Curriculum Vitae

William (Will) Rosenbaum, Ph.D.

Will Rosenbaum
Department of Computer Science
University of Liverpool
Liverpool L69 3GB
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ORCID: 0000-0002-7723-9090

Academic Interests & Expertise

- **Theoretical Computer Science**: Design and Analysis of Algorithms; Theory of Distributed Computing; Local and Sublinear Algorithms; Computational Complexity; Algorithmic Game Theory
- **Mathematics**: Discrete Math/Combinatorics; Graph Theory; Probability

Employment

- **Lecturer (Assistant Professor)** July 2024–present
  University of Liverpool, Department of Computer Science
- **Assistant Professor** (tenure track) July 2020–June 2024
  Amherst College, Department of Computer Science
- **Postdoctoral Researcher** August 2018–June 2020
  Max Planck Institute for Informatics, Algorithms and Complexity Division, Theory of Distributed and Embedded Systems group
- **Postdoctoral Fellow** August 2016–July 2018
  Tel Aviv University, School of Electrical Engineering
- **Assistant Adjunct Professor** Spring 2016
  University of California, Los Angeles, Department of Mathematics

Visiting Positions

- **Aalto University** Department of Computer Science July–August 2023
  Visiting Researcher, hosted by Jukka Suomela

Education

- **University of California**, Los Angeles, CA
  Ph.D. in Mathematics, March 2016
  M.A. in Mathematics, March 2011
  Dissertation: *Distributed Almost Stable Matchings*
  Adviser: Rafail Ostrovsky
- **Reed College**, Portland, OR
  B.A. in Mathematics, Spring 2009
  Thesis: *Analysis on Circles: A Modern View of Fourier Series*
  Adviser: Jerry Shurman

Funding & Awards

- **Research (Sabbatical) Fellowship**
  Amherst College, 2023–2024
- **Faculty Startup Grant** ($100,000)
  Amherst College, 2020

- ◇ **Postdoctoral Scholarship**
  Tel Aviv University, 2016–2017
  Scholarship awarded to at most 20 postdocs university-wide
- ◇ **Travel Grant**
  Max Planck Advanced Course on the Foundations of Computer Science (ADFOCS), Saarbrücken, Germany, August, 2016
- ◇ **Teaching Assistant Consultantship**
  Department of Mathematics, UCLA, Fall 2015
- ◇ **Student Travel Grant**
  Association of Computing Machinery, PODC, 2015
- ◇ **Graduate Student Instructorship**
  Department of Mathematics, UCLA, 2014
- ◇ **Robert Sorgenfrey Distinguished Teaching Award**
  Department of Mathematics, UCLA, 2013
- ◇ **Phi Beta Kappa**
  Reed College, 2009
- ◇ **Commendation for Academic Achievement**
  Reed College, 2004–2005, 2006–2007, 2007–2008, 2008–2009

Peer-reviewed Publications

Graduate student co-authors are indicated with (*); undergraduate student co-authors are indicated with (**).

22. [**AAAI 2023**] Ara Vartanian, Will Rosenbaum, and Scott Alfeld. "Training-Time Attacks against K-nearest Neighbors". In: *Thirty-Seventh AAAI Conference on Artificial Intelligence, AAAI 2023 2023, Washington, DC, USA, February 7-14, 2023*. Ed. by Brian Williams, Yiling Chen, and Jennifer Neville. AAAI Press, 2023, pp. 10053–10060. URL: https://ojs.aaai.org/index.php/AAAI/article/view/26198
21. [**RANDOM 2023**] Talya Eden et al. "Bias Reduction for Sum Estimation". In: *Approximation, Randomization, and Combinatorial Optimization. Algorithms and Techniques (APPROX/RANDOM 2023)*. Ed. by Nicole Megow and Adam Smith. Vol. 275. Leibniz International Proceedings in Informatics (LIPIcs). Dagstuhl, Germany: Schloss Dagstuhl – Leibniz-Zentrum für Informatik, 2023, 62:1–62:21. ISBN: 978-3-95977-296-9. DOI: 10.4230/LIPIcs.APPROX/RANDOM.2023.62. URL: https://drops.dagstuhl.de/opus/volltexte/2023/18887
20. [**SIROCCO 2023**] Cameron Matsui** and Will Rosenbaum. "Packet Forwarding with Swaps". In: *Structural Information and Communication Complexity SIROCCO 2023*. Ed. by Sergio Rajsbaum et al. Cham: Springer Nature Switzerland, 2023, pp. 536–557. ISBN: 978-3-031-32733-9
19. [**TEAC 2022**] Christine T. Cheng and Will Rosenbaum. "Stable Matchings with Restricted Preferences: Structure and Complexity".

