khanna.
30th Annual ACM-SIAM Symposium on Discrete Algorithms, **SODA 2019**

[19] *Towards a Unified Theory of Sparsification for Matching Problems*
S. Assadi, A. Bernstein.
2nd Symposium on Simplicity in Algorithms, **SOSA 2019**

[18] *Fully Dynamic Maximal Independent Set with Sublinear Update Time*
S. Assadi, K. Onak, B. Schieber, S. Solomon.
50th Annual ACM Symposium on the Theory of Computing, **STOC 2018**

[17] *Tight Bounds on the Round Complexity of the Distributed Maximum Coverage Problem*
S. Assadi, S. Khanna.
29th Annual ACM-SIAM Symposium on Discrete Algorithms, **SODA 2018**

[16] *Randomized Composable Coreset for Matching and Vertex Cover*
S. Assadi, S. Khanna
29th Annual ACM Symposium on Parallelism in Algorithms and Architectures, **SPAA 2017**
Best Paper Award
Invited to Highlights of Algorithms, **HALG 2018**

[15] *Learning with Limited Rounds of Adaptivity: Coin Tossing, Multi-Armed Bandits, and Ranking from Pairwise Comparisons*
A. Agarwal, S. Agarwal, S. Assadi, S. Khanna
30th Annual Conference on Learning Theory, **COLT 2017**

[14] *Combinatorial Auctions Do Need Modest Interaction*
S. Assadi
18th ACM Conference on Economics and Computation, **EC 2017**
Invited to **TEAC special issue** for EC 2017 papers

[13] *The Stochastic Matching Problem: Beating Half with a Non-Adaptive Algorithm*
S. Assadi, S. Khanna, Y. Li
18th ACM Conference on Economics and Computation, **EC 2017**

[12] *Tight Space-Approximation Tradeoff for the Multi-Pass Streaming Set Cover Problem*
S. Assadi
36th Annual ACM Symposium on Principles of Database Systems, **PODS 2017**
Best Student Paper Award

[11] *On Estimating Maximum Matching Size in Graph Streams*
S. Assadi, S. Khanna, Y. Li
28th Annual ACM-SIAM Symposium on Discrete Algorithms, **SODA 2017**
Invited to Highlights of Algorithms, **HALG 2017**

[10] *Tight Bounds for Single-Pass Streaming Complexity of the Set Cover Problem*
S. Assadi, S. Khanna, Y. Li
48th Annual Symposium on the Theory of Computing, **STOC 2016**
Invited to **SICOMP special issue** for STOC 2016 papers

[9] *The Stochastic Matching Problem With (Very) Few Queries*
S. Assadi, S. Khanna, Y. Li
17th ACM Conference on Economics and Computation, **EC 2016**
Invited to **TEAC special issue** for EC 2016 papers

[8] *Algorithms for Provisioning Queries and Analytics*
S. Assadi, S. Khanna, Y. Li, V. Tannen
19th International Conference on Database Theory, **ICDT 2016**

[7] *Maximum Matchings in Dynamic Graph Streams and the Simultaneous Communication Model*
S. Assadi, S. Khanna, Y. Li, G. Yaroslavtsev
27th Annual ACM-SIAM Symposium on Discrete Algorithms, **SODA 2016**

[6] *Dynamic Sketching for Graph Optimization Problems with Applications to Cut-Preserving Sketches*
S. Assadi, S. Khanna, Y. Li, V. Tannen
35th IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science, **FSTTCS 2015**

[5] *Fast Convergence in the Double Oral Auction*
S. Assadi, S. Khanna, Y. Li, R. Vohra
11th Conference on Web and Internet Economics, **WINE 2015**
Best Paper Award
Invited to **TEAC special issue** for WINE 2015 and EC 2016 papers

[4] *Online Assignment of Heterogeneous Tasks in Crowdsourcing Markets*
S. Assadi, J. Hsu, S. Jabbari
3rd AAAI Conference on Human Computation & Crowdsourcing, **HCOMP 2015**

