

Austin Reilley Benson

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Academic Appointments

Assistant Professor, Cornell University Department of Computer Science	2018–
Postdoctoral Associate, Cornell University Department of Computer Science	2017–2018
Additional Cornell University affiliations:	
Field Member, Data Science	2020–
Field Member, Center for Applied Mathematics	2018–

Education

PhD Computational and Mathematical Engineering · Stanford University	2017
MS Computational and Mathematical Engineering · Stanford University	2017
BS Electrical Engineering and Computer Sciences · University of California, Berkeley	2012
BA Applied Mathematics · University of California, Berkeley	2012

Professional Experience

Research Intern, Google · Mountain View, CA	Jul 2016–Dec 2016
Research Intern, Google · Mountain View, CA	Jun 2015–Dec 2015
Research Intern, Sandia National Laboratories · Livermore, CA	Summer 2014
Research Intern, HP Labs · Palo Alto, CA	Summer 2013
Software Engineering Intern, Google · Mountain View, CA	Summer 2012
Software Engineering Intern, Google · Mountain View, CA	Summer 2011

Preprints

10. A Nonlinear Diffusion Method for Semi-supervised Learning on Hypergraphs.
Francesco Tudisco, Konstantin Prokopchik, and Austin R. Benson.
arXiv: 2103.14867, 2021.
9. Higher-order Homophily is Combinatorially Impossible.
Nate Veldt, Austin R. Benson, and Jon Kleinberg.
arXiv:2103.11818, 2021.
Code released at <https://github.com/nveldt/HypergraphHomophily>.
8. Hypergraph clustering: from blockmodels to modularity.
Philip S. Chodrow, Nate Veldt, and Austin R. Benson.
arXiv:2101.09611, 2021.
Code released at <https://github.com/PhilChodrow/HypergraphModularity>.
Data released at <https://www.cs.cornell.edu/~arb/>.
7. A Unifying Generative Model for Graph Learning Algorithms: Label Propagation, Graph Convolutions, and Combinations.
Junteng Jia and Austin R. Benson.
arXiv:2101.07730, 2021.
Code and data released at <https://github.com/000Justin000/GaussianMRF>.

6. Over-parametrized neural networks as under-determined linear systems.
Austin R. Benson, Anil Damle, and Alex Townsend.
arXiv:2010.15959, 2020.
5. Communication-efficient distributed eigenspace estimation.
Vasileios Charisopoulos, Austin R. Benson, and Anil Damle.
arXiv:2009.02436, 2020.
Code released at <https://gitlab.com/vchariso/distributed-eigenspace-estimation>.
4. Augmented Sparsifiers for Generalized Hypergraph Cuts.
Austin R. Benson, Jon Kleinberg, and Nate Veldt.
arXiv:2007.08075, 2020.
3. Hypergraph Clustering for Finding Diverse and Experienced Groups.
Ilya Amburg, Nate Veldt, and Austin R. Benson.
arXiv:2006.05645, 2020.
Code released at <https://github.com/ilyaamburg/fair-clustering-for-diverse-and-experienced-groups>.
2. Hypergraph Cuts with General Splitting Functions.
Nate Veldt, Austin R. Benson, and Jon Kleinberg.
arXiv:2001.02817, 2020.
1. Incrementally Updated Spectral Embeddings.
Vasileios Charisopoulos, Austin R. Benson, and Anil Damle.
arXiv:1909.01188, 2019.
Code released at <https://github.com/VHarisop/inc-spectral-embeddings>.