In: *ACM Trans. Economics and Comput.* 10.3 (2022), 13:1–13:45. DOI: 10.1145/3565558. URL: https://doi.org/10.1145/3565558

18. [**DISC 2022**] Will Rosenbaum. "Packet Forwarding with a Locally Bursty Adversary". In: *36th International Symposium on Distributed Computing, DISC 2022, October 25-27, 2022, Augusta, Georgia, USA*. ed. by Christian Scheideler. Vol. 246. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2022, 34:1–34:18. DOI: 10.4230/LIPIcs.DISC.2022.34. URL: https://doi.org/10.4230/LIPIcs.DISC.2022.34

17. [**ICALP 2022**] Talya Eden, Dana Ron, and Will Rosenbaum. "Almost Optimal Bounds for Sublinear-Time Sampling of k-Cliques in Bounded Arboricity Graphs". In: *49th International Colloquium on Automata, Languages, and Programming, ICALP 2022, July 4-8, 2022, Paris, France*. Ed. by Mikolaj Bojanczyk, Emanuela Merelli, and David P. Woodruff. Vol. 229. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2022, 56:1–56:19. DOI: 10.4230/LIPIcs.ICALP.2022.56. arXiv: 2012.04090. URL: https://doi.org/10.4230/LIPIcs.ICALP.2022.56

16. [**EC 2021**] Christine T. Cheng and Will Rosenbaum. "Stable Matchings with Restricted Preferences: Structure and Complexity". In: *EC '21: The 22nd ACM Conference on Economics and Computation, Budapest, Hungary, July 18-23, 2021*. Ed. by Péter Biró, Shuchi Chawla, and Federico Echenique. ACM, 2021, pp. 319–339. DOI: 10.1145/3465456.3467618. URL: https://doi.org/10.1145/3465456.3467618

15. [**PODC 2020**] Will Rosenbaum and Jukka Suomela. "Seeing Far vs. Seeing Wide: Volume Complexity of Local Graph Problems". In: *PODC '20: ACM Symposium on Principles of Distributed Computing, Virtual Event, Italy, August 3-7, 2020*. Ed. by Yuval Emek and Christian Cachin. ACM, 2020, pp. 89–98. DOI: 10.1145/3382734.3405721. URL: https://doi.org/10.1145/3382734.3405721

14. [**ASYNC 2020**] Johannes Bund* et al. "PALS: Plesiochronous and Locally Synchronous Systems". In: *26th IEEE International Symposium on Asynchronous Circuits and Systems, ASYNC 2020, Salt Lake City, UT, USA, May 17-20, 2020*. IEEE, 2020, pp. 36–43. DOI: 10.1109/ASYNC49171.2020.00013. URL: https://doi.org/10.1109/ASYNC49171.2020.00013

13. [**GEB 2019**] Yannai A. Gonczarowski et al. "A stable marriage requires communication". In: *Games and Economic Behavior (GEB)* (2019). (**Invited article.**) ISSN: 0899-8256. DOI: https://doi.org/10.1016/j.geb.2018.10.013. URL: http://www.sciencedirect.com/science/article/pii/S0899825619301034

12. [**ICALP 2019**] Talya Eden*, Dana Ron, and Will Rosenbaum. "The Arboricity Captures the Complexity of Sampling Edges". In: *46th International Colloquium on Automata, Languages, and Programming, ICALP 2019, July 9-12, 2019, Patras, Greece*. 2019, 52:1–52:14. DOI:

