

Emily Kyle Fox

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Research Interests

Algorithms and data structures; computational geometry; computational topology; combinatorial optimization and graph algorithms; applications of geometry and optimization to topological data analysis, trajectory analysis, computer graphics, and robotics

Education

- 2008–2013 **Ph.D. in Computer Science**, University of Illinois at Urbana-Champaign, December 2013
Advisor: Jeff Erickson
Thesis: *Fast algorithms for surface embedded graphs via homology*
- 2008–2010 **M.S. in Computer Science**, University of Illinois at Urbana-Champaign, December 2010
Advisor: Jeff Erickson
Thesis: *Online scheduling on identical machines using SRPT*
- 2004–2008 **B.S. in Computer Science**, University of Illinois at Urbana-Champaign, May 2008
Graduated with highest honors

Employment

- 2023–present **Associate Professor**, Department of Computer Science, The University of Texas at Dallas
- 2017–2023 **Assistant Professor**, Department of Computer Science, The University of Texas at Dallas
- 2014–2017 **Postdoctoral Associate**, Department of Computer Science, Duke University
- Spring 2014 **Postdoctoral Fellow**, Institute for Computational and Experimental Research in Mathematics, Brown University
- 2010, '11, '12 **Software Engineering Intern**, Google Inc. and Google Research
- 2009–2010 **Teaching Assistant**, Department of Computer Science, University of Illinois at Urbana-Champaign
- 2006–2009 **Developer**, University of Illinois Archives, University of Illinois at Urbana-Champaign

Awards and Honors

National

- 2020–2025 **National Science Foundation CAREER Award** (CCF-1942597)
- 2010–2013 **Department of Energy Office of Science Graduate Fellowship Award**, U.S. Department of Energy (one of 150 awarded out of 3200 applicants)

Department and University

2019–2020	Best Teacher in Computer Science , Erik Jonsson School of Engineering and Computer Science, University of Texas at Dallas
Fall 2013	Stutzke Dissertation Completion Fellowship , University of Illinois at Urbana-Champaign
April 2013	C. W. Gear Outstanding Graduate Student Award , Department of Computer Science, University of Illinois at Urbana-Champaign
2008–2009	Andrew and Shana Laursen Fellowship , Department of Computer Science, University of Illinois at Urbana-Champaign
April 2008	C. W. Gear Outstanding Undergraduate Award , Department of Computer Science, University of Illinois at Urbana-Champaign

— Research —

Research products were produced under the name Kyle Jordan Fox prior to Summer 2023.

Publications

Each paper is listed once, even if it has appeared in multiple versions. Unless indicated otherwise, each paper lists other authors in alphabetical order, following standard practice in theoretical computer science.

Invited Refereed Journal Papers

- [1] Clustering with faulty centers. Joint work with Hongyao Huang and Benjamin Raichel. *Computational Geometry: Theory and Applications (CGTA)*, 2023, special issue of invited papers from the 33rd International Symposium on Algorithms and Computation. Extended abstract in *Proceedings of the 33rd International Symposium on Algorithms and Computation (ISAAC)*, 10:1–10:14, 2022.
- [2] Trajectory planning for an articulated probe. Ka Yaw Teo, Ovidiu Daescu, and **Kyle Fox**. *Computational Geometry: Theory and Applications (CGTA)*, 90, Article 101655, 2020, special issue of invited papers from the 30th Canadian Conference on Computational Geometry. Contains results from “Trajectory planning for an articulated probe”. Joint work with Ovidiu Daescu and Ka Yaw Teo. *Proceedings of the 30th Canadian Conference on Computational Geometry (CCCG)*, 296–303, 2018 and “Computing trajectory with clearance for an articulated probe” (workshop abstract). Joint work with Ovidiu Daescu and Ka Yaw Teo. *28th Annual Fall Workshop on Computational Geometry (FWCG)*, 2018.
- [3] Minimum cycle and homology bases of surface embedded graphs. Joint work with Glencora Borradaile, Erin Wolf Chambers, and Amir Nayyeri. *Journal of Computational Geometry (JoCG)*, 8(2):58–79, 2017, special issue of invited papers from the 32nd International Symposium on Computational Geometry. Extended abstract in *Proceedings of the 32nd International Symposium on Computational Geometry (SoCG)*, 23:1–23:15, 2016.
- [4] Counting and sampling minimum cuts in genus g graphs. Joint work with Erin W. Chambers and Amir Nayyeri. *Discrete & Computational Geometry*, 52(3):450–475, 2014, special issue of invited papers from the 29th Annual Symposium on Computational Geometry. Extended abstract in *Proceedings of the 29th Annual Symposium on Computational Geometry (SoCG)*, 249–258, 2013.

