Lev Reyzin

Mathematics, Statistics, & Computer Science (MSCS)
University of Illinois at Chicago (UIC)
Institute for Data, Econometrics, Algorithms, and Learning (IDEAL)

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Appointments[1]

Institute for Data, Econometrics, Algorithms, and Learning, Chicago, IL

- Institute Director, IDEAL Institute, 2024–present
- Site Director, University of Illinois at Chicago, 2019–present[2]

University of Illinois at Chicago, Chicago, IL

- Professor, Mathematics, Statistics, & Computer Science, 2021–present
- Professor, *by courtesy*, Computer Science, 2021–present
- Associate Professor, Mathematics, Statistics, & Computer Science, 2017–2021
- Associate Professor, *by courtesy*, Computer Science, 2017–2021
- Assistant Professor, Mathematics, Statistics, & Computer Science, 2012–2017
- Assitant Professor, *by courtesy*, Computer Science, 2012–2017

Northwestern University, Evanston, IL

- Visiting Associate Professor, Computer Science , 2018–2019

Georgia Institute of Technology, Atlanta, GA

- Postdoctoral Fellow (*hosted by Santosh Vempala*), Computer Science and ARC, 2020–2012

Yahoo! Research, New York, NY

- Postdoctoral Research Scientist (*hosted by John Langford*), Machine Learning, 2009-2010

Google Research, Mountain View, CA

- Research Intern (*hosted by Yoram Singer*), Summer 2007
- Research and Engineering Intern (*hosted by David Cohn*), Summer 2006

Education

Yale University, New Haven, CT

- Ph.D. in Computer Science (*advised by Dana Angluin*), 2009
- M.Phil. in Computer Science, 2008
- M.S. in Computer Science, 2006

Princeton University, Princeton, NJ

- B.S.E., *with honors*, in Computer Science, 2005
- Certificate, Applied and Computational Mathematics, 2005

[1] The positions that I currently hold are underlined.

[2] As of 2022, IDEAL has sites at UIC, Northwestern (NU), Toyota Technological Institute in Chicago (TTI-C), University of Chicago (UC), and the Illinois Institute of Technology (IIT). Loyola University Chicago (LUC) joined the institute in 2024. Before joining the IDEAL Institute in 2019, the UIC site was called the Foundations of Data Science Institute.

Awards

Grants (as PI or Co-PI)

- NSF Award ECCS-2217023, $3,180,000[3], PI (Co-PIs: Devroye, Kash, Wu, Zheleva), 2022-2027
- NSF Award CCF-1934915, $1,500,000, PI (Co-PIs: Devroye, Perkins, Sidiropoulos, Zheleva), 2019–2023
- NSF Award CCF-1848966, $100,000, PI (no Co-PIs), 2018–2021
- NSF Award IIS-1526379, $500,000, Co-PI (PI: Ziebart), 2015–2018
- ARO Award 66497-NS, $49,700, PI (no Co-PIs), 2015–2016

Honors and fellowships

- UIC Graduate Mentoring Award, 2020
- Georgia Tech's College of Computing Outstanding Postdoctoral Research Award, 2012
- AISTATS Notable Paper Award, 2011
- Simons Postdoctoral Fellowship in Theoretical Computer Science, 2010–2012
- NSF Computing Innovation Postdoctoral Fellowship, 2009–2010
- COLT Best Student Paper Award, 2007
- NSF Graduate Research Fellowship, 2007–2009
- ICML Best Student Paper Award, 2006

Papers[4]

Published research articles[5]

1. Hunter Chase, James Freitag, Lev Reyzin. Applications of Littlestone dimension to query learning and to compression. In the *Proceedings of the 49th Symposium on the Mathematical Foundations of Computer Science* (MFCS) 2024, 10 p.
2. Ian A. Kash, Lev Reyzin, Zishun Yu. Slowly Changing Adversarial Bandit Algorithms are Provably Efficient for Discounted MDPs. In the *Proceedings of the 35th International Conference on Algorithmic Learning Theory* (ALT), 2024, pp. 683–718
3. Lev Reyzin, Duan Tu. On Sample Reuse Methods for Answering k-wise Statistical Queries. In the *Proceedings of the 18th International Symposium on Artificial Intelligence and Mathematics* (ISAIM),[6] 2024, pp. 136–149.
4. Bethany Austhof, Lev Reyzin. A Model for Optimizing Recalculation Schedules to Minimize Regret. In the *Proceedings of the 18th International Symposium on Artificial Intelligence and Mathematics* (ISAIM), 2024. pp. 1–9.
5. Xing Gao, Thomas Maranzatto, Lev Reyzin. A Unified Analysis of Dynamic Interactive Learning. In the *Proceedings of the 59th Annual Allerton Conference on Communication, Control, and Computing* (Allerton), 2023, 8 p.
6. James Freitag, Neshat Mohammadi, Aditya Potukuchi, Lev Reyzin. On the Geometry of Stable Steiner Tree Instances. In the *Proceedings of the 34th Canadian Conference on Computational Geometry* (CCCG), 2022, pp. 156–161.
7. Mano Vikash Janardhanan, Lev Reyzin. On Learning a Hidden Directed Graph with Path Queries. In the *Proceedings of the 58th Annual Allerton Conference on Communication, Control, and Computing* (Allerton), 2022, 5 p.
8. Xing Gao, Lev Reyzin. An Interactive Search Game with Two Agents. In the *Proceedings of the 58th Annual Allerton Conference on Communication, Control, and Computing* (Allerton), 2022, 8 p.

