Lev Reyzin

Mathematics, Statistics, & Computer Science (MSCS)
University of Illinois at Chicago (UIC)
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work phone: (312)-413-3745
email: lreyzin@uic.edu
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Research interests

Computational and statistical machine learning. Foundations of network and data science. Combinatorial optimization.

Appointments

Professor, Mathematics, Statistics, and Computer Science, University of Illinois at Chicago, 2021–present
Adjunct Professor, Computer Science, University of Illinois at Chicago, 2021–present
Associate Professor, Mathematics, Statistics, and Computer Science, University of Illinois at Chicago, 2017–2021
Adjunct Associate Professor, Computer Science, University of Illinois at Chicago, 2017–2021
Visiting Associate Professor, Computer Science, Northwestern University, 2018–2019
Assistant Professor, Mathematics, Statistics, & Computer Science, University of Illinois at Chicago, 2012–2017
Adjunct Assistant Professor, Computer Science, University of Illinois at Chicago, 2012–2017
Postdoctoral Fellow (*hosted by Santosh Vempala*), Computer Science, Georgia Institute of Technology, 2010–2012
Postdoctoral Research Scientist (*hosted by John Langford*), Yahoo! Research, 2009–2010
Research Intern (*hosted by David Cohn and Yoram Singer*), Google Research, Summers 2006 & 2007

Education

Ph.D. in Computer Science (*advised by Dana Angluin*), Yale University, 2009
M.Phil. in Computer Science, Yale University, 2008
M.S. in Computer Science, Yale University, 2006
B.S.E. *with honors* in Computer Science, Princeton University, 2005
Certificate in Applied and Computational Mathematics, Princeton University, 2005

Selected grants and awards

UIC Graduate Mentoring Award, 2020
NSF Award CCF-1934915, $1,500,000, PI (co-PIs: Devroye, Perkins, Sidiropoulos, Zheleva)[1], 2019–2022
NSF Award CCF-1848966, $100,000, sole PI, 2018–2021[2]
NSF Award IIS-1526379, $500,000, co-PI (PI: Ziebart), 2015–2018
ARO Award 66497-NS, $49,700, sole PI, 2015–2016
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

[1] This grant was awarded with Berger-Wolf as PI and myself as co-PI and initial co-director of the associated TRIPODS institute. Several months afterwards, I became the grant PI and the sole director of the institute.
[2] The original award ran from 2018-2020. A no-cost extension was granted for 2020-2021.

Manuscripts

1. Xing Gao, Thomas Maranzatto, Lev Reyzin. A Unified Analysis of Dynamic Interactive Learning. *Manuscript*, 2021, 10 p.
2. James Freitag, Neshat Mohammadi, Aditya Potukuchi, Lev Reyzin. On the Geometry of Stable Steiner Tree Instances. *Manuscript*, 2021, 10 p.
3. Lev Reyzin. Statistical Queries: Foundations and Applications. *Manuscript*, arXiv:2004.00557, 2020, 21 p.
4. Mano Vikash Janardhanan, Lev Reyzin. On Learning a Hidden Directed Graph with Path Queries. *Manuscript*, arXiv:2002.11541, v2, 2021, 11 p.

Publications (grouped by work)[3]

3. 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.
4. Benjamin Fish, Lev Reyzin. On the Complexity of Learning a Class Ratio from Unlabeled Data. In the *Journal of Artificial Intelligence Research*, Volume 69, 2020, pp. 1333-1349.

   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.
5. 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*, Volume 8, Issue 88, 2020, pp. 887-905.
6. 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.
7. 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.
8. Lev Reyzin. Unprovability Comes to Machine Learning. In *Nature*, Volume 565, Issue 7738, 2019, News and Views, pp. 166-167.
9. 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.
10. Sam Cole, Shmuel Friedland, Lev Reyzin. A Simple Spectral Algorithm for Recovering Planted Partitions. In *Special Matrices*, Volume 5, Issue 1, 2017, pp. 139–157.
11. 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.
12. 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.
13. 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*, Volume 64, Issue 2, 2017, pp. 8:1–8:37.