[3] *Complexity of the Minimum Input Selection Problem for Structural Controllability*
S. Assadi, S. Khanna, Y. Li, V. Preciado
5th IFAC Workshop on Distributed Estimation and Control in Networked Systems, **NecSys 2015**

[2] *On The Rectangle Escape Problem*
S. Assadi, E. Emamjomeh-Zadeh, S. Yazdanbod, H. Zarrabi-Zadeh
25th Canadian Conference on Computational Geometry, **CCCG 2013**

[1] *The Minimum Vulnerability Problem*
S. Assadi, E. Emamjomeh-Zadeh, A. Norouzi-Fard, S. Yazdanbod, H. Zarrabi-Zadeh
23rd International Symposium on Algorithms and Computation, **ISAAC 2012**
Invited to **Algorithmica special issue** for ISAAC 2012 papers

Editorial Notes:

[4] *Recent Advances in Multi-Pass Graph Streaming Lower Bounds*
S. Assadi
ACM SIGACT NewsVolume 54, Issue 3, **SIGACT 2023**

[3] *Introduction to Special Issue on ACM-SIAM Symposium on Discrete Algorithms (SODA) 2020*
G. Kamath, S. Assadi, A. Driemel, J. Kulkarni
ACM Transaction on Algorithms, **TALG 2022**

[2] *Improved truthful mechanisms for combinatorial auctions with submodular bidders*
S. Assadi, S. Singla
ACM SIGecom Exchanges, **SIGecom 2020**

[1] *SPAA 2017 Review*
S. Assadi
SIGACT News 48(4), **SIGACT 2017**

<div style="display:flex"><div>INVITED
TALKS</div></div>

Keynotes:

[2] Conference on Applied and Computational Discrete Algorithms (ACDA 2025)   August 2025
Finding Large Matchings in Dynamic Graphs via Extremal Graph Theory

[1] International Symposium on Distributed Computing (DISC 2022)   October 2022
Keynote: Graph Coloring, Palette Sparsification, and Beyond

Workshops and Other Events:

[25] Workshop on Algorithms for Large Data (Online), WALDO 2025   April 2025
Distributed Triangle Detection is Hard in Few Rounds

[24] RR-Fest (in celebration of Ronitt Rubinfeld's 60th Birthday)   August 2024
Simple Sublinear Algorithms for Vertex Coloring

[23] Workshop on Local Algorithms (WOLA)   August 2024
$\mathcal{O}(\log \log n)$ *Passes is Optimal for Semi-Streaming Maximal Independent Set*

[22] Simons Institute workshop on Sublinear Graph Simplification   July 2024
Improved Bounds for Fully Dynamic Matching via Ordered Ruzsa-Szemeredi Graphs

[21] Simons Institute workshop on Extroverted Sublinear Algorithms   June 2024
Sublinear Insights: A Faster (Classical) Algorithm for Edge Coloring

[20] Simons Institute workshop on Sublinear Algorithms Boot Camp   May 2024
New Advances in Multi-Pass Graph Streaming Lower Bounds

[19] Simons Institute workshop on Sublinear Algorithms Boot Camp   May 2024
Graph Coloring Through the Sublinear Lens

[18] FOCS'23 Workshop: Exploring the Frontiers of Adaptive Robustness   November 2023
Coloring in Graph Streams via Deterministic and Adversarially Robust Algorithms

[17] Simons Institute workshop on Sketching and Algorithm Design   October 2023
A Simple $(1-\epsilon)$-Approximation Adaptive Sketching Algorithm for Maximum (Weight) Matching

[16] DIMACS Workshop on Modern Techniques in Graph Algorithms   June 2023
Tutorial: Ruzsa-Szemerédi Graphs and their Applications

[15] Highlights of Algorithms Conference   June 2023
Survey: Lower Bound Techniques for Multi-Pass Streaming Algorithms