[3] This is UIC's portion of a $10M collaborative award to fund IDEAL. UIC is the lead institution on this grant, and I am the lead PI.

[4] As is customary in computer science theory, the author ordering of my papers is alphabetical. Many of my papers appear in conferences: computer science conferences are refereed and constitute the *primary* publication venue in my field. Please see the CRA best practices memo.

[5] This publication list only includes archival venues and therefore excludes workshop papers and conference papers in electronic proceedings.

[6] This conference published archival proceedings for the first time in 2024; my ISAIM papers from prior years are therefore not listed here.

9. Avrim Blum, Shelby Heinecke, Lev Reyzin. Communication-Aware Collaborative Learning. In the *Proceedings of the 35th AAAI Conference on Artificial Intelligence* (AAAI), 2021, pp. 6786–6793.
10. Benjamin Fish, Lev Reyzin. On the Complexity of Learning a Class Ratio from Unlabeled Data. In the *Journal of Artificial Intelligence Research*, Vol. 69, 2020, pp. 1333–1349.
11. Daniel Berend, Aryeh Kontorovich, Lev Reyzin, Thomas Robinson. On Biased Random Walks, Corrupted Intervals, and Learning Under Adversarial Design. In the *Annals of Mathematics and Artificial Intelligence*, Vol. 8(88), 2020, pp. 887–905.
12. Benjamin Fish, Lev Reyzin, Benjamin I. P. Rubinstein. Sampling Without Compromising Accuracy in Adaptive Data Analysis. In the *Proceedings of the 31st International Conference on Algorithmic Learning Theory* (ALT), 2020, pp. 297-318.
13. Shelby Heinecke, Lev Reyzin. Crowdsourced PAC Learning under Classification Noise. In the *Proceedings of the 7th AAAI Conference on Human Computation and Crowdsourcing* (HCOMP), 2019, pp. 41-49.
14. Lev Reyzin. Unprovability Comes to Machine Learning. In *Nature*, Vol. 565(7738), 2019, pp. 166-167.
15. Shelby Heinecke, Will Perkins, Lev Reyzin. On the Resilience of Bipartite Networks. In the *Proceedings of the 56th Annual Allerton Conference on Communication, Control, and Computing* (Allerton), 2018, pp. 72–77.
16. Benjamin Fish, Lev Reyzin. On the Complexity of Learning from Label Proportions. In the *Proceedings of the 26th International Joint Conference on Artificial Intelligence* (IJCAI), 2017, pp. 1675–1681.
17. Sam Cole, Shmuel Friedland, Lev Reyzin. A Simple Spectral Algorithm for Recovering Planted Partitions. In the *Special Matrices*, Vol. 5(1), 2017, pp. 139–157.
18. Yi Huang, Mano Vikash Janardhanan, Lev Reyzin. Network Construction with Ordered Constraints. In the *Proceedings of the 37th Foundations of Software Technology and Theoretical Computer Science conference* (FSTTCS), 2017, pp. 34:1–14.
19. Benjamin Fish, Lev Reyzin. Open Problem: Meeting Times for Learning Random Automata. In the *Proceedings of the 30th Annual Conference on Learning Theory* (COLT), 2017, pp. 8–11.
20. Vitaly Feldman, Elena Grigorescu, Lev Reyzin, Santosh Vempala, Ying Xiao. Statistical Algorithms and a Lower Bound for Planted Clique. In the *Journal of the ACM*, Vol. 64(2), 2017, pp. 8:1–8:37.
21. Jeff Cooper, Lev Reyzin. Improved Algorithms for Distributed Boosting. In the *Proceedings of the 55th Annual Allerton Conference on Communication, Control, and Computing* (Allerton), 2017, pp. 806–813.
22. Alexander Gutfraind, Jeremy Kun, Ádám D. Lelkes, Lev Reyzin. Network Installation under Convex Costs. In the *Journal of Complex Networks*, Vol. 4(2), 2016, pp. 177–186.
23. Benjamin Fish, Yi Huang, Lev Reyzin. Recovering Social Networks by Observing Votes. In the *Proceedings of the 15th International Conference on Autonomous Agents and Multiagent Systems* (AAMAS), 2016, pp. 376–384.
24. Ádám D. Lelkes, Lev Reyzin. Interactive Clustering of Linear Classes and Cryptographic Lower Bounds. In the *Proceedings of the 26th International Conference on Algorithmic Learning Theory* (ALT), 2015, pp. 165–176.
25. Yi Huang, Brian Powers, Lev Reyzin. Training-Time Optimization of a Budgeted Booster. In the *Proceedings of the 24th International Joint Conference on Artificial Intelligence*, (IJCAI), 2015, pp. 3583–3589.
26. Dana Angluin, James Aspnes, Lev Reyzin. Network Construction with Subgraph Connectivity Constraints. In the *Journal of Combinatorial Optimization*, Vol. 29(2), 2015, pp. 418–432.
27. Benjamin Fish, Ádám D. Lelkes, Jeremy Kun, Lev Reyzin, György Turán. On the Computational Complexity of MapReduce. In the *Proceedings of the 29th International Symposium on Distributed Computing* (DISC), 2015, pp. 1–15.
28. Anqi Liu, Lev Reyzin, Brian Ziebart. Shift-Pessimistic Active Learning using Robust Bias-Aware Prediction. In the *Proceedings of the 29th AAAI Conference on Artificial Intelligence* (AAAI), 2015, pp. 2055–2061.