Accepted and Published Research Articles

57. The Generalized Mean Densest Subgraph Problem.
Nate Veldt, Austin R. Benson, and Jon Kleinberg.
To appear at KDD, 2021.
56. Choice Set Confounding in Discrete Choice.
Kiran Tomlinson, Johan Ugander, and Austin R. Benson.
To appear at KDD, 2021.
55. Learning Interpretable Feature Context Effects in Discrete Choice.
Kiran Tomlinson and Austin R. Benson.
To appear at KDD, 2021.
Code released at <https://github.com/tomlinsonk/feature-context-effects>.
54. Higher-order Network Analysis Takes Off, Fueled by Old Ideas and New Data.
Austin R. Benson, David F. Gleich, and Desmond J. Higham.
SIAM News, 2021 (online).
53. Combining Label Propagation and Simple Models Out-performs Graph Neural Networks.
Qian Huang, Horace He, Abhay Singh, Ser-Nam Lim, and Austin R. Benson.
Proceedings of the International Conference on Learning Representations (ICLR), 2021.
Code released at <https://github.com/CUAI/CorrectAndSmooth>.
52. Expertise and Dynamics within Crowdsourced Musical Knowledge Curation: A Case Study of the Genius Platform.
Derek Lim and Austin R. Benson.
Proceedings of the International AAAI Conference on Web and Social Media (ICWSM), 2021.
Code released at <https://github.com/cptq/genius-expertise>.
Data released at <https://www.cs.cornell.edu/~arb/data/>.

51. Nonlinear Higher-Order Label Spreading.
 Francesco Tudisco, Austin R. Benson, and Konstantin Prokopchik.
 Proceedings of the Web Conference (WebConf/WWW), 2021.
 Code released at <https://github.com/doublelucker/nhols>.
50. Random Graphs with Prescribed K-Core Sequences: A New Null Model for Network Analysis.
 Katherine Van Koevering, Austin R. Benson, and Jon Kleinberg.
 Proceedings of the Web Conference (WebConf/WWW), 2021.
 Code released at <https://github.com/ktvank/Random-Graphs-with-Prescribed-K-Core-Sequences>.
49. Planted Hitting Set Recovery in Hypergraphs.
 Ilya Amburg, Jon Kleinberg, and Austin R. Benson.
 Journal of Physics: Complexity (Special Issue on Higher-Order Structures in Networks and Network Dynamical Systems), 2021.
 Code released at <https://github.com/ilyaamburg/Hypergraph-Planted-Hitting-Set-Recovery>.
 Data released at <https://www.cs.cornell.edu/~arb/data>.
48. Better Set Representations For Relational Reasoning.
 Qian Huang, Horace He, Abhay Singh, Yan Zhang, Ser-Nam Lim, and Austin R. Benson.
Advances in Neural Information Processing Systems (NeurIPS), 2020.
 Code released at <https://github.com/CUVL/SSLR>.
47. Entrywise convergence of iterative methods for eigenproblems.
 Vasileios Charisopoulos, Austin R. Benson, Anil Damle.
Advances in Neural Information Processing Systems (NeurIPS), 2020.
 Code released at <https://github.com/VHarisop/entrywise-convergence>.
46. Residual Correlation in Graph Neural Network Regression.
 Junteng Jia and Austin R. Benson.
Proceedings of the International Conference on Knowledge Discovery & Data Mining (KDD), 2020.
 Code released at <https://github.com/000Justin000/gnn-residual-correlation>.
 Data released at <https://www.cs.cornell.edu/~arb/data>.
45. Minimizing Localized Ratio Cut Objectives in Hypergraphs.
 Nate Veldt, Austin R. Benson, and Jon Kleinberg.
Proceedings of the International Conference on Knowledge Discovery & Data Mining (KDD), 2020.
 Code released at <https://github.com/nveldt/HypergraphFlowClustering>.
 Data released at <https://www.cs.cornell.edu/~arb/data>.
44. Choice Set Optimization Under Discrete Choice Models of Group Decisions.
 Kiran Tomlinson and Austin R. Benson.
Proceedings of the International Conference on Machine Learning (ICML), 2020.
 Code released at <https://github.com/tomlinsonk/choice-set-opt>.
43. Neighborhood and PageRank methods for pairwise link prediction.
 Huda Nassar, Austin Benson, and David F. Gleich.
Social Network Analysis and Mining (SNAM), 2020.
 Code released at <https://github.com/nassarhuda/pairseed>.
42. Network Interpolation.
 Thomas Reeves, Anil Damle, and Austin R. Benson.
SIAM Journal on Mathematics of Data Science (SIMODS), 2020.
 Code released at <https://github.com/tr-maker/networkinterpolation>.
41. Measuring Directed Triadic Closure with Closure Coefficients.
 Hao Yin, Austin R. Benson, and Johan Ugander.
Network Science, 2020.
 Code released at <https://github.com/arbenson/ClosureCoefficients.jl>.