10.4230/LIPIcs.ICALP.2019.52. URL: https://doi.org/10.4230/LIPIcs.ICALP.2019.52

11. [**PODC 2019-1**] Avery Miller, Boaz Patt-Shamir, and Will Rosenbaum. "With Great Speed Come Small Buffers: Space-Bandwidth Tradeoffs for Routing". In: *Proceedings of the 2019 ACM Symposium on Principles of Distributed Computing, PODC 2019, Toronto, ON, Canada, July 29 - August 2, 2019.* 2019, pp. 117–126. DOI: 10.1145/3293611.3331614. URL: https://doi.org/10.1145/3293611.3331614
10. [**PODC 2019-2**] Johannes Bund*, Christoph Lenzen, and Will Rosenbaum. "Fault Tolerant Gradient Clock Synchronization". In: *Proceedings of the 2019 ACM Symposium on Principles of Distributed Computing, PODC 2019, Toronto, ON, Canada, July 29 - August 2, 2019.* 2019, pp. 357–365. DOI: 10.1145/3293611.3331637. URL: https://doi.org/10.1145/3293611.3331637
9. [**INFOCOM 2019**] Boaz Patt-Shamir and Will Rosenbaum. "Space-Optimal Packet Routing on Trees". In: *2019 IEEE Conference on Computer Communications, INFOCOM 2019, Paris, France, April 29 - May 2, 2019.* 2019, pp. 1036–1044. DOI: 10.1109/INFOCOM.2019.8737596. URL: https://doi.org/10.1109/INFOCOM.2019.8737596
8. [**RANDOM 2018**] Talya Eden* and Will Rosenbaum. "Lower Bounds for Approximating Graph Parameters via Communication Complexity". In: *Approximation, Randomization, and Combinatorial Optimization. Algorithms and Techniques, APPROX/RANDOM 2018, August 20-22, 2018 - Princeton, NJ, USA.* 2018, 11:1–11:18. DOI: 10.4230/LIPIcs.APPROX-RANDOM.2018.11. URL: https://doi.org/10.4230/LIPIcs.APPROX-RANDOM.2018.11
7. [**SOSA 2018**] Talya Eden* and Will Rosenbaum. "On Sampling Edges Almost Uniformly". In: *1st Symposium on Simplicity in Algorithms, SOSA 2018, January 7-10, 2018, New Orleans, LA, USA.* 2018, 7:1–7:9. DOI: 10.4230/OASIcs.SOSA.2018.7. URL: https://doi.org/10.4230/OASIcs.SOSA.2018.7
6. [**PODC 2017**] Boaz Patt-Shamir and Will Rosenbaum. "The Space Requirement of Local Forwarding on Acyclic Networks". In: *Proceedings of the ACM Symposium on Principles of Distributed Computing, PODC 2017, Washington, DC, USA, July 25-27, 2017.* 2017, pp. 13–22. DOI: 10.1145/3087801.3087803. URL: https://doi.org/10.1145/3087801.3087803
5. [**SIROCCO 2017**] Rafail Ostrovsky, Mor Perry, and Will Rosenbaum. "Space-Time Tradeoffs for Distributed Verification". In: *Structural Information and Communication Complexity - 24th International Colloquium, SIROCCO 2017, Porquerolles, France, June 19-22, 2017, Revised Selected Papers.* 2017, pp. 53–70. DOI: 10.1007/978-3-319-72050-0_4. URL: https://doi.org/10.1007/978-3-319-72050-0%5C_4

- Extended version of [**PODC 2016**].

4. [**PODC 2016**] Mor Baruch, Rafail Ostrovsky, and Will Rosenbaum. "Brief Announcement: Space-Time Tradeoffs for Distributed Verification". In: *Proceedings of the 2016 ACM Symposium on Principles of Distributed Computing, PODC 2016, Chicago, IL, USA, July 25-28, 2016*. 2016, pp. 357–359. DOI: 10.1145/2933057.2933071. URL: https://doi.org/10.1145/2933057.2933071
3. [**PODC 2015**] Rafail Ostrovsky and Will Rosenbaum. "Fast Distributed Almost Stable Matchings". In: *Proceedings of the 2015 ACM Symposium on Principles of Distributed Computing, PODC 2015, Donostia-San Sebastián, Spain, July 21 - 23, 2015*. 2015, pp. 101–108. DOI: 10.1145/2767386.2767424. URL: https://doi.org/10.1145/2767386.2767424
2. [**SODA 2015**] Yannai A. Gonczarowski et al. "A Stable Marriage Requires Communication". In: *Proceedings of the Twenty-Sixth Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2015, San Diego, CA, USA, January 4-6, 2015*. 2015, pp. 1003–1017. DOI: 10.1137/1.9781611973730.68. URL: https://doi.org/10.1137/1.9781611973730.68
1. [**MATCH-UP 2015**] Rafail Ostrovsky and Will Rosenbaum. "It's Not Easy Being Three: The Approximability of Three-Dimensional Stable Matching Problems". In: *Proceedings of the 3rd International Workshop on Matching Under Preferences (MATCH-UP)*. 2015, pp. 90–101