    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. (41 p. on arXiv)
14. 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.
15. Alexander Gutfraind, Jeremy Kun, Ádám D. Lelkes, Lev Reyzin. Network Installation under Convex Costs. In the *Journal of Complex Networks, Volume 4, Issue 2*, 2016, pp. 177-186.
16. 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.

[3] 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. See the CRA best practices memo: `http://www.cra.org/uploads/documents/resources/bpmemos/tenure_review.pdf`

17. 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.

18. 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.

19. Dana Angluin, James Aspnes, Lev Reyzin. Network Construction with Subgraph Connectivity Constraints. In the *Journal of Combinatorial Optimization*, Volume 29, Issue 2, 2015, pp. 418–432.

    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.

20. 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.

21. 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.

22. 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.

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

    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*.

24. 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.

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

26. 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.

27. 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)

28. 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.

29. 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.

30. 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.

31. Alina Beygelzimer, John Langford, Lihong Li, Lev Reyzin, Robert E. Schapire. Contextual Bandit Algorithms with Supervised Learning Guarantees.[4] In the *Proceedings of the 14th International Conference on Artificial Intelligence and Statistics* (AISTATS), 2011, pp. 19–26. (10 p. on arXiv)

32. Lev Reyzin. A Review of *Famous Puzzles of Great Mathematicians* by Miodrag S. Petkoviç. In *SIGACT News*, Volume 42, Issue 3, September 2011, pp. 36–39.

33. 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)

34. 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.

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

[4] AISTATS 2011 notable paper.

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

    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*.

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

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

    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.

39. 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.

40. 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*, Volume 72, Issues 1-2, 2008, pp. 113–138.

    Dana Angluin, James Aspnes, Jiang Chen, Lev Reyzin. Learning Large-Alphabet and Analog Circuits with Value Injection Queries.[5] In the *Proceedings of the 20th Annual Conference on Learning Theory* (COLT), 2007, pp. 51–65. Invited to a special issue of *Machine Learning*.

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

42. 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.

43. Lev Reyzin, Robert E. Schapire. How Boosting the Margin Can Also Boost Classifier Complexity.[6] In the *Proceedings of the 23rd International Conference on Machine Learning* (ICML), 2006, pp. 753–760.

Volumes edited

1. Steve Hanneke, Lev Reyzin (eds.), Special Issue on Algorithmic Learning Theory in *Theoretical Computer Science*, Volume 808, 2020, 164 p. (cf. Special issue on ALT 2017: Guest Editors' Introduction, p. 1.)
2. Lisa Hellerstein, Lev Reyzin, György Turán (eds.), ISAIM 2014 Special Issue of *Annals of Mathematics and Artificial Intelligence*, Volume 79, Issues 1–3, 2017, 266 p. (cf. Forward, pp. 1–3.)
3. Steve Hanneke, Lev Reyzin (eds.), Proceedings of ALT 2017 in the *Proceedings of Machine Learning Research*, Volume 76, 2017, 680 p. (cf. Algorithmic Learning Theory: Preface, pp. 1–2.)

Teaching

University of Illinois at Chicago

- Instructor, MCS 549[7]: Mathematical Foundations of Data Science (Fall 2021, Fall 2019, Fall 2017, Spring 2015)
- Instructor, ECON 473 / STAT 473: Game Theory (Fall 2021[8], Spring 2021, Spring 2020)
- Instructor, MCS 501: Computer Algorithms II (Fall 2020)
- Instructor, MCS 548: Mathematical Theory of Artificial Intelligence (Fall 2020, Fall 2018, Fall 2016, Fall 2014)
- Instructor, CS 401 / MCS 401: Computer Algorithms I (Fall 2019, Fall 2018, Fall 2017, Spring 2017, Fall 2016, Spring 2016)
- Instructor, MCS 441: Theory of Computation I (Spring 2018, Spring 2016, Spring 2014, Spring 2013)
- Instructor, MCS 521: Combinatorial Optimization (Fall 2013)

[5] COLT 2007 best student paper.
[6] ICML 2006 best student paper.
[7] In Fall 2017 and Spring 2015, "Mathematical Foundations of Data Science" was taught as a special topics course under the designation MCS 590.
[8] In Fall 2021, "Game Theory" was offered only as STAT 473 and not cross-listed as ECON 473.