40. Random Walks on Simplicial Complexes and the normalized Hodge 1-Laplacian.
Michael T. Schaub, Austin R. Benson, Paul Horn, Gabor Lippner, and Ali Jadbabaie.
SIAM Review (SIREV), 2020.
39. Clustering in graphs and hypergraphs with categorical edge labels.
Ilya Amburg, Nate Veldt, and Austin R. Benson.
Proceedings of the Web Conference (WebConf/WWW), 2020.
Code released at <https://github.com/nveldt/CategoricalEdgeClustering>.
Data released at <https://www.cs.cornell.edu/~arb/data>.
38. Frozen Binomials on the Web: Word Ordering and Language Conventions in Online Text.
Katherine Van Koevinger, Austin R. Benson and Jon Kleinberg.
Proceedings of the Web Conference (WebConf/WWW), 2020.
Code released at <https://github.com/ktvank/Frozen-Binomials>.
37. Using cliques with higher-order spectral embeddings improves graph visualizations.
Huda Nassar, David Gleich, Austin R. Benson, Shweta Jain and Caitlin Kennedy.
Proceedings of the Web Conference (WebConf/WWW), 2020.
Code released at <https://github.com/nassarhuda/GLANCE>.
36. Retrieving Top Weighted Triangles in Graphs.
Raunak Kumar, Paul Liu, Moses Charikar, and Austin R. Benson.
Proceedings of the International Conference on Web Search and Data Mining (WSDM), 2020.
Code released at <https://github.com/raunakkmr/Retrieving-top-weighted-triangles-in-graphs>.
Data released at <https://www.cs.cornell.edu/~arb/data>.
35. Neural Jump Stochastic Differential Equations.
Junteng Jia and Austin R. Benson.
Advances in Neural Information Processing Systems (NeurIPS), 2019.
Code released at <https://github.com/000Justin000/torchdiffeq/tree/jj585>.
34. Modeling and Analysis of Tagging Networks in Stack Exchange Communities.
Xiang Fu, and Shangdi Yu, and Austin R. Benson.
Journal of Complex Networks, 2019.
Code released at <https://github.com/yushangdi/stack-exchange-cotagging>.
Data released at <https://www.cs.cornell.edu/~arb/data>.
33. Unsupervised learning of dislocation motion.
Darren C. Pagan, Thien Q. Phan, Jordan S. Weaver, Austin R. Benson, and Armand J. Beaudoin.
Acta Materialia, 2019.
32. Automated Grain Yield Behavior Classification.
Darren C. Pagan, Jakob Kaminsky, Wesley A. Tayon, Kelly E. Nygren, Armand J. Beaudoin, and Austin R. Benson.
The Journal of The Minerals, Metals & Materials Society (JOM), 2019.
31. Computing Tensor Z -eigenvectors with Dynamical Systems.
Austin R. Benson and David F. Gleich.
SIAM Journal on Matrix Analysis and Applications (SIMAX), 2019.
Code released at <https://github.com/arbenson/TZE-dynsys>.
30. Pairwise Link Prediction.
Huda Nassar, Austin R. Benson, and David F. Gleich.
Proceedings of the International Conference on Advances in Social Networks Analysis and Mining (ASONAM), 2019.
Best Research Paper Award Runner-up.
Code released at <https://github.com/nassarhuda/pairseed>.