Other Refereed Journal Papers

- [5] Minimum cut and minimum k -cut in hypergraphs via branching contractions. Joint work with Debmalya Panigrahi and Fred Zhang. *ACM Transactions on Algorithms (TALG)*, 19(2), Article No. 13, 2023. Extended abstract in *Proceedings of the 30th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, 881–896, 2019.

- [6] Minimum cuts in surface graphs. Joint work with Erin W. Chambers, Jeff Erickson, and Amir Nayyeri. *SIAM Journal on Computing* (SICOMP), 52(1), 156–195, 2023. Contains results from “Global minimum cuts in surface embedded graphs”. Joint work with Jeff Erickson and Amir Nayyeri. *Proceedings of the 23rd Annual ACM-SIAM Symposium on Discrete Algorithms* (SODA), 1309–1318, 2012 along with additional contributions by the other authors.
- [7] Approximating the geometric edit distance. Joint work with Xinyi Li. *Algorithmica*, 84(9), 2395–2413, 2022. Extended abstract in *Proceedings of the 30th International Symposium on Algorithms and Computation* (ISAAC), 26:1–26:16, 2019.
- [8] A near-linear time approximation scheme for geometric transportation with arbitrary supplies and spread. Joint work with Jiashuai Lu. *Journal of Computational Geometry* (JoCG), 13(1), 204–225, 2022. Extended abstract in *Proceedings of the 36th International Symposium on Computational Geometry* (SoCG), 45:1–45:19, 2020.
- [9] Non-clairvoyantly scheduling to minimize convex functions. Joint work with Sungjin Im, Janardhan Kulkarni, and Benjamin Moseley. *Algorithmica*, 81(9), 3746–3764, 2019. Preliminary version appeared as “Online non-clairvoyant scheduling to simultaneously minimize all convex functions”. Extended abstract in *Proceedings of the International Workshop on Approximation Algorithms for Combinatorial Optimization Problems* (APPROX), 142–157, 2013.
- [10] An efficient algorithm for computing high quality paths amid polygonal obstacles. Joint work with Pankaj K. Agarwal and Oren Salzman. *ACM Transactions on Algorithms* (TALG), 14(4), Article No. 46, 2018. Extended abstract in *Proceedings of the 27th Annual ACM-SIAM Symposium on Discrete Algorithms* (SODA), 1179–1192, 2016.
- [11] Computing the Gromov-Hausdorff distance for metric trees. Joint work with Pankaj K. Agarwal, Abhinandan Nath, Anastasios Sidiropoulos, and Yusu Wang. *ACM Transactions on Algorithms* (TALG), 14(2), Article No. 24, 2018. Extended abstract in *Proceedings of the 26th International Symposium on Algorithms and Computation* (ISAAC), 529–540, 2015.
- [12] Energy efficient scheduling of parallelizable jobs. Joint work with Sungjin Im and Benjamin Moseley. *Theoretical Computer Science* (TCS), 726:30–40, 2018. Extended abstract in *Proceedings of the 24th Annual ACM-SIAM Symposium on Discrete Algorithms* (SODA), 948–957, 2013.
- [13] Spanning paths in Fibonacci-sum graphs. Joint work with William B. Kinnersley, Daniel McDonald, Nathan Orlow, and Gregory J. Puleo. *The Fibonacci Quarterly*, 52(1):46–49, 2014.
- [14] Scott Schwartz, Chris Prom, Chris Rishel, **Kyle Fox**. Archon: a unified information storage and retrieval system for lone archivists, special collections librarians and curators. *Partnership: The Canadian Journal of Library and Information Practice and Research*, 2(2), 2007.