MONOGRAPHS

[**PhD 2016**] William Bailey Rosenbaum. *Distributed Almost Stable Matchings*. PhD thesis. Los Angeles, CA 90095: University of California, Los Angeles, Mar. 2016

[**BA 2009**] William B Rosenbaum. *Analysis on circles: a modern view of Fourier series*. eng. BA thesis. Portland, OR 97202: Reed College, May 2009

PREPRINTS

[**Preprint 2022**] Will Rosenbaum. "Finding a Winning Strategy for Wordle is NP-complete". In: *CoRR* abs/2204.04104 (2022). DOI: 10.48550/arXiv.2204.04104. arXiv: 2204.04104. URL: https://doi.org/10.48550/arXiv.2204.04104

[**Preprint 2020**] Christine T. Cheng and Will Rosenbaum. "Simple Counting and Sampling Algorithms for Graphs with Bounded Pathwidth". In: *CoRR* abs/2008.08479 (2020). arXiv: 2008.08479. URL: https://arxiv.org/abs/2008.08479

LECTURE NOTES

[**Notes 1**] Will Rosenbaum. *Honors Multivariable Differential Calculus*. Course notes for Math 32AH at UCLA. willrosenbaum.com/fall-2014-math-32ah/. 2014. URL: https://willrosenbaum.com/fall-2014-math-32ah/

TEACHING (AMHERST COLLEGE)

◇ **Core Computer Science Courses**

- ◦ *COSC 112: Introduction to Computer Science II* Fall 2020, Spring 2021
- ◦ *COSC 211: Data Structures* Fall 2021, Spring 2022
- ◦ *COSC 311: Algorithms* Fall 2022

◇ **New Elective Courses Developed**

- ◦ *COSC 225: Algorithms and Visualization* Spring 2023
- ◦ *COSC 273: Parallel and Distributed Computing* Spring 2021, Spring 2023
- ◦ *COSC 373: Distributed Algorithms* Spring 2022
- ◦ *COSC 490: Special Topics (Communication Complexity)* Fall 2022

Previous Teaching

◇ **Undergraduate Courses** (instructor of record)

- ◦ *Intermediate Programming (C++)*, UCLA, Spring 2016.
- ◦ *Honors Multivariable Differential Calculus*, UCLA, Fall 2014.

◇ **Graduate Courses** (instructor of record)

- ◦ *Algorithms on Directed Graphs* University of Saarland/Max Planck Institute for Informatics, Winter 2018–9.
- ◦ *Teaching College Mathematics* UCLA, Fall 2015. *(Teaching Assistant Consultantship)*

◇ **Assistant Instructor**, Los Angeles Math Circle (Sept. 2014 – June 2015)

◇ **Teaching Assistant**, UCLA (September 2009 – June 2015)
Average teaching evaluation: 8.7 / 9

- ◦ *Calculus for Life Sciences* (Math 3A)
- ◦ *Introduction to Programming (C++)*, (PIC 10A)
- ◦ *Differential Calculus* (Math 31A)
- ◦ *Honors Multivariable Differential Calculus*, (Math 32AH)
- ◦ *Multivariable Differential Calculus*, (Math 32A)
- ◦ *Honors Multivariable Integral Calculus*, (Math 32BH)
- ◦ *Multivariable Integral Calculus*, (Math 32B)
- ◦ *Differential Equations*, (Math 33B)
- ◦ *Discrete Mathematics*, (Math 61)
- ◦ *Honors Linear Algebra*, (Math 115AH)
- ◦ *Real Analysis*, (Math 131A)
- ◦ *Mathematical Game Theory*, (Math 167)

◇ **Teaching Assistant**, Reed College (August 2007 – May 2009)

- ◦ *Introductory Physics*, (Physics 100)