29. Jeremy Kun, Lev Reyzin. Open Problem: Learning Quantum Circuits with Queries. In the *Proceedings of the 28th Annual Conference on Learning Theory* (COLT), 2015, pp. 1767–1769.

30. Shalev Ben-David, Lev Reyzin. Data Stability in Clustering: A Closer Look. In the ALT 2012 Special Issue of *Theoretical Computer Science*, Vol. 558, 2014, pp. 51–61.

31. Jeremy Kun, Lev Reyzin. On Coloring Resilient Graphs. In the *Proceedings of the 39th Symposium on the Mathematical Foundations of Computer Science* (MFCS), 2014, pp. 517–528.

32. Lev Reyzin. On Boosting Sparse Parities. In the *Proceedings of the 28th AAAI Conference on Artificial Intelligence* (AAAI), 2014, pp. 2055–2061.

33. Vitaly Feldman, Elena Grigorescu, Lev Reyzin, Santosh Vempala, Ying Xiao. Statistical Algorithms and a Lower Bound for Planted Clique. In the *Proceedings of the 45th ACM Symposium on the Theory of Computing* (STOC), 2013, pp. 655–664.

34. Jeremy Kun, Brian Powers, Lev Reyzin. Anti-Coordination Games and Stable Graph Colorings. In the *Proceedings of the 6th International Symposium on Algorithmic Game Theory* (SAGT), 2013, pp. 122–133.

35. Lev Reyzin. Data Stability in Clustering: A Closer Look. In the *Proceedings of the 23rd International Conference on Algorithmic Learning Theory* (ALT), 2012, pp. 184–198. Invited to a special issue of *Theoretical Computer Science*.

36. Miroslav Dudik, Daniel Hsu, Satyen Kale, Nikos Karampatziakis, John Langford, Lev Reyzin, Tong Zhang. Efficient Optimal Learning for Contextual Bandits. In the *Proceedings of the 27th Conference on Uncertainty in Artificial Intelligence* (UAI), 2011, pp. 169–178. (20 p. on arXiv)

37. Lev Reyzin. Boosting on a Budget: Sampling for Feature-Efficient Prediction. In the *Proceedings of the 28th International Conference on Machine Learning* (ICML), 2011, pp. 529–536.

38. Elena Grigorescu, Lev Reyzin, Santosh Vempala. On Noise-Tolerant Learning of Sparse Parities and Related Problems. In the *Proceedings of the 22nd International Conference on Algorithmic Learning Theory* (ALT), 2011, pp. 413–424.

39. Wei Chu, Lihong Li, Lev Reyzin, Robert E. Schapire. Contextual Bandits with Linear Payoff Functions. In the *Proceedings of the 14th International Conference on Artificial Intelligence and Statistics* (AISTATS), 2011, pp. 208–214.