Refereed Book Chapters

- [15] Geometric optimization revisited. Joint work with Pankaj K. Agarwal and Esther Ezra. *Computing and Software Science. Lecture Notes in Computer Science, vol 10000*, Bernhard Steffen and Gerhard Woeginger, editors. Springer, Cham, 2019.
- [16] Integrating and sampling cuts in bounded treewidth graphs. Joint work with Ivona Bezáková and Erin W. Chambers. *Advances in the Mathematical Sciences: Research from the 2015 Association for Women in Mathematics Symposium*, Gail Letzter *et al.*, editors. Springer International Publishing, 2016.
- [17] Global minimum cuts in surface-embedded graphs. Joint work with Erin W. Chambers, Jeff Erickson, and Amir Nayyeri. Invited to *Encyclopedia of Algorithms*, 2nd edition, Ming-Yang Kao, editor. Springer, New York, 2016. Sketches some results from [6].

Conference Papers with no Journal Version

- [18] Fréchet edit distance. Joint work with Amir Nayyeri, Jonathan James Perry, and Benjamin Raichel. Accepted for *Proceedings of the 40th International Symposium on Computational Geometry* (SoCG), 2024.
- [19] A deterministic near-linear time approximation scheme for geometric transportation. Joint work with Jiashuai Lu. *Proceedings of the 64th IEEE Symposium on Foundations of Computer Science* (FOCS), 1301–1315, 2023.
- [20] Computation of cycle bases in surface embedded graphs. Joint work with Thomas Stanley. *Proceedings of the 33rd International Symposium on Algorithms and Computation* (ISAAC), 13:1–13:13, 2022.
- [21] A faster algorithm for maximum flow in directed planar graphs with vertex capacities. Joint work with Julian Enoch, Dor Mesica, and Shay Mozes. *Proceedings of the 32nd International Symposium on Algorithms and Computation* (ISAAC), 72:1–72:16, 2021.
- [22] Approximating the (continuous) Fréchet distance. Joint work with Connor Colombe. *Proceedings of the 37th International Symposium on Computational Geometry* (SoCG), 26:1–26:14, 2021.
- [23] Holiest minimum-cost paths and flows in surface graphs. Joint work with Jeff Erickson and Luvsandondov Lkhamsuren. *Proceedings of the 50th Annual ACM Symposium on Theory of Computing* (STOC), 1319–1332, 2018.
- [24] Subtrajectory clustering: models and algorithms. Joint work with Pankaj K. Agarwal, Kamesh Munagala, Abhinandan Nath, Jiangwei Pan, and Erin Taylor. *Proceedings of the 37th ACM Symposium on Principles of Database Systems* (PODS), 75–87, 2018.
- [25] Maintaining Reeb graphs of triangulated 2-manifolds. Joint work with Pankaj K. Agarwal and Abhinandan Nath. *Proceedings of the 37th Conference on Foundations of Software Technology and Theoretical Computer Science* (FSTTCS 2017), 8:1–8:14, 2018.
- [26] Faster algorithms for the geometric transportation problem. Joint work with Pankaj K. Agarwal, Debmalya Panigrahi, Kasturi R. Varadarajan, and Allen Xiao. *Proceedings of the 33rd International Symposium on Computational Geometry* (SoCG), 7:1–7:16, 2017.
- [27] A simple efficient approximation algorithm for dynamic time warping. Rex Ying, Jiangwei Pan, **Kyle Fox**, and Pankaj K. Agarwal. *Proceedings of the 24th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems* (ACM SIGSPATIAL), Article No. 21, 2016.
- [28] Massively parallel algorithms for computing TIN DEMs and contour trees for large terrains. Abhinandan Nath, **Kyle Fox**, Pankaj K. Agarwal, and Kamesh Munagala. *Proceedings of the 24th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems* (ACM SIGSPATIAL), Article No. 25, 2016.
- [29] Parallel algorithms for constructing range and nearest-neighbor searching data structures. Joint work with Pankaj K. Agarwal, Kamesh Munagala, and Abhinandan Nath. *Proceedings of the 35th ACM Symposium on Principles of Database Systems* (PODS), 429–440, 2016.
- [30] Approximating dynamic time warping and edit distance for a pair of point sequences. Joint work with Pankaj K. Agarwal, Jiangwei Pan, and Rex Ying. *Proceedings of the 32nd International Symposium on Computational Geometry* (SoCG), 6:1–6:16, 2016.
- [31] A polynomial-time bicriteria approximation scheme for planar bisection. Joint work with Philip N. Klein and Shay Mozes. *Proceedings of the 47th Annual ACM Symposium on Theory of Computing* (STOC), 841–850, 2015.