◇ **Tutor**

- ◦ Student Mathematics Center, UCLA, (September 2009 – March 2015)
- ◦ Math Center, Reed College (September 2007 – May 2009)

Advising & Mentorship

- **Undergraduate Honors Theses Advised** (Amherst College)
  - Cameron Matsui *Characterizing Solid Forwarding Protocols on Path Networks in Adversarial Queueing Theory,* 2023E (Summa Cum Laude)
  - Quincy Hughes *Super-Stable Matchings and K-Range Preferences,* 2022. (Magna Cum Laude)
- **Gregory Call Summer Research Fellowship** (Amherst College)
  - *Generating Permutations with Bounded Maximum Displacement,* Wanting (Sherry) Jiang, Summer 2022.
  - *Stable Matchings with k-range Preferences,* Quincy Hughes, Summer 2021.
  - *Non-greedy Adversarial Queueing Theory,* Cameron Matsui, Summer 2021.
- **Summer Undergraduate Research Fellowship (SURF)** (Amherst College)
  - *Empricial and theoretical investigation of novel packet forwarding strategies* Nico Ardila, Sara Kao, Kathy Xing. Summer 2021.
- **Clare Booth Luce Fellowship** (Amherst College)
  - Sara Kao, Summer 2021
- **Summer Internship** Mohammad Nikan Ghorbani, Max Planck Institute for Informatics, Summer 2019.
- **MSc Project** Yair Rechter, *Empirical Comparison of Static Routing Algorithms*, Tel Aviv University, 2017.
- **Honors Contract** Adela Armstrong-Spielberg, *Snakes and Ladders in the Unity Development Platform* UCLA, 2016.
- **Student Co-authors**
  - Johannes Bund [**PODC 2019-2**, **ASYNC 2020**]
    PhD Student, Max Planck Institute for Informatics
  - Talya Eden [**ICALP 2019**, **RANDOM 2018**, **SOSA 2018**]
    Former PhD Student, Tel Aviv University
  - Jakob Houen [**RANDOM 2023**]
    PhD Student, University of Copenhagen
  - Cameron Matsui [**SIROCCO 2023**]
    Honors thesis student (undergraduate), Amherst College
  - Shyam Narayanan [**RANDOM 2023**]
    PhD Student, MIT
  - Jakub Tětek [**RANDOM 2023**]
    PhD Student, University of Copenhagen

Service

- **College and Departmental Service**
  - Faculty Computer Committee, Amherst College 2021–2023
  - Computer Science TA Coordinator, Amherst College 2021–2023

- Computer Science Faculty Search Committee 2020, 2021, 2022, 2023

◇ **Program Commitees**

- SOSA 2024 Symposium on Simplicity in Algorithms
- SIROCCO 2024 (International Colloquium on Structural Information and Communication Complexity)
- WWW 2021 (The Web Conference)
- OPODIS 2020 (Conference on Principles of Distributed Systems)

◇ **Organizer** 20th Max Planck Advanced Course on the Foundations of Computer Science (ADFOCS), Saarbrücken, Germany, August 2019.

◇ **Organizer** Network Algorithms Seminar, Department of Electrical Engineering, Tel Aviv University, 2017/2018 academic year.

◇ **Peer reviewer** (50+ articles refereed)

- ACM Conference on Economics and Computation (EC)
- ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)
- ACM Symposium on Principles of Database Systems (PODS)
- ACM Symposium on Theory of Computing (STOC)
- ACM Transactions on Algorithms (TALG)
- ACM Transactions on Parallel Computing (TOPC)
- ACM-SIAM Symposium on Distcrete Algorithms (SODA)
- Algorithmica
- American Mathematical Monthly
- Combinatorics, Probability and Computing
- Conference on Principles of Distributed Systems (OPODIS)
- Distributed Computing
- EATCS International Colloquium on Autamata, Languages and Programming (ICALP)
- EATCS International Symposium on Distributed Computing (DISC)
- European Symposium on Algorithms (ESA)
- IEEE International Parallel and Distributed Processing Symposium (IPDPS)
- IEEE Symposium on Foundations of Computer Science (FOCS)
- Information Processing Letters (IPL)
- Innovations in Theoretical Computer Science (ITCS)
- International Conference on Approximation Algorithms for Combinatorial Optimization Problems (APPROX)
- International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS)
- International Workshop on Matching Under Preferences (MATCH-UP)