40. Alina Beygelzimer, John Langford, Lihong Li, Lev Reyzin, Robert E. Schapire. Contextual Bandit Algorithms with Supervised Learning Guarantees.[7] In the *Proceedings of the 14th International Conference on Artificial Intelligence and Statistics* (AISTATS), 2011, pp. 19–26. (10 p. on arXiv)

41. Satyen Kale, Lev Reyzin, Robert E. Schapire. Non-Stochastic Bandit Slate Problems. In the *Proceedings of the 24th Annual Conference on Neural Information Processing Systems* (NIPS), 2010, pp. 1045–1053. (12 p. with supplement)

42. Dana Angluin, David Eisenstat, Leonid Kontorovich, Lev Reyzin. Lower Bounds on Learning Random Structures with Statistical Queries. In the *Proceedings of the 21st International Conference on Algorithmic Learning Theory* (ALT), 2010, pp. 194–208.

43. Dana Angluin, James Aspnes, Lev Reyzin. Inferring Social Networks from Outbreaks. In the *Proceedings of the 21st International Conference on Algorithmic Learning Theory* (ALT), 2010, pp. 104–118.

44. Dana Angluin, James Aspnes, Lev Reyzin. Optimally Learning Social Networks with Activations and Suppressions. In the ALT 2008 Special Issue of *Theoretical Computer Science*, Vol. 411(29–30), 2010, pp. 2729–2740.

45. Lev Reyzin. Active Learning of Interaction Networks. *Yale University Doctoral Dissertation*, December 2009, 156 p.

46. Dana Angluin, James Aspnes, Jiang Chen, David Eisenstat, Lev Reyzin. Learning Acyclic Probabilistic Circuits Using Test Paths. In the *Journal of Machine Learning Research*, Vol. 10, 2009, pp. 1881–1911.

[7] AISTATS 2011 notable paper.

47. Dana Angluin, Leonor Becerra-Bonache, Adrian Horia Dediu, Lev Reyzin. Learning Finite Automata Using Label Queries. In the *Proceedings of the 20th International Conference on Algorithmic Learning Theory* (ALT), 2009, pp. 171–185.

48. Dana Angluin, James Aspnes, Lev Reyzin. Optimally Learning Social Networks with Activations and Suppressions. In the *Proceedings of the 19th International Conference on Algorithmic Learning Theory* (ALT), 2008, pp. 272–286. Invited to a special issue of *Theoretical Computer Science*.

49. Dana Angluin, James Aspnes, Jiang Chen, Lev Reyzin. Learning Large-Alphabet and Analog Circuits with Value Injection Queries. In the COLT 2007 Special Issue of *Machine Learning*, Vol. 72(1-2), 2008, pp. 113–138.

50. Dana Angluin, James Aspnes, Jiang Chen, David Eisenstat, Lev Reyzin. Learning Acyclic Probabilistic Circuits Using Test Paths. In the *Proceedings of the 21st Annual Conference on Learning Theory* (COLT), 2008, pp. 169–179.

51. Lev Reyzin, Nikhil Srivastava. On the Longest Path Algorithm for Reconstructing Trees from Distance Matrices. In the *Information Processing Letters*, Vol. 101(3), 2007, pp. 98–100.

52. Lev Reyzin, Nikhil Srivastava. Learning and Verifying Graphs Using Queries with a Focus on Edge Counting. In the *Proceedings of the 18th International Conference on Algorithmic Learning Theory* (ALT), 2007, pp. 285–297.

53. Dana Angluin, James Aspnes, Jiang Chen, Lev Reyzin. Learning Large-Alphabet and Analog Circuits with Value Injection Queries.[8] In the *Proceedings of the 20th Annual Conference on Learning Theory* (COLT), 2007, pp. 51–65. Invited to a special issue of *Machine Learning*.

54. Lev Reyzin, Robert E. Schapire. How Boosting the Margin Can Also Boost Classifier Complexity.[9] In the *Proceedings of the 23rd International Conference on Machine Learning* (ICML), 2006, pp. 753–760.

Expositions, reviews, etc.