- [32] Packet forwarding algorithms in a line network. Joint work with Antonios Antoniadis, Neal Barcelo, Daniel Cole, Benjamin Moseley, Michael Nugent, and Kirk Pruhs. *Proceedings of the 11th Annual Latin American Theoretical Informatics (LATIN)*, 610–621, 2014.
- [33] Weighted flowtime on capacitated machines. Joint work with Madhukar Korupolu. *Proceedings of the 24th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, 129–143, 2013.
- [34] Shortest non-trivial cycles in directed and undirected surface graphs. *Proceedings of the 24th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, 352–364, 2013.
- [35] Upper bounds for maximally greedy binary search trees. *Proceedings of the 12th International Conference on Algorithms and Data Structures (WADS)*, 411–422, 2011.
- [36] Online scheduling on identical machines using SRPT. Joint work with Benjamin Moseley. *Proceedings of the 22nd Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, 120–128, 2011.
Revised as my Masters thesis for the Department of Computer Science, University of Illinois at Urbana-Champaign.
- [37] Scott Schwartz, Chris Prom, **Kyle Fox**, Paul Sorensen. Archon: facilitating global access to collections in small archives. *Proceedings of the 74th Annual IFLA General Conference and Council (WLIC)*, 2008.
- [38] Chris Prom, Chris Rishel, Scott Schwartz, **Kyle Fox**. A unified platform for archival description and access. *Proceedings of the ACM/IEEE Joint Conference on Digital Libraries (JCDL)*, 157–166, 2007.

Other Publications and Manuscripts

- [39] A simple deterministic near-linear time approximation scheme for transshipment with arbitrary positive edge costs, 2023.
- [40] *Fast Algorithms for Surface Embedded Graphs via Homology*. Ph.D. dissertation, Department of Computer Science, University of Illinois at Urbana-Champaign, December 2013. Includes results from [6, 34, 4] and preliminary results on computing maximum flows in surface embedded graphs.
- [41] Faster shortest non-contractible cycles in directed surface graphs. *Computational Geometry: Young Researcher Forum*, 35–36, 2012. Sketches results from [34].

Funding

- 2023–2026 NSF Collaborative Research: AF: Small: Shape Matching in a Messy World Using Frechet Distance (CCF-2311179). Principal investigator. With Benjamin Raichel (co-PI). Linked with Oregon State University award CCF-2311180 (Amir Nayyeri, PI). [\$598,189 combined total].
- 2023 SOCG and CGWeek 2023. Co-principal investigator. With Benjamin Raichel (PI). University of Texas at Dallas, Erik Jonsson School of Engineering & Computer Science, Jonsson School Research Initiative. [\$10,000].
- 2023 NSF Travel: Student Travel Grant for 2023 Computational Geometry Week (CCF-2321292). Co-principal investigator. With Benjamin Raichel (PI). [\$15,000].
- 2023 SEED: Workshop: Symposium on Computational Geometry. Co-principal investigator. With Benjamin Raichel (PI). The University of Texas at Dallas. [\$15,000].
- 2022–2023 IPA SRA: Efficient algorithms for matching ATE and DUT pins. Principal investigator. With Doug DeGroot (co-PI) and Gopal Gupta (co-PI). TessolveDTS, Inc. [\$70,300].
- 2020–2025 NSF CAREER: Exploiting topology in graph algorithm design (CCF-1942597). Sole principal investigator. [\$586,654].