[14] Sublinear Workshop at EPFL Bernoulli Center   December 2022
A (Slightly) Sublinear Space Streaming Algorithm for Matchings

[13] Workshop on Advances in Distributed Graph Algorithms (ADGA)   October 2022
Lower Bounds for Distributed Sketching

[12] Simons-DIMACS Workshop on Lower Bounds and Frontiers in Data Structures   August 2022
Tight Bounds for Monotone Minimal Perfect Hashing

[11] FODSI Workshop on Sublinear Algorithms   August 2022
A (Slightly) Sublinear Space Streaming Algorithm for Matchings

[10] Banff Workshop on Communication Complexity and Applications III   July 2022
Recent Advances in Multi-Pass Graph Streaming Lower Bounds

[9] Workshop on Algorithms and Foundations for Data Science   June 2022
Brooks' Theorem in Graph Streams

[8] Workshop on Algorithms for Large Data (Online), WALDO 2021   August 2021
Multi-Pass Graph Streaming Lower Bounds for Parameter Estimation and Property Testing Problems

[7] INFORMS Session on Bandits Meet Optimization   November 2020
Exploration with Limited Memory: Streaming Algorithms for Multi-Armed Bandits

[6] Highlights of Algorithms Conference   August 2020
Sublinear Algorithms for $(\Delta + 1)$ Vertex Coloring

[5] New York Area Theory Day   May 2019
Sublinear Algorithms for $(\Delta + 1)$ Vertex Coloring

[4] TCS+ Online Seminar   February 2019
A Simple Sublinear-Time Algorithm for Counting Arbitrary Subgraphs via Edge Sampling

[3] Simons Institute meeting on Algorithms and Geometry Collaboration   February 2019
Sublinear Algorithms for $(\Delta + 1)$ Vertex Coloring

[2] Simons Institute workshop on Sublinear Algorithms and Nearest-Neighbor Search   November 2018
Sublinear Algorithms for $(\Delta + 1)$ Vertex Coloring

[1] Linear Sketching as a Tool for Everything workshop at FOCS'17   October 2017
Lower Bounds for Linear Sketches of Approximate Matchings and Matrix Rank

Seminars and Colloquia:

[26] University of Texas at Austin   April 2025
  Vizing's Theorem in Near-Linear Time

[25] University of Toronto Theory Seminar   March 2024
  $\mathcal{O}(\log \log n)$ *Passes is Optimal for Semi-Streaming Maximal Independent Set*

[24] UWaterloo Combinatorial Optimization Reading Group   November 2023
  Multiplicative Weight Update (MWU) Method for Solving Packing/Covering LPs

[23] UWaterloo William Tutte Colloquium   October 2023
  A Simple Sparsification Algorithm for Maximum Matching with Applications to Graph Streams

[22] UWaterloo Algorithms & Complexity Seminar   September 2023
  Hidden Permutations to the Rescue:
  Multi-Pass Semi-Streaming Lower Bounds for Approximate Matchings

[21] UPenn CS Theory Seminar   March 2023
  An Asymptotically Optimal Algorithm for Maximum Matching in Dynamic Streams

[20] Harvard Theory of Computation Seminar   March 2023
  A (Slightly) Sublinear Space Streaming Algorithm for Matchings

[19] NYU Theory Seminar   September 2022
  Deterministic Graph Coloring in the Streaming Model

[18] MIT Algorithms and Complexity Seminar   March 2022
  Deterministic Graph Coloring in the Streaming Model

[17] Rutgers Discrete Math Seminar   October 2021
  Palette Sparsification for Vertex Coloring

[16] University of Washington Theory Seminar   March 2021
  Multi-Pass Graph Streaming Lower Bounds for Parameter Estimation and Property Testing

[15] Rutgers/DIMACS Theory Seminar   September 2019
  Improved Truthful Mechanisms for Combinatorial Auctions with Submodular Bidders