55. Genrich Belitskii, Alexander Blokh, Michael Brin, Yuri Brudnyi, Vladimir Drinfeld, Alexandre Eremenko, Gennadiy Feldman, Svetlana Jitomirskaya, Alexandre A. Kirillov Sr., Valery Kirzhner, Peter Kuchment, Yuri Latushkin, Vladimir Lin, Mikhail Lyubich, Volodymyr A. Marchenko, Alexander Markus, Vitali Milman, Boris Mityagin, Nikolai K. Nikolski, Leonid A. Pastur, Yehuda Pinchover, Svetlana Pokrovsky, Valery L. Pokrovsky, Simeon Reich, Lev Reyzin, Oksana Shatalov, Mikhail Sodin, Ilya M. Spitkovsky, Yuri Tomilov, Anatoly M. Vershik, Mikhail Zaidenberg, Michail Zhitomirskii, Yakov I. Zhitomirskii. In memory of Yuri Ilyich Lyubich. In the *Journal of Mathematical Physics, Analysis, Geometry*, Vol. 19(4), 2023, pp. 822–836.

56. Lev Reyzin. Statistical Queries: Foundations and Applications. On *arXiv*, 2004.00557. 2020, 21 p.

57. Lev Reyzin. A Review of *Famous Puzzles of Great Mathematicians* by Miodrag S. Petkoviç. In *SIGACT News*, Vol. 42(3), September 2011, pp. 36–39.

58. Dave Clarke, David Eppstein, Kaveh Ghasemloo, Lev Reyzin, András Salamon, Peter Shor, Aaron Sterling, Suresh Venkatasubramanian. Questions Answered. In Theory. In *SIGACT News*, Vol. 41(4), 2010, pp. 58–60.

Volumes edited

59. Lev Reyzin (ed.), ISAIM 2020 Special Issue of *Annals of Mathematics and Artificial Intelligence*, Vol. 90(1), 2022, 144 p. (cf. Forward, pp. 1–2.)

60. Steve Hanneke, Lev Reyzin (eds.), Special Issue on Algorithmic Learning Theory in *Theoretical Computer Science*, Vol. 808, 2020, 164 p. (cf. Special issue on ALT 2017: Guest Editors' Introduction, p. 1.)

61. Lisa Hellerstein, Lev Reyzin, György Turán (eds.), ISAIM 2014 Special Issue of *Annals of Mathematics and Artificial Intelligence*, Vol. 79(1–3), 2017, 266 p. (cf. Forward, pp. 1–3.)

62. Steve Hanneke, Lev Reyzin (eds.), Proceedings of ALT 2017 in the *Proceedings of Machine Learning Research*, Vol. 76, 2017, 680 p. (cf. Algorithmic Learning Theory: Preface, pp. 1–2.)

[8] COLT 2007 best student paper.
[9] ICML 2006 best student paper.

Teaching (as main instructor or co-instructor)

University of Illinois at Chicago

- Instructor, MCS 549[10]: Mathematical Foundations of Data Science (Fall 2024, Fall 2023, Fall 2022, Fall 2021, Fall 2019, Fall 2017, Spring 2015)
- Instructor, MCS 501: Computer Algorithms II (Spring 2024, Fall 2020)
- Instructor, CS 401 / MCS 401: Computer Algorithms I (Fall 2023, Fall 2022, Spring 2022, Fall 2019, Fall 2018, Fall 2017, Spring 2017, Fall 2016, Spring 2016)
- Instructor, MCS 541: Computational Complexity (Spring 2023)
- Instructor, ECON 473 / STAT 473: Game Theory (Fall 2021[11], Spring 2021, Spring 2020)
- Instructor, MCS 548: Mathematical Theory of Artificial Intelligence (Fall 2020, Fall 2018, Fall 2016, Fall 2014)
- Instructor, MCS 441: Theory of Computation I (Spring 2018, Spring 2016, Spring 2014, Spring 2013)
- Instructor, MCS 521: Combinatorial Optimization (Fall 2013)

Northwestern University

- Instructor, EECS 497-3: Advanced Topics in Computational Learning Theory (Spring 2019)
- Instructor, EECS 496-10: Computational Learning Theory (Winter 2019)

Georgia Institute of Technology

- Co-Instructor, CS 8803 / MATH 8833: Discrete Fourier Analysis & Applications (Spring 2012)

Advising and mentoring

Postdoctoral mentoring[12]

- Idan Attias. UIC MSCS, IDEAL Postdoctoral Research Associate, 2024–present (co-mentored with Avrim Blum)
  - topics studied: machine learning theory, data-driven sequential decision-making
- Aditya Potukuchi. UIC MSCS, TRIPODS Research Assistant Professor, 2020–2022 (co-mentored with Will Perkins)
  - current position: Assistant Professor of Computer Science at York University, Toronto, Ontario, Canada (York University was Aditya Potukuchi's first employer after UIC.)
- Li Wang. UIC MSCS, Research Assistant Professor, 2015–2017
  - current position: Associate Professor of Mathematics at UT Arlington, Arlington, TX (UT Arlington was Li Wang's first employer after UIC.)