Talks

Invited Workshop Talks

- 2019 “Approximating the geometric edit distance” [7]; Dagstuhl Seminar on Computational Geometry, Schloß Dagstuhl, Wadern, Germany.
- 2018 “Duality, flows, and shortest paths in planar graphs” [23]; SIAM Conference on Discrete Mathematics Minisymposium on Theoretical Computer Science as a New Discovery Engine of Discrete Mathematics, Denver, Colorado.
- 2017 “Faster algorithms for the geometric transportation problem” [26]; Dagstuhl Seminar on Computational Geometry, Schloß Dagstuhl, Wadern, Germany.
- 2016 “A polynomial-time bicriteria approximation scheme for planar bisection” [31]; Dagstuhl Seminar on Algorithms for Optimization Problems in Planar Graphs, Schloß Dagstuhl, Wadern, Germany.

Invited Talks at Institutions

- 2024 “A simple deterministic near-linear time approximation scheme for transshipment with arbitrary positive edge costs” [39]; ETH Zürich
- 2018 “Surface embedded graphs, shortest homology bases, and holiest paths” [3, 23]; The University of Texas at Dallas.
- 2017 “Maps between geometric data sets” [30, 27, 26]; The University of Arizona.
“Algorithms for geometric data analysis” [30, 27, 26]; Colorado State University; New Jersey Institute of Technology; Texas A&M University; University of Minnesota; The University of Texas at Dallas; Virginia Tech.
- 2016 “Geometry and topology meet graph algorithms” [30, 31]; College of William and Mary; Duke University; Purdue University; University of California, Merced; University of Louisiana at Lafayette; Yahoo Labs.
- 2015 “An efficient algorithm for computing high-quality paths amid polygonal obstacles” [10]; Duke University.
“Partition problems and exploiting graph structure” [31, 4]; Rochester Institute of Technology.
- 2014 “Minimum cuts in surface embedded graphs” ([4] and a subset of results from [6]); Duke University; Institute for Computational and Experimental Research in Mathematics, Brown University; Massachusetts Institute of Technology; The Ohio State University.
“Extending classical scheduling models with a focus on modern technologies” [33, 12]; Google Inc.
“On maximum s, t -flow in surface embedded graphs” [40]; Oregon State University.
- 2012 “Computing shortest non-trivial cycles in directed surface graphs” [34]; Washington University in St. Louis.

Talks Given for Refereed Papers and Abstracts

- 2021 “Approximating the (continuous) Fréchet distance” [22]; 37th International Symposium on Computational Geometry (SoCG).
- 2018 “Holiest minimum-cost paths and flows in surface graphs” [23]; 50th Annual Symposium on Theory of Computing (STOC).
- 2016 “Minimum cycle and homology bases of surface embedded graphs” [3]; 32nd International Symposium on Computational Geometry (SoCG).
“An efficient algorithm for computing high quality paths amid polygonal obstacles” [10]; 27th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA).