- Mathematical Foundations of Computer Science (MFCS)
- SIAM Journal on Discrete Mathematics (SIDMA)
- Theoretical Computer Science
- Transactions on Parallel Computing

TALKS

- *Bias Reduction for Sum Estimation* Weekly Seminar, Rutgers Business School, October 2023
- *Buffer Space and Locality in Packet Forwarding* Aalto University, August 2023
- *The Volume Complexity of LCLs: Challenges and Recent Progress* Aalto University, July 2023
- *Packet Forwarding with a Locally Bursty Adversary* International Symposium on Distributed Computing (DISC), October 2022.
- *Bias Reduction for Sum Estimation* FODSI Sublinear Algorithms Workshop, MIT, August 2022.
- *Sampling Edges and More* Computer Science Theory Seminar, University of Massachusetts, Amherst, September 2021.
- *Stable Matchings with Restricted Preferences* ACM Conference on Economics and Computation (EC), July 2021.
- *Seeing Far vs. Seeing Wide: Volume Complexity of Local Graph Problems* ACM Principles of Distributed Computing (PODC), July 2020.
- *Lynch-Welch Clock Synchronization* Workshop on Robust Hardware Design, Saarbrücken, Germany, October 2019.
- *Introduction to Active Learning* Guest Lecture for Theory of Distributed Systems, Saarbrücken, Germany, October 2019.
- *With Great Speed Come Small Buffers: Space-Bandwidth Tradeoffs for Routing* ACM Principles of Distributed Computing, Toronto, Canada, July 2019.
- *On the Volume Complexity of LCLs* Workshop on Local Algorithms, Zürich, Switzerland, July 2019.
- *Space-Optimal Packet Routing on Trees* IEEE Conference on Computer Communications (INFOCOM), Paris, France, April 2019.
  - **Awarded** Best In-session Presentation
- *Gradient Clock Synchronization* Resiliant Hardware Design Workshop, Mainz, Germany, March, 2018.
- *On Sampling Edges Almost Uniformly* Symposium on Simplicity in Algorithms, New Orleans, LA, January 2018.
- *What Cannot Be Computed Locally!* Distributed Computing Seminar, Tel Aviv University, December 2017.
- *The Space Requirement of Local Forwarding on Acyclic Networks* ACM Symposium on Principles of Distributed Computing (PODC), Washington DC, July 2017.

- ◇ *The Space Requirement of Local Forwarding on Acyclic Networks* Distributed Computing Seminar, Technion Israel Institute of Technology, May 2017.
- ◇ *The Space Requirement of Local Forwarding on Acyclic Networks* Engineering Seminar, Bar-Ilan University, May 2017.
- ◇ *The Space Requirement of Local Forwarding on Acyclic Networks* Networking Agora, Ben Gurion University, May 2017.
- ◇ *The Space Requirement of Local Forwarding on Acyclic Networks* Algorithms Seminar, Tel Aviv University, April 2017.
- ◇ *The Space Requirement of Local Forwarding on Acyclic Networks* Israeli Networking Day, Netanya, Israel, March 2017.
- ◇ *Space-Time Tradeoffs for Distributed Verification* ACM Symposium on Principles of Distributed Computing (PODC). Chicago, Il, July 2016.
- ◇ *Stable Matchings with Bounded Preferences* AMS/MAA Joint Math Meetings. Seattle, Washington, January 2016.
- ◇ *The Stable Marriage Problem* Los Angeles Math Circle. October 2015.
- ◇ *Teaching Problem Solving and Grading in Mathematics* 42nd Annual Teaching Assistant Conference. UCLA, September 2015.
- ◇ *Fast Distributed Almost Stable Matchings* ACM Symposium on Principles of Distributed Computing. San Sebastién, Spain, July 2015.
- ◇ *It's Not Easy Being Three: The Approximability of Three-Dimensional Stable Matching Problems* International Workshop on Matching Under Preferences (MATCH-UP). Glasgow, UK, April 2015.
- ◇ *A Stable Marriage Requires Communication* Math Colloquium, Reed College, February 2015.
- ◇ *Introduction to Communication Complexity.* Participating Logic Seminar, UCLA, Spring 2014.
- ◇ *The Communication Complexity of Finding a Stable Marriage.* ATC talk, UCLA, March 2014.
- ◇ *Estimating the Second Frequency Moment.* Participating Probability Seminar, UCLA, Fall 2012.
- ◇ *Azuma's Inequality and Concentration of Measure.* Participating Probability Seminar, UCLA, Spring 2012.
- ◇ *Rusza Calculus.* Participating Combinatorics Seminar, UCLA, Fall 2011.
- ◇ *Exact Solutions for Anisotropic Coarsening in the Dilute Limit* American Physical Society, March Meeting, 2008.
- ◇ *Anisotropic Coarsening: 2 Models in 3 Dimensions.* Physics Department Colloquium, Reed College, September 2007.
- ◇ *Anisotropic Coarsening: 2 Models in 3 Dimensions.* Summer REU Presentation, Bucknell University, August 2007.