Ph.D. student advising

- Bethany Austhof. UIC Mathematics, Ph.D. in progress
- Xing Gao. UIC Mathematics, Ph.D. in progress (co-advised with Yu Cheng)
- Duan Tu. UIC Mathematics, Ph.D. in progress
- Thomas Maranzatto. UIC Mathematics, Ph.D. 2024
  - dissertation title: "*Combinatorial Methods for Learning and Information Theory*"
  - current position: Postdoctoral Scholar in Electrical Engineering at the University of Maryland (The University of Maryland was Thomas Maranzatto's first employer after UIC.)

[10] In Fall 2017 and Spring 2015, "Mathematical Foundations of Data Science" was taught as a special topics course as MCS 590.
[11] In Fall 2021, "Game Theory" was offered only as STAT 473 and not cross-listed as ECON 473.
[12] "Research Assistant Professor" (sometimes abbreviated as "RAP") is a common postdoctoral title in mathematics departments.

- Saeed Hajizadeh. UIC Mathematics, Ph.D. 2023
  - dissertation title: "*Large-scale Minimax Optimization Problems*"
  - current position: Visiting Assistant Professor of Computer Science, Roosevelt University
    (Roosevelt University was Saeed Hajizadeh's first employer after UIC.)
- Neshat Mohammadi. UIC Computer Science, Ph.D. 2022 (co-advised with Anastasios Sidiropoulos)
  - dissertation title: "*Geometric Algorithms for Metric and Graph Learning*"
  - first position: Postdoctoral Scholar in Medicine at Stanford University
  - current position: Researcher at Truveta
- Shelby Heinecke. UIC Mathematics, Ph.D. 2020
  - dissertation title: "*Resilient Structures and Robust Machine Learning Algorithms*"
  - current position: Senior Research Manager at Salesforce
    (Salesforce Research was Shelby Heinecke's first employer after UIC.)
- Mano Vikash Janardhanan. UIC Mathematics, Ph.D. 2019
  - dissertation title: "*Algorithms for Learning Networks and Learning from Networks*"
  - first position: Applied Research Scientist at Lifion by ADP
  - current position: Quantitative Researcher at Balyasny Asset Management
- Benjamin Fish. UIC Mathematics, Ph.D. 2018
  - dissertation title: "*New Models and Algorithms for Data Analysis*"
  - first position: Postdoctoral Researcher at Microsoft Research
  - current position: Assistant Professor of Computer Science at the University of Michigan
- Yi Huang. UIC Mathematics, Ph.D. 2017
  - dissertation title: "*Problems in Learning under Limited Resources and Information*"
  - first position: Postdoctoral Scholar in Medicine at the University of Chicago
  - current position: Research Associate in Computational Science at Brookhaven National Lab
- Ádám D. Lelkes. UIC Mathematics, Ph.D. 2017 (co-advised with György Turán)
  - dissertation title: "*Algorithms and Complexity Results for Learning and Big Data*"
  - first position: Software Engineer at Google Research
  - current position: Senior Software Engineer at DeepMind
- Jeremy Kun. UIC Mathematics, Ph.D. 2016
  - dissertation title: "*Graphs, New Models, and Complexity*"
  - first position: Data Scientist at 21 Inc.
  - current position: Staff Software Engineer at Google

Summer intern hosting

- Erasmo Tani. UIC MSCS intern through IDEAL, Ph.D. student at the University of Chicago, Summer 2024

Ph.D. committee memberships or equivalent (not as advisor)

- Vignesh Ganapathiram. UIC Computer Science, Ph.D. in progress (advisor: Xinhua Zhang)
- Yeshu Li. UIC Computer Science, Ph. D. in progress (advisor: Brian Ziebart)
- Yingyi Ma. UIC Computer Science, Ph.D. in progress (advisor: Xinhua Zhang)
- Zhan Shi. UIC Computer Science, Ph.D. in progress (advisor: Xinhua Zhang)