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)

Yale University

- Teaching Fellow, CPSC 463/563: Machine Learning (Spring 2009)
- Teaching Fellow, CPSC 202: Mathematical Tools for Computer Science (Fall 2008, Fall 2006)
- Teaching Fellow, CPSC 365: Design and Analysis of Algorithms (Spring 2008, Spring 2007)

Princeton University

- Lab Teaching Assistant for COS 126: Introduction to Computer Science, COS 217: Introduction to Programming Systems, and COS 226: Data Structures and Algorithms (Fall 2003–Spring 2005)

Advising and mentoring

Postdoctoral mentoring[9]

- Aditya Potukuchi. UIC MSCS, TRIPODS Research Assistant Professor, 2020– present (co-mentored with Will Perkins)
- Li Wang. UIC MSCS, Research Assistant Professor, 2015–2017
  - first/current position: Assistant Professor of Mathematics at UT Arlington, Arlington, TX

Ph.D. student advising

- Xing Gao. UIC Mathematics, Ph.D. in progress
- Saeid Hajizadeh. UIC Mathematics, Ph.D. in progress (co-advised with Haihao Lu)
- Thomas Maranzatto. UIC Mathematics, Ph.D. in progress
- Neshat Mohammadi. UIC Computer Science, Ph.D. in progress (co-advised with Anastasios Sidiropoulos)
- Shelby Heinecke. UIC Mathematics, Ph.D. 2020
  - dissertation title: "*Resilient Structures and Robust Machine Learning Algorithms*"
  - first/current position: Research Scientist at Salesforce, Palo Alto, CA
- Mano Vikash Janardhanan. UIC Mathematics, Ph.D. 2019
  - dissertation title: "*Algorithms for Learning Networks and Learning from Networks*"
  - first/current position: Applied Research Scientist at Lifion by ADP, New York, NY
- Benjamin Fish. UIC Mathematics, Ph.D. 2018
  - dissertation title: "*New Models and Algorithms for Data Analysis*"
  - first position: Postdoctoral Researcher at Microsoft Research and MILA, Montréal, Canada
  - current position: Assistant Professor of Computer Science at University of Michigan, Ann Arbor, MI
- 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, Chicago, IL
  - current position: Scientific Staff in Computational Science at Brookhaven National Laboratory, Upton, NY
- 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/current position: Software Engineer at Google Research, New York, NY
- Jeremy Kun. UIC Mathematics, Ph.D. 2016

[9] "Research Assistant Professor" (sometimes abbreviated as "RAP") is a common postdoctoral title in mathematics departments.

- dissertation title: "*Graphs, New Models, and Complexity*"
- first position: Data Scientist at 21 Inc., San Francisco, CA
- current position: Software Engineer at Google, Mountain View, CA

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

– Mohammad Ali Bashiri. UIC Computer Science, Ph.D. in progress (advisor: Brian Ziebart)
– Vignesh Ganapathiram. UIC Computer Science, Ph.D. in progress (advisor: Xinhua Zhang)
– Yingyi Ma. UIC Computer Science, Ph.D. in progress (advisor: Xinhua Zhang)
– Zhan Shi. UIC Computer Science, Ph.D. in progress (advisor: Xinhua Zhang)
– Sayan Mukherjee. UIC Mathematics, Ph.D. 2021 (advisor: Dhruv Mubayi)
– Zhongkai Wen. UIC Computer Science, Ph.D. in progress (advisors: Lenore Zuck and Ian Kash)
– 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: György Turán and Dhruv Mubayi)
– 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)

Master's student advising

– Samantha Davies. UIC Mathematics, M.S. 2016
  - continued to a Ph.D. 2021 at the University of Washington

Undergraduate honors thesis supervision

– Jasmine Otto. UIC Mathematics and Computer Science, B.S. 2015
  - honors thesis title: "*Approaches to Modeling a Predator-Prey System in 2D Space*"
  - stayed for an M.S. 2017 at UIC and continued to a Ph.D. at UC Santa Cruz