[14] MIT Theory of Computation Colloquium   May 2019
  Sublinear Algorithms for $(\Delta + 1)$ *Vertex Coloring*

[13] Cornell CS Theory Seminar   May 2019
  Sublinear Algorithms for $(\Delta + 1)$ *Vertex Coloring*

[12] Google NYC Research Seminar   April 2019
  Sublinear Algorithms for $(\Delta + 1)$ *Vertex Coloring*

[11] Princeton Theory Seminar   April 2019
  Polynomial Pass Lower Bounds in Graph Streams

[10] Rutgers/DIMACS Theory Seminar   March 2019
      Polynomial Pass Lower Bounds in Graph Streams

[9] Indiana Theory Seminar   November 2017
     Tight Bounds on the Round Complexity of the Distributed Maximum Coverage Problem

[8] Columbia Theory Seminar   October 2017
     Tight Bounds on the Round Complexity of the Distributed Maximum Coverage Problem

[7] IBM Watson Research Seminar   September 2017
     Randomized Composable Coreset for Matching and Vertex Cover

[6] Google NYC Research Seminar   July 2017
     Learning with Limited Rounds of Adaptivity

[5] Upenn Theory Seminar   April 2017
     Combinatorial Auctions Do Need Modest Interaction

[4] Johns Hopkins Algorithms and Complexity Seminar   April 2017
     Matching Size and Matrix Rank Estimation in Data Streams

[3] Google NYC Research Seminar   November 2016
     Tight Bounds for Single-Pass Streaming Complexity of the Set Cover Problem

[2] Columbia Theory Seminar   January 2016
     Tight Bounds for Linear Sketches of Approximate Matchings

[1] Upenn Theory Seminar   January 2016
     Tight Bounds for Linear Sketches of Approximate Matchings

Conference Talks:

[20] SIAM Symposium on Simplicity in Algorithms (SOSA'25)   January 2025
      Simple Sublinear Algorithms for $(\Delta+1)$ Vertex Coloring via Asymmetric Palette Sparsification

[19] ACM-SIAM Symposium on Discrete Algorithms (SODA'25)   January 2025
      Faster Vizing and Near-Vizing Edge Coloring Algorithms

[18] ACM-SIAM Symposium on Discrete Algorithms (SODA'25)   January 2025
      Improved Bounds for Fully Dynamic Matching via Ordered Ruzsa-Szemerédi Graphs

[17] SIAM Symposium on Simplicity in Algorithms (SOSA'24)   January 2024
      A Simple $(1-\epsilon)$-Approximation Semi-Streaming Algorithm for Maximum (Weighted) Matching

[16] ACM-SIAM Symposium on Discrete Algorithms (SODA'22)   January 2022
      A Two-Pass (Conditional) Lower Bound for Semi-Streaming Maximum Matching

[15] RANDOM: The Conference (RANDOM'21)   August 2021
      On the Robust Communication Complexity of Bipartite Matching

[14] RANDOM: The Conference (RANDOM'20)   August 2020
     Palette Sparsification Beyond $(\Delta + 1)$ Vertex Coloring

[13] ACM Symposium on Principles of Distributed Computing (PODC'20)   August 2020
     Lower Bounds for Distributed Sketching of Maximal Matchings and Maximal Independent Sets

[12] Innovations in Theoretical Computer Science (ITCS'19)   January 2019
     A Simple Sublinear-Time Algorithm for Counting Arbitrary Subgraphs via Edge Sampling

[11] ACM-SIAM Symposium on Discrete Algorithms (SODA'19)   January 2019
     Sublinear Algorithms for $(\Delta + 1)$ Vertex Coloring

[10] ACM-SIAM Symposium on Discrete Algorithms (SODA'19)   January 2019
     Coresets Meet EDCS: Algorithms for Matching and Vertex Cover on Massive Graphs

[9] SIAM Symposium on Simplicity in Algorithms (SOSA'19)   January 2019
    Towards a Unified Theory of Sparsification for Matching Problems