- Mingquan Ye. UIC Computer Science, Ph.D. 2024 (advisor Xiaorui Sun)
- Youhan Lu. UIC Mathematics, Ph.D. 2023 (advisor: Yichao Wu)
- Zhongkai Wen. UIC Computer Science, Ph.D. 2022 (advisors: Ian Kash and Lenore Zuck)
- Mohammad Ali Bashiri. UIC Computer Science, Ph.D. 2021 (advisor: Brian Ziebart)
- Sayan Mukherjee. UIC Mathematics, Ph.D. 2021 (advisor: Dhruv Mubayi)
- Hunter Chase. UIC Mathematics, Ph.D. 2020 (advisor: James Freitag)
- Rizal Fathony. UIC Computer Science, Ph.D. 2019 (advisor: Brian Ziebart)
- Anqi Liu. UIC Computer Science, Ph.D. 2018 (advisor: Brian Ziebart)
- Lujia Wang. UIC Mathematics, Ph.D. 2018 (advisor: Dhruv Mubayi)
- Alex Cameron. UIC Mathematics, Ph.D. 2018 (advisors: Dhruv Mubayi and György Turán)
- Sam Cole. UIC Mathematics, Ph.D. 2018 (advisor: Shmuel Friedland)
- Nathan Bliss. UIC Mathematics, Ph.D. 2018 (advisor: Jan Verschelde)
- Jeff Sommars. UIC Mathematics, Ph.D. 2018 (advisor: Jan Verschelde)
- Anooshiravan Sharabiani. UIC Industrial Engineering, Ph.D. 2017 (advisor: Houshang Darabi)
- John Hardwick. UIC Mathematics, Ph.D. 2017 (advisor: Thirukkannamangai E. S. Raghavan)
- Matthew Monfort. UIC Computer Science, Ph.D. 2016 (advisor: Brian Ziebart)
- Brian Powers. UIC Mathematics, Ph.D. 2016 (advisor: Thirukkannamangai E. S. Raghavan)
- Roi Weiss. BGU Computer Science, Ph.D. 2015 (advisor: Aryeh Kontorovich)
- Xiangcheng Yu. UIC Mathematics, Ph.D. 2015 (advisor: Jan Verschelde)
- Jeffrey Cooper. UIC Mathematics, Ph.D. 2014 (advisor: Dhruv Mubayi)
- Randall Stading. UIC Mathematics, Ph.D. 2014 (advisor: Dhruv Mubayi)
- Dimitris Diochnos. UIC Mathematics, Ph.D. 2013 (advisor: György Turán)
- Habiba Habiba. UIC Computer Science, Ph.D. 2013 (advisor: Tanya Berger-Wolf)

Talks

I have delivered many contributed and invited lectures, tutorials, panel contributions, colloquia, etc. at conference, university, and industrial venues across the United States and also internationally. Details can be provided upon request.

Reviewing and editorial work

Journals

- leadership: editor-in-chief for *Mathematics of Data, Learning, and Intelligence* (2024–present)
- editorial board: editorial board reviewer for *Journal of Machine Learning Research* (2020–present), editorial board member for *Annals of Mathematics and Artificial Intelligence* (2016–present, 2016–2023 as an associate editor)
- guest editor: ISAIM 2020 special issue in *Annals of Mathematics and Artificial Intelligence*, ALT 2017 special issue in *Theoretical Computer Science*, ISAIM 2014 special issue in *Annals of Mathematics and Artificial Intelligence*

Conferences

- program committee (co-)chair: ISAIM 2020, ALT 2017
- area chair: NIPS 2022, COLT 2022, NIPS 2021, IJCAI 2021

- main/senior PC member: ALT 2025, COLT 2024, ISAIM 2024, ALT 2024, COLT 2023, IJCAI 2022, IJCAI 2020, ALT 2020, ECAI 2020, ALT 2019, RANDOM 2018, AAAI 2018, ALT 2015, ALT 2014, ALT 2013, ALT 2012
- extended program committee member / reviewer-at-large: ICML 2023, AISTATS 2023, ICML 2022, AISTATS 2022, ICML 2021, AAAI 2021, ICML 2020, UAI 2019, AISTATS 2019, AAAI 2019, NIPS 2018, AAMAS 2018, AISTATS 2018, AAAI 2017, NIPS 2016, ICML 2016, AISTATS 2016, AAAI 2016, IJCAI 2015, ICML 2015, NIPS 2014, ICML 2014, IJCAI 2013, ICML 2013, ICML 2012, NIPS 2011, ICML 2010, NIPS 2010

Workshops, &c.