WORKSHOPS ATTENDED (NO TALK GIVEN)

- *Algorithms Postdocs in Europe and Israel (AlgPiE) by IGAFIT*, Bedlewo, Poland, October 2019.
  - **Invited** participant.
- *SPP Winter School on Algorithms for Big Data*, Tel Aviv University, November 2017.
- *French-Israeli Laboratory on Foundations of Computer Science*, Tel Aviv, Israel University, November 2017.
- *Randomness, Complexity, and Cryptography*, Weizmann Institute, Rehovot, Israel, April 2017.
- *Israeli Networking Day*, Cisco Systems, Natanya, Israel, March 2017.
- *Young Researcher Workshop on Economics and Computation*, Tel Aviv, Israel, January 2017.
- *Israel CS Theory Day*, The Open University, Ra'anana, Israel, January 2017.
- *Max Planck Advanced Course on the Foundations of Computer Science (ADFOCS)*, Saarbrücken, Germany, August, 2016.
- *Teaching Assistant Consultant Central Seminar*, UCLA, Los Angeles, CA, Fall 2015.
- *Information Complexity and Applications* at the ACM Symposium on the Theory of Computing, Palo Alto, CA, June 2013.
- *Extremal and Probabilistic Combinatorics*, Los Angeles, CA, January 2013.

GRADUATE COURSEWORK

- **Discrete Math** Topics in Combinatorics, Probabilistic Methods in Combinatorics, Algebraic Methods in Combinatorics, The Symmetric Group, Algebraic Number Theory, Additive Combinatorics, Expander Graphs
- **Computer Science** Randomized Algorithms, Cryptography, Communication Complexity
- **Probability & Analysis** Measure Theory, Probability Theory, Stochastic Processes, Applied Probability
- **Geometry & Topology** Differential Topology, Differential Geometry, Algebraic Topology (Qualifying Exam Passed)
- **Algebra** Abstract Algebra, Commutative Algebra (Qualifying Exam Passed)
- **Teaching** Teaching College Mathematics, Teaching Assistant Consultant Central Seminar

UNDERGRAD RESEARCH EXPERIENCE

- **Math REU** Mount Holyoke College, Summer 2008. Summer research program on number theory with Professor Giuliana Davidoff. Explored class numbers and relative class numbers for quadratic number fields. Developed numerical algorithms to test our conjectures.
- **Physics REU** Bucknell University, Summer 2007. Summer research program on statistical physics with Professor Ben Vollmayr-Lee. Worked on theoretical aspects of coarsening models in three dimensions. Found explicit description of equilibrium shapes for a coarsening model with surface

anisotropy. Presented findings at the American Physical Society's March Meeting in 2008.

COMPUTING
- ◇ **Languages**: Java, C/C++, HTML/CSS/JavaScript
- ◇ **Miscellaneous**: LaTeX

LANGUAGES
- ◇ **English** Native Speaker
- ◇ **German** B1 Proficiency
- ◇ **Spanish** B1 Proficiency

OTHER SKILLS
- ◇ **Nuclear Reactor Operator** NRC licensed operator for Reed College's TRIGA Mark I research reactor.
- ◇ **Fishmonger** Seafood team member at Whole Foods, Roosevelt Square (Seattle), October 2005 – May 2006.
- ◇ **Snowboard Instructor** AASI certified Level I instructor for Clancy's Ski School, January 2003 – April 2004.