[8] ACM Symposium on the Theory of Computing (STOC'18)   June 2018
    Fully Dynamic Maximal Independent Set with Sublinear Update Time

[7] ACM-SIAM Symposium on Discrete Algorithms (SODA'18)   January 2018
    Tight Bounds on the Round Complexity of the Distributed Maximum Coverage Problem

[6] ACM Symposium on Parallelism in Algorithms and Architectures (SPAA'17) July 2017
    Randomized Composable Coreset for Matching and Vertex Cover

[5] ACM Conference on Economics and Computation (EC'17)   July 2017
    Combinatorial Auctions Do Need Modest Interaction

[4] ACM Conference on Economics and Computation (EC'17)   July 2017
    The Stochastic Matching Problem: Beating Half with a Non-Adaptive Algorithm

[3] ACM Symposium on Principles of Database Systems (PODS'17)   May 2017
    Tight Space-Approximation Tradeoff for the Multi-Pass Streaming Set Cover Problem

[2] ACM Symposium on the Theory of Computing (STOC'16)   June 2016
    Tight Bounds for Single-Pass Streaming Complexity of the Set Cover Problem

[1] ACM-SIAM Symposium on Discrete Algorithms (SODA'16)   January 2016
    Maximum Matchings in Dynamic Graph Streams and the Simultaneous Communication Model

Teaching Activities

Teaching   The curriculum for all these courses, including the undergraduate ones, have been designed and developed by myself. I have also received the *"Open and Affordable Textbook Program Award"* from the Rutgers University Libraries for curriculum development in my undergraduate course including preparation of detailed lecture notes tailored to the backgrounds of students at Rutgers.

⬦ **Randomized Algorithms** (both undergraduate (elective) and graduate, 20 students)
  - CS 761 – University of Waterloo   (Winter 2025)
  - Course website: https://sepehr.assadi.info/courses/cs761-w25/

⬦ **Seminar: Modern Topics in Graph Algorithms** (both undergraduate (elective) and graduate, 16 students)
  - CS 860 (01) – University of Waterloo   (Winter 2024)
  - Course website: https://sepehr.assadi.info/courses/cs860-w24/

⬦ **Seminar: Algorithmic Gems** (both undergraduate (elective) and graduate, 12 students)
  - CS 860 (02) – University of Waterloo   (Winter 2024)
  - Course website: https://sepehr.assadi.info/courses/cs860-02-w24/

⬦ **Algorithm Design and Analysis – Advanced Algorithms** (both undergraduate (elective) and graduate, 40 students)
  - CS 466/666 – University of Waterloo   (Fall 2023, Fall 2024)
  - Course website: https://sepehr.assadi.info/courses/cs466(6)-f24/

⬦ **Design and Analysis of Computer Algorithms** (undergraduate, 150 to 200 students)
  - CS 344 – Rutgers University   (Fall 2019, Spring 2021, Spring 2022, Spring 2023)
  - Course website: https://sepehr.assadi.info/courses/cs344-s23/

⬦ **Linear Programming** (graduate, 40 students)
  - CS 521 – Rutgers University   (Fall 2022)
  - Course website: https://sepehr.assadi.info/courses/cs521-f22/

⬦ **Design and Analysis Of Data Structures and Algorithms II** (graduate, 20 students)
  - CS 514 – Rutgers University   (Spring 2020, Fall 2021)
  - Course website: https://sepehr.assadi.info/courses/cs514-f21/

⬦ **Seminar: Graph Streaming Algorithms and Lower Bounds** (graduate, 10 students)
  - CS 671 – Rutgers University   (Fall 2020)
  - Course website: https://sepehr.assadi.info/courses/cs671-f20.html

Supervision   **Lifetime summary of supervision:** The table includes the list of all graduate students (Masters and PhD), postdoctoral research fellows (PDF), and undergraduate research assistant (RAs) that I have (co-)supervised:

	Supervised	Co-Supervised
Current Masters	1	0
Graduated Masters	2	0
Current PhD	3	0
Graduated PhD	1	0
Current PDF	0	0
Completed PDF	1	3
RAs	16	0

◇ **Postdocs**:

- Ariel Schvartzman Cohenca (DIMACS postdoc, 2020 to 2022; now at Google Research)
- Nicole Wein (DIMACS postdoc, 2021; now an Assistant Professor at University of Michigan)
- Zihan Tan (DIMACS postdoc, 2022 to 2024; now an Assistant Professor at Rutgers University)
- Prantar Ghosh (DIMACS postdocs, 2022 to 2023; now an Assistant Professor at Tennessee Tech University)

◇ **PhD Students**:

- Chen Wang (Rutgers, 2019 – 2024; now a postdoc at Rice and Texas A&M Universities)
- Vihan Shah (UWaterloo, 2020 – present; expected graduation Spring 2025)
- Janani Sundaresan (UWaterloo, 2021 – present; expected graduation Spring 2026)
- Parth Mittal (UWaterloo, 2021 – present; expected graduation Spring 2026)

◇ **Master Students**:

- Chaitanya Nalam (Rutgers, 2020 – 2021, now a PhD student at University of Michigan)
- Helia Yazdanyar (UWaterloo, 2025 – present)

◇ **Undergraduate Thesis Advisor**:

- Hoai-an Nguyen (2021 – 2023, now a PhD student at CMU);
  - Hoai-an's undergraduate thesis was a winner of *Henry Rutgers Scholar Award* for "outstanding independent research projects leading to a thesis in their major field".
- Sanjana Pendharkar (2020 – 2021)

◇ **Undergraduate Research Assistants**:

- Polina Kochetova (Rutgers, 2020, next position: PhD student at Simon Fraser University)
- Vihan Shah (Rutgers, 2020, next position: PhD student at UWaterloo)
- Manel Bermad (Rutgers, 2020)
- Jakob Degen (Rutgers, 2020)
- Arwa El-Hawwat (Rutgers, 2019, next position: MSc student at Rutgers)
- Chris Trevisan (UWaterloo, 2024, 2025)
- Max Jiang (UWaterloo, 2024, 2025)
- Mars Xiang (UWaterloo, 2024, 2025)
- Daniel Ye (UWaterloo, 2025)

◇ **DIMACS REU Students**:

- Alexandro (Alex) Garces (2023, MIT)

- Liubov (Luba) Samborska (2022, Yale, now a PhD student at University of Michigan)
- Glenn Sun (2021, UCLA, now a PhD student at University of Washington)
- Andrew Chen (2020, CMU, now a PhD student at Cornell)
- Parth Mittal (2020, Charles University Prague, now a PhD student at UWaterloo)
- Pankaj Kumar (2020, Charles University Prague, now a PhD student at Charles University)

◇ **Visiting Undergraduate Students**:
- Nirmit Joshi (2020, VJTI Mumbai, now a PhD student at Northwestern)
- Milind Prabhu (2020, IIT Guwhati, now a PhD student at University of Michigan)

◇ **Visiting Graduate Students**:
- Gary Hoppenworth (Fall 2024, PhD student at University of Michigan)
- Martin Costa (Winter 2025, PhD student at University of Warwick)