- workshop (co-)organizer: High School Teacher Workshop at IDEAL in 2023, Machine Learning, Interpretability and Logic Workshop at IDEAL in 2023, Introduction to Machine Learning and Logic Workshop at IDEAL in 2023, The Multifaceted Complexity of Machine Learning Workshop at IMSI in 2021
- session organizer: "Theory of Machine Learning" at ISAIM 2018, "Theory of Machine Learning" at ISAIM 2014
- program committee member: IJCAI 2022 survey track, SIAM Network Science 2016

Grants

- virtual panel member: NSF, Translational Impacts (TIP), 2024
- virtual panel member: NSF, Translational Impacts (TIP), 2023
- external reviewer: NSERC, Discovery Grants Program (GD), 2023
- virtual panel member: NSF, Translational Impacts (TIP), 2022
- external reviewer: ISF, Exact Sciences and Technology (PRG), 2022
- external reviewer: NSF, Information and Intelligent Systems (CISE), 2021
- virtual panel member: NSF, Information and Intelligent Systems (CISE), 2021
- external reviewer: ISF, Exact Sciences and Technology (PRG), 2021
- virtual panel member: NSF, Communications and Foundations (CISE), 2021
- external reviewer: NSF, Communications and Foundations (CISE), 2020
- virtual panel member: NSF, Communications and Foundations (CISE), 2020
- in-person panel member: NSF, Communications and Foundations (CISE), 2020
- external reviewer: NSERC, Discovery Grants Program (GD), 2020
- in-person panel member: NSF, Information and Intelligent Systems (CISE), 2019
- in-person panel member: NSF, Division of Mathematical Sciences (MPS), 2018
- in-person panel member: NSF, Information and Intelligent Systems (CISE), 2017
- external reviewer: DHS, Centers of Excellence (S&T), 2016
- in-person panel member: NSF, Communications and Foundations (CISE), 2015

Other

- fellowship reviewer: NSF CI-Fellows postdoctoral program, 2020
- book proposal reviewer: Cambridge University Press, 2017
- external reviewer: British Computer Society Distinguished Dissertation Award, 2017

Professional service and memberships

Service to the profession

- chair of the steering committee of the Association for Algorithmic Learning Theory, 2023–present; secretary and treasurer of the Association for Algorithmic Learning Theory, 2018–present
- steering committee member: ALT, 2016–present (ex-officio 2016–2017 as PC co-chair, ex-officio 2020–2023 as AALT treasurer, ex-officio 2023–present as AALT SC chair), ISAIM, 2014–present (ex-officio as an editor of *Annals of Mathematics and Artificial Intelligence*)
- moderator of `cstheory.stackexchange.com`, 2014–present
- conference coordination: general co-chair for FOCS 2024, local co-chair ALT 2019

Institutional service

- UIC college/university service: fellow of the Honors College (2019–present), member of the OVCR research restart committee for data science research (2020–2021), member of the faculty senate (2017–2020), member of the provost's committee on data sciences and social sciences (2017–2018), member o thef LAS search committee for director of faculty research activity (2016–2017)
- UIC departmental service as chair, secretary, or equivalent: chair of the MCS faculty search committee (2023–2024, Spring 2022, 2017–2020), chair of the data science RAP search committee (2022–2023, 2019–2020), weekly tea coordinator (2020-2021), chair of the advisory committee (2019–2020), chair of the salary committee (2019-2020, ex-officio as advisory committee chair), Mathematics and Computer Science program director[13] (2015–2018), secretary of the advisory committee (2015–2016), responsible for redesign of Mathematics and Computer Science major (redesign in 2012–2014 with changes effective starting 2019)
- UIC departmental service: advisory committee (2023–2025, 2019–2021, 2014–2016), graduate mentoring award committee (2023–2024, 2020–2021, 2016–2017), MCS tenure-track faculty search committee (2022-2024, 2017–2020), graduate admissions and fellowships committee/reviewer (2020-2024, 2017–2018, 2012–2015), data science RAP search committee (2022–2023, 2019–2020), salary committee (2022–2023, 2019–2020, 2015–2016), statistics tenure-track faculty search committee (2021–2022, 2018–2020, 2016–2017), director of research operations search committee (2020–2021), undergraduate studies committee (2016–2018), RAP search committee (2013–2015), MCS master's exam coordinator (2013–2015)
- Seminar (co-)organization: UIC MCS seminar (2022–2023, 2013–2019), UIC machine learning seminar (2012–2013), Yale graduate student computer science theory colloquium (2007–2008)

Academic and scientific memberships

- Faculty for Academic Freedom and Against Antisemitism (FAFAA): member, 2024–present
- Association for Mathematics Research (AMR): member, 2022–present
- Academic Freedom Alliance (AFA): member, 2021–present
- Association for the Advancement of Artificial Intelligence (AAAI): member, 2014–present
- Association for Computing Machinery (ACM): professional member, 2009–present

[13] I held this role as the faculty member responsible for evaluating student outcomes for the Mathematics and Computer Science major.