- 2015 “A polynomial-time bicriteria approximation scheme for planar bisection” [31]; 47th Annual ACM Symposium on Theory of Computing (STOC).
- 2013 “Counting and sampling minimum cuts in genus g graphs” [4]; 29th Annual Symposium on Computational Geometry (SoCG).
 “Weighted flowtime on capacitated machines” [33]; 24th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA).
 “Shortest non-trivial cycles in directed and undirected surface graphs” [34]; 24th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA).
- 2012 “Faster shortest non-contractible cycles in directed surface graphs” [41]; Computational Geometry: Young Researchers Forum.
 “Global minimum cuts in surface embedded graphs” (subset of results from [6]); 23rd Annual ACM-SIAM Symposium on Discrete Algorithms (SODA).
- 2011 “Upper bounds for maximally greedy binary search trees” [35]; Algorithms and Data Structures Symposium (WADS).
 “Online scheduling on identical machines using SRPT” [36]; 22nd Annual ACM-SIAM Symposium on Discrete Algorithms (SODA).

Additional Talks

- 2010 “Online scheduling on identical machines using SRPT” [36]; Fall 2010 Midwest Theory Day, Toyota Technological Institute at Chicago, Chicago, IL.

— Education —

Course Development

CS 6319: Computational Geometry

A graduate course in computational geometry. Developed and piloted by myself in Spring 2018 as CS/SE 6301 Special Topics in Computer Science/Software Engineering. Further piloted by Benjamin Raichel in Spring 2019 and myself again in Spring 2020. Currently offered every Spring semester.

CS/SE 7301: Recent Advances in Computing—Computational Topology

A research-level special topics course in computational topology focusing on algorithms for surface embedded graphs and topological data analysis. Offered Fall 2020.

Organized Instruction at The University of Texas at Dallas

Numbers on the right reflect student agreement with the propositions “Overall, this course was excellent” and “Overall, this instructor was excellent”, respectively, rated on a 1–5 scale and summarized as an interpolated median.

Fall 2023	CS 3345	Data Structures and Introduction to Algorithmic Analysis - Honors	
Fall 2023	CS 4349	Advanced Algorithm Design and Analysis	
Spring 2023	CS 6363:	Design and Analysis of Computer Algorithms	4.83/4.87 (N=24)
Fall 2022	CS 3345	Data Structures and Introduction to Algorithmic Analysis - Honors	4.83/4.83 (N=12)
Spring 2022	CS 6319	Computational Geometry	4.75/4.90 (N=12)
Fall 2021	CS 4349	Advanced Algorithm Design and Analysis	4.78/4.88 (N=26)
Spring 2021	CS 6363:	Design and Analysis of Computer Algorithms (QE section)	4.93/4.98 (N=33)
Fall 2020	CS 7301:	Recent Advances in Computing — Computational Topology	5.00/5.00 (N=6)
	SE 7301:	Recent Advances in Computing — Computational Topology	
Spring 2020	CS 6301:	Special Topics in Computer Science — Computational Geometry	4.93/4.97 (N=17/16)
Fall 2019	CS 4349:	Advanced Algorithm Design and Analysis	4.70/4.88 (N=32)
Spring 2019	CS 6363:	Design and Analysis of Computer Algorithms (QE section)	4.84/4.93 (N=25/24)
Fall 2018	CS 4349:	Advanced Algorithm Design and Analysis	4.14/4.50 (N=23/24)
Spring 2018	CS 6301:	Special Topics in Computer Science — Computational Geometry	4.88/4.91 (N=20)
	SE 6301:	Special Topics in Software Engineering — Computational Geometry	5.00/5.00 (N=1)
Fall 2017	CS 4349:	Advanced Algorithm Design and Analysis	4.42/4.75 (N=15)

Mentorship

Current students

- Julian Enoch, Ph.D.
- Jihan Wang, Ph.D.

Former Ph.D. students

- Jiashuai Lu, Ph.D. 2022. *Flows with geometric and topological constraints*. Software engineer, Google, Mountain View, California

Former M.S. students

- Thomas Stanley, M.S. 2021. *Computation of cycle bases in surface embedded graphs*.
- Connor Lee Colombe, M.S. 2020. *Approximating the (continuous) Fréchet distance*.
- Seong Ioi Wang, M.S. 2020. *Approximating Gromov-Hausdorff distance in planar graphs*.
- Jon Andrew Crain, M.S. 2019. *On computing the global minimum cut in directed surface-embedded graphs*.
- Xinyi Li, M.S. 2019. *Approximating the geometric edit distance*.