29. Graph-based Semi-Supervised & Active Learning for Edge Flows.
Junteng Jia, Michael T. Schaub, Santiago Segarra, and Austin R. Benson.
Proceedings of the International Conference on Knowledge Discovery & Data Mining (KDD), 2019.
Code released at https://github.com/000Justin000/ssl_edge.
28. Network Density of States.
Kun Dong, Austin R. Benson, and David Bindel.
Proceedings of the International Conference on Knowledge Discovery & Data Mining (KDD), 2019.
Best Research Paper Award Winner.
Code released at <https://github.com/kd383/NetworkDOS>.
27. Three hypergraph eigenvector centralities.
Austin R. Benson.
SIAM Journal on Mathematics of Data Science (SIMODS), 2019.
Code released at <https://github.com/arbenson/Hyper-Evec-Centrality>.
26. Link Prediction in Networks with Core-Fringe Data.
Austin R. Benson and Jon Kleinberg.
Proceedings of the Web Conference (WebConf/WWW), 2019.
Code released at <https://github.com/arbenson/cflp>.
25. Choosing to grow a graph: Modeling network formation as discrete choice.
Jan Overgoor, Austin R. Benson, and Johan Ugander.
Proceedings of the Web Conference (WebConf/WWW), 2019.
Code released at <https://github.com/janovergoor/choose2grow>.
24. Random Spatial Network Models with Core-Periphery Structure.
Junteng Jia and Austin R. Benson.
Proceedings of the International Conference on Web Search and Data Mining (WSDM), 2019.
Code released at https://github.com/000Justin000/spatial_core_periphery.
Data released at <https://www.cs.cornell.edu/~arb/data>.
23. Sampling Methods for Counting Temporal Motifs.
Paul Liu, Austin R. Benson, and Moses Charikar.
Proceedings of the International Conference on Web Search and Data Mining (WSDM), 2019.
Code released at <https://gitlab.com/paul.liu.ubc/sampling-temporal-motifs>.
Data released at <http://www.cs.cornell.edu/~arb/data>.
22. The Local Closure Coefficient: A New Perspective On Network Clustering.
Hao Yin, Austin R. Benson, and Jure Leskovec.
Proceedings of the International Conference on Web Search and Data Mining (WSDM), 2019.
Code released at <https://github.com/arbenson/ClosureCoefficients.jl>.
21. Simplicial closure and higher-order link prediction.
Austin R. Benson, Rediet Abebe, Michael T. Schaub, Ali Jadbabaie, and Jon Kleinberg.
Proceedings of the National Academy of Sciences (PNAS), 2018.
Code released at <https://github.com/arbenson/ScHoLP-Tutorial>.
Data released at <https://www.cs.cornell.edu/~arb/data>.
20. Found Graph Data and Planted Vertex Covers.
Austin R. Benson and Jon Kleinberg.
Advances in Neural Information Processing Systems (NeurIPS), 2018.
Code released at <https://github.com/arbenson/FGDnPVC>.
Data released at <http://www.cs.cornell.edu/~arb/data>.
19. Sequences of Sets.
Austin R. Benson, Ravi Kumar, and Andrew Tomkins.