Thesis and Other Committees

◇ **PhD Thesis Committees:**
- Alex Tung (Winter 2025, UWaterloo, advisor: Lap Chi Lau)
- Charles Kenney (Fall 2024, Rutgers, advisor: Jeff Kahn)
- Ronen Wdowinski (Summer 2024, UWaterloo, advisor: Penny Haxell)
- Manuel Stoeckl (Spring 2024, Dartmouth, advisor: Amit Chakrabarti)
- Zach Langley (Spring 2024, Rutgers, advisor: Aaron Bernstein)
- Chen Wang (Winter 2024, Rutgers, advisor: Sepehr Assadi)
- Harsha Srimath Tirumala (Summer 2023, Rutgers, advisor: Eric Allender)
- Guido Tagliavini (Summer 2023, Rutgers, advisor: Martin Farach-Colton)
- Aditi Dudeja (Spring 2023, Rutgers, advisor: Aaron Bernstein)
- Vishwas Bhargava (Spring 2022, Rutgers, advisor: Shubhangi Saraf)
- Vishvajeet N. (Spring 2021, Rutgers, advisor: Swastik Kopparty)
- Sixue (Cliff) Liu (Spring 2021, Princeton, advisor: Robert Tarjan)
- Yikai Zhang (Fall 2020, Rutgers, advisor: Bahman Kalantari)

◇ **MS Thesis Committees:**
- Yun Li (University of Sydney, Summer 2024, advisor: Clement Canonne)
- Ian DeHaan (UWaterloo, Summer 2024, advisor: Kanstantsin Pashkovich)
- Newsha Seyedi (UWaterloo, Fall 2023, advisor: Ian Munro)
- Chaitanya Nalam (Rutgers, Summer 2021, advisor: Sepehr Assadi)

◇ **Qualification Exam Committees at UWaterloo:**
- Robert Wang (Spring 2024)
- Cameron Seth (Fall 2023)
- Renato Ferreira (Fall 2023)

◇ **Qualification Exam Committees at Rutgers:**
- Zhenting Wang (Summer 2023)
- Kaidong Hu (Spring 2023)
- Janani Sundaresan (Spring 2023)
- Shiyang Lu (Winter 2022)
- Vihan Shah (Winter 2022)

- Hanna Komlos (Summer 2022)
- Zachary Langley (Summer 2022)
- Chun Lau (Summer 2022)
- Harsha Tirumala (Spring 2021)
- Guido Tagliavini (Winter 2020)
- Rui Wang (Winter 2020)
- Aditi Dudeja (Fall 2020)

Service and Professional Activities

⋄ **Program Committee Chair**:
- SIAM Symposium on Simplicity in Algorithms, SOSA 2026 (co-chair with Eva Rotenberg)

⋄ **Program Committees**:
- IEEE Symposium on Foundations of Computer Science (FOCS 2025)
- International Colloquium on Automata, Languages, and Programming (ICALP 2025)
- ACM Symposium on Theory of Computing (STOC 2025)
- Innovations in Theoretical Computer Science (ITCS 2025)
- ACM Symposium on Principles of Distributed Computing (PODC 2024)
- Annual Conference on Learning Theory (COLT 2024)
- European Symposia on Algorithms (ESA 2023 – Track S)
- IEEE Symposium on Foundations of Computer Science (FOCS 2023)
- International Colloquium on Automata, Languages, and Programming (ICALP 2023)
- ACM SIAM Symposium on Discrete Algorithms (SODA 2023)
- International Conference on Database Theory (ICDT 2023)
- International Conference on Randomization and Computation (RANDOM 2022)
- European Symposia on Algorithms (ESA 2022)
- ACM Symposium on Theory of Computing (STOC 2022)
- ACM SIAM Symposium on Discrete Algorithms (SODA 2022)
- SIAM Symposium on Simplicity in Algorithms (SOSA 2022)
- ACM Symposium on Principles of Distributed Computing (PODC 2021)
- ACM Symposium on Principles of Database Systems (PODS 2021)
- International Colloquium on Automata, Languages, and Programming (ICALP 2020)
- ACM SIAM Symposium on Discrete Algorithms (SODA 2020)

⋄ **Junior Program Committees**:
- ACM Conference on Economics and Computation (EC 2021, EC 2022)
- Conference on Learning Theory (COLT 2023, COLT 2021, COLT 2020)