Other thesis committees (degree from UTD unless indicated otherwise)

2023	Ka Yaw Teo, Ph.D.
2023	Georgiy Kilmenko, Ph.D.

2023	Mohammadreza Haghpanah, Ph.D.
2022	Hongyao Huang, Ph.D.
2021	Gregory Van Buskirk, Ph.D.
2020	Hemant Malik, Ph.D.
2020	Kaiyuan Zhang, M.S.
2019	Megan Yoccis, M.S.
2019	Chenglin Fan, Ph.D.

Other independent instruction/mentoring

<i>Fall 2022</i>	Rahul Sreedharan, undergraduate research in implementing algorithms for maximum flow in planar graphs
<i>Fall 2019</i>	Connor Lee Colombe, graduate research in geometric approximation algorithms
<i>Summer 2019</i>	Shelby King, undergraduate research in implementing geometric approximation algorithms, part of UT System Louis Stokes Alliance for Minority Participation's Summer Research Academy
<i>Spring 2019</i>	Seong Ioi Wang, undergraduate research in approximating the Gromov-Hausdorff distance
<i>Spring 2019</i>	Ka Yaw Teo, graduate independent study in approximation algorithms

Undergraduate mentoring at Duke University

2016–2017	Fred Zhang
2015–2016	Rex Ying

Guest Lectures

Duke University

<i>Spring 2017</i>	COMPSCI 290: Undergrad Topics in Computer Science (Algorithmic Foundations of Data Science) (twice)
<i>Spring 2016</i>	COMPSCI 330: Undergrad Design and Analysis of Algorithms
<i>Fall 2015</i>	COMPSCI 330: Undergrad Design and Analysis of Algorithms
<i>Spring 2015</i>	COMPSCI 290: Undergrad Topics in Computer Science — Complexity Theory (twice)
<i>Fall 2014</i>	COMPSCI 330: Undergrad Design and Analysis of Algorithms
<i>Fall 2014</i>	COMPSCI 532: Graduate Design and Analysis of Algorithms

Brown University

<i>Spring 2014</i>	CS 250: Optimization Algorithms for Planar Graphs
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University of Illinois at Urbana-Champaign

<i>Spring 2010</i>	CS 473: Undergraduate Algorithms
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Other Teaching Experience

Instruction for the Illini Swing Society

<i>Spring 2013</i>	Balboa
<i>Fall 2012</i>	Beginning Swing
<i>Spring 2012</i>	Beginning Lindy Hop
<i>Fall 2011</i>	Charleston
<i>Spring 2011</i>	Beginning Swing

Teaching assistant at the University of Illinois at Urbana-Champaign

Spring 2010 CS 473: Undergraduate Algorithms

Fall 2009 CS 473: Undergraduate Algorithms

— Service —

The University of Texas at Dallas

Departmental committees

- Undergraduate curriculum (2022–present)
- Graduate admissions (2017–present)

Other university service

- Examining Committee Chair for doctoral oral exams
 - 2023: Dominique Nicole James (Biomedical Engineering)
 - 2023: Ashwin Bhobani Baral (Electrical Engineering)
 - 2022: Arvin Honari (Bioengineering)
 - 2020: Rahul Atmaramani (Bioengineering)
 - 2017: Abdullah N. Binthunaiyan (Geospatial Information Sciences)

Earlier University Service

Duke University

- Coordinator for Algorithms Seminar Lecture Series (2016)
- Assisted in organizing Algorithms Seminar Lecture Series (2015)

University of Illinois at Urbana-Champaign

- Computer Science Grad Study Committee Grad Council Representative (2010–2011, 2012–2013)
- Computer Science Graduate Student Academic Council Member (2010–2013)
- Webmaster for the Illini Swing Society (2011–2013)
- Voluntarily read graduate student applications for the Computer Science Fellowship, Assistantship, and Admissions Committee (2010–2013)
- Leader for the Computer Science TA Career Path Workshop Group (2010)
- Secretary of the Computer Science Graduate Student Organization (2009–2010)