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

- editorial board: associate editor of *Annals of Mathematics and Artificial Intelligence* (2016–present), editorial board reviewer of *Journal of Machine Learning Research* (2020–present)
- 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*
- referee: *Proceedings of the National Academy of Sciences, Journal of Machine Learning Research, Machine Learning Journal, Nature Machine Intelligence, IEEE Transactions on Neural Networks, IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Neural Networks and Learning Systems, Artificial Intelligence Journal, Journal of the ACM, Journal of Computer and System Sciences, Algorithmica, ACM Transactions on Algorithms, Theoretical Computer Science, Journal of Combinatorial Optimization, SIAM Journal on Discrete Mathematics, SIAM Journal on Computing, Discrete Applied Mathematics, Operations Research Letters, Optimization Letters, Distributed Computing, Annals of Statistics, Journal of the American Statistical Association, Entropy, WIREs Computational Statistics, Applied Network Science*

Conferences

- program committee (co-)chair: ISAIM 2020, ALT 2017
- area chair: NIPS 2021, IJCAI 2021
- main/senior program committee member: 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: 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
- referee: AISTATS 2020, SODA 2020, SODA 2019, COLT 2018, COCOON 2017, COLT 2017, AISTATS 2017, ALT 2016, COLT 2016, STOC 2016, SODA 2016, FOCS 2015, COLT 2015, ICALP 2015, AISTATS 2015, AAAI 2015, ESA 2014, FOCS 2014, STACS 2014, MFCS 2013, ICALP 2013, ITCS 2013, SODA 2013, MFCS 2012, FOCS 2012, COLT 2012, ITCS 2012, ICML 2011, ESA 2011, COLT 2011, EC 2011, COLT 2010, ALT 2009, COLT 2009, STOC 2008

Workshops

- organization: "The Multifaceted Complexity of Machine Learning" workshop co-organizer at IMSI in 2021, "Theory of Machine Learning" special session organizer and chair at ISAIM 2018, "Theory of Machine Learning" special session organizer and chair at ISAIM 2014
- program committee member: SIAM Network Science 2016

Grants

- 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

- secretary and treasurer of the Association for Algorithmic Learning Theory (AALT), 2018–present
- steering committee member of ALT, 2016–present (ex-officio 2016–2017 as PC co-chair, ex-officio 2020–present as AALT secretary and treasurer)
- steering committee member of ISAIM, 2014–present (ex-officio as associate editor of *Annals of Mathematics and Artificial Intelligence*)
- moderator of `cstheory.stackexchange.com`, 2014–present
- sponsorship co-chair of ALT 2021
- local co-chair of ALT 2019

Institutional service

– UIC college/university service: director of the UIC Foundations of Data Science Institute (2019–present), fellow of the Honors College (2019–present), member of the OVCR research restart committee for data science research (2020–2021), member of faculty senate (2017–2020), member of provost's committee on data sciences and social sciences (2017–2018), member of LAS search committee for director of faculty research activity (2016–2017)

– UIC departmental service as chair, secretary, or equivalent: 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), chair of the MCS faculty search committee (2017–2020), Mathematics and Computer Science program director[10] (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: graduate admissions and fellowships committee (2020-2021, 2017–2018, 2012–2015), graduate mentoring award committee (2020–2021, 2016–2017), director of research operations search committee (2020–2021), advisory committee (2019–2021, 2014–2016), MCS tenure-track faculty search committee (2017–2020), statistics tenure-track faculty search committee (2018–2020, 2016–2017), data science RAP search committee (2019–2020), salary committee (2019–2020, 2015–2016), undergraduate studies committee (2016–2018), RAP search committee (2013–2015), MCS master's exam coordinator (2013–2015)

– Seminar (co-)organization: UIC MCS seminar (2013–2019), UIC machine learning seminar (2012–2013), Yale graduate student computer science theory colloquium (2007–2008)

Memberships

– AAAI: member, 2014–present (lifetime member as of 2021)

– ACM: professional member, 2009–present (lifetime member as of 2020); student member, 2007–2009

– Sigma Xi: full member, 2010–present; associate member, 2005–2010

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