⋄ **Journal Editorials**:
- Algorithmica Editorial Board, 2025 – present

⋄ **Guest Editorships**:
- Co-editor for SIAM Journal on Computing (SICOMP) special issue for STOC, 2025
- Co-editor for SIAM Journal on Computing (SICOMP) special issue for STOC, 2022

- Co-editor for ACM Transactions on Algorithms (TALG) special issue for SODA, 2020

⬦ **External Reviewer**:
- Journals:
  - Journal of the ACM (JACM)
  - SIAM Journal on Computing (SICOMP)
  - Random Structures and Algorithms (RSA)
  - ACM Transactions on Computation Theory (TOCT)
  - ACM Transactions on Algorithms (TALG)
  - Journal of Machine Learning Research (JMLR)
  - IEEE Transactions on Parallel and Distributed Systems (TPDS)
  - Discrete Mathematics (DM)
  - Theoretical Computer Science (TCS)
- Conferences:
  - Symposium on Theory of Computing (STOC): 2015, 2018, 2019, 2020, 2021, 2022, 2023, 2024
  - Symposium on Foundations of Computer Science (FOCS): 2018, 2019, 2020, 2021, 2022, 2024
  - Symposium on Discrete Algorithms (SODA): 2017, 2018, 2019, 2021, 2023, 2024, 2025
  - Computational Complexity Conference (CCC): 2020, 2021
  - International Colloquium on Automata, Languages, and Programming (ICALP): 2016, 2017, 2018, 2019, 2021, 2024
  - European Symposium on Algorithms (ESA): 2016, 2019, 2020, 2021, 2025
  - Innovations in Theoretical Computer Science (ITCS): 2016, 2019, 2020, 2021, 2022, 2023, 2024
  - Symposium on Principles of Distributed Computing (PODC): 2019, 2022, 2023
  - International Symposium on Distributed Computing (DISC): 2020, 2021
  - International Symposium on Theoretical Aspects of Computer Science (STACS): 2018, 2020, 2021
  - Approximation, Randomization, and Combinatorial Optimization (APPROX-RANDOM): 2017, 2018, 2019, 2021, 2023
  - Integer Programming and Combinatorial Optimization (IPCO): 2023

⬦ National Science Foundation Panel Service for AF – Algorithmic Foundations (2020, 2021, 2024)

⬦ External Reviewer for the Icelandic Research Fund (2021, 2024)

⬦ Guest Reviewer for SIGACT News, 2017 (review of SPAA 2017)

⬦ Contributed article for SIGecom Exchanges, 2020

⬦ Contributed column for ACM SIGACT News, 2023

⬦ Organizer of UWaterloo Algorithms & Complexity seminar: Fall 2024 – present

⬦ Organizer of Rutgers/DIMACS theory seminar: 2019 to 2023

⬦ **Simons Institute Long-term Participant**:
- Sublinear Algorithms (Summer 2024)

⬦ **Department Committees, University of Waterloo**:
- WiCS committee: 2024 – present
- Graduate committee: 2023 – present
- EDI committee: 2023 – 2024

- ⋄ **Department Committees, Rutgers**:
  - Faculty hiring committee: 2020, 2021
  - Graduate committee: 2019 to 2023
  - PhD student admissions committee: 2019, 2020
  - M.Sc student admissions committee: 2021, 2022, 2023

OUTREACH
- ⋄ Annual lectures on "Algorithmic Thinking" given to high-school students at PACT, a summer program in Algorithmic and Combinatorial Thinking for high-school students, run by Prof. Rajiv Gandhi at Princeton (2018 to 2022)
- ⋄ Mentoring undergraduate research as part of DIMACS REU program (6 students) and undergraduate independent studies and summer interns (12 students)
- ⋄ Recipient of " Staebler Insurance OER Fellows Grant" award from University of Waterloo for developing open educational resources for Algorithm Design course (2025)
- ⋄ Recipient of "Open and Affordable Textbook Program" award from Rutgers for developing affordable course materials for Algorithm Design course (2020)