Professional

Conference committee chairing

- Posters and Demonstrations Chair, 3rd International Workshop on Interactive and Spatial Computing (2018)

Conference program committees (*submissions not accepted from committee members)

- Latin American Theoretical Informatics (LATIN 2024)
- 31st International Symposium on Algorithms and Computation (ISAAC 2020)*
- 35th International Symposium on Computational Geometry (SoCG 2019)*

Workshop organization and other committees

- Local organizing committee, Computational Geometry (CG) Week 2023 including the 39th International Symposium on Computational Geometry (SoCG 2023)
- Young Researchers Forum committee, 35th International Symposium on Computational Geometry (SoCG 2019)

Reviewing and refereeing

- **Proposal panelist/reviewer** for National Science Foundation (CCF) and the Israel Science Foundation.
- **Referee** for *ACM Transactions on Algorithms* (TALG); *ACM Transactions on Database Systems* (TODS); *Algorithmica*; *Ars Combinatoria*; *Computational Geometry: Theory and Applications* (CGTA); *Discrete & Computational Geometry* (DCG); *Information Processing Letters* (IPL); *International Journal of Computational Geometry and Applications* (IJCGA); *Journal of Combinatorial Optimization*; *Journal of Computational Geometry* (JoCG); *Journal of Experimental Algorithmics* (JEA); *Journal of Scheduling*; *Scientific Annals of Computer Science*; *SIAM Journal on Computing* (SICOMP); *SIAM Journal on Discrete Mathematics* (SIDMA); *Theoretical Computer Science* (TCS); *Theory of Computing* (ToC)
- **External reviewer** for ACM-SIAM Symposium on Discrete Algorithms [SODA] (2013–2021, 2023–2024); ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems [ACM SIGSPATIAL] (2015–2016); ACM Symposium on Theory of Computing [STOC] (2016–2017, 2019); Algorithms and Data Structures Symposium [WADS] (2013, 2017, 2019, 2023); Annual Symposium on Principles of Database Systems [PODS] (2016); Canadian Conference on Computational Geometry [CCCG] (2018, 2020); Conference on Integer Programming and Combinatorial Optimization [IPCO] (2021); European Symposium on Algorithms [ESA] Track A (2013, 2016, 2018–2022); European Symposium on Algorithms [ESA] Track B (2020); IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science [FSTTCS] (2015); IEEE Symposium on Foundations of Computer Science [FOCS] (2014–2015, 2018–2020, 2023); IFIP International Conference on Topics in Theoretical Computer Science [TTCS] (2015); Innovations in Theoretical Computer Science [ITCS] (2021); International Colloquium on Automata, Languages, and Programming [ICALP] (2017, 2019–2023); International Conference on Combinatorial Optimization and Applications [COCOA] (2018); International Conference on Current Trends in Theory and Practice of Computer Science [SOFSEM] (2023); International Symposium on Algorithms and Computation [ISAAC] (2019); International Symposium on Computational Geometry [SoCG] (2018, 2021–2024); International Symposium on Graph Drawing [GD] (2014); International Symposium on Mathematical Foundations of Computer Science [MFCS] (2018); International Symposium on Parameterized and Exact Computation [IPEC] (2017); International Symposium on Theoretical Aspects of Computer Science [STACS] (2018); International Conference on Approximation Algorithms for Combinatorial Optimization Problems [APPROX] (2018–2019); International Workshop on the Algorithmic Foundations of Robotics [WAFR] (2016); Scandinavian Symposium and Workshops on Algorithm Theory [SWAT] (2018, 2020); SIAM Symposium on Simplicity in Algorithms [SOSA] (2021); and Symposium on Computational Geometry [SoCG] (2014–2016)