- Proceedings of the International Conference on Knowledge Discovery & Data Mining (KDD)*, 2018.
Code released at <https://github.com/arbenson/Sequences-of-Sets>.
Data released at <https://www.cs.cornell.edu/~arb/data>.
18. Higher-order clustering in networks.
Hao Yin, Austin R. Benson, and Jure Leskovec.
Physical Review E, 2018.
Code released at <https://github.com/arbenson/HigherOrderClustering.jl>.
 17. A discrete choice model for subset selection.
Austin R. Benson, Ravi Kumar, and Andrew Tomkins.
Proceedings of the International Conference on Web Search and Data Mining (WSDM), 2018.
Code released at <https://github.com/arbenson/discrete-subset-choice>.
Data released at <https://www.cs.cornell.edu/~arb/data>.
 16. Local higher-order graph clustering.
Hao Yin, Austin R. Benson, Jure Leskovec, and David F. Gleich.
Proceedings of the International Conference on Knowledge Discovery & Data Mining (KDD), 2017.
Code and Data released at <http://snap.stanford.edu/mappr>.
 15. Motifs in temporal networks.
Ashwin Paranjape, Austin R. Benson, and Jure Leskovec.
Proceedings of the International Conference on Web Search and Data Mining (WSDM), 2017.
Code and Data released at <https://snap.stanford.edu/temporal-motifs>.
 14. The spacey random walk: a stochastic process for higher-order data.
Austin R. Benson, David F. Gleich, and Lek-Heng Lim.
SIAM Review (SIREV), 2017.
Code released at <https://github.com/arbenson/spacey-random-walks>.
Data released at <https://www.cs.cornell.edu/~arb/data>.
 13. Higher-order organization of complex networks.
Austin R. Benson, David F. Gleich, and Jure Leskovec.
Science, 2016.
Code and Data released at <https://snap.stanford.edu/higher-order>.
 12. General tensor spectral co-clustering for higher-order data.
Tao Wu, Austin R. Benson, and David F. Gleich.
Advances in Neural Information Processing Systems (NeurIPS), 2016.
Code released at <https://github.com/wutao27/GtensorSC>.
 11. Modeling user consumption sequences.
Austin R. Benson, Ravi Kumar, and Andrew Tomkins.
Proceedings of the International World Wide Web Conference (WWW), 2016.
 10. On the relevance of irrelevant alternatives.
Austin R. Benson, Ravi Kumar, and Andrew Tomkins.
Proceedings of the International World Wide Web Conference (WWW), 2016.
 9. Improving the numerical stability of fast matrix multiplication.
Grey Ballard, Austin R. Benson, Alex Druinsky, Benjamin Lipshitz, and Oded Schwartz.
SIAM Journal on Matrix Analysis and Applications (SIMAX), 2016.
Code released at <https://github.com/arbenson/fast-matmul>.
 8. Tensor spectral clustering for partitioning higher-order network structures.
Austin R. Benson, David F. Gleich, and Jure Leskovec.
Proceedings of the SIAM International Conference on Data Mining (SDM), 2015.
Code released at <https://github.com/arbenson/tensor-sc>.

7. A framework for practical parallel fast matrix multiplication.
Austin R. Benson and Grey Ballard.
Proceedings of the Symposium on Principles and Practice of Parallel Programming (PPoPP), 2015.
Code released at <https://github.com/arbenson/fast-matmul>.
6. Scalable methods for nonnegative matrix factorizations of near-separable tall-and-skinny matrices.
Austin R. Benson, Jason D. Lee, Bartek Rajwa, and David F. Gleich.
Advances in Neural Information Processing Systems (NeurIPS), 2014.
Selected for spotlight presentation.
Code released at <https://github.com/arbenson/mrnmf>.
Data released at <https://www.cs.cornell.edu/~arb/data>.
5. Learning multifractal structure in large networks.
Austin R. Benson, Carlos Riquelme, and Sven Schmit.
Proceedings of the International Conference on Knowledge Discovery & Data Mining (KDD), 2014.
4. A parallel directional Fast Multipole Method.
Austin R. Benson, Jack Poulson, Kenneth Tran, Björn Engquist, and Lexing Ying.
SIAM Journal on Scientific Computing (SISC), 2014.
Code released at <https://github.com/arbenson/ddfmm>.
3. Silent error detection in numerical time-stepping schemes.
Austin R. Benson, Sven Schmit, and Robert Schreiber.
International Journal of High Performance Computing Applications (IJHPCA), 2014.
Code released at <https://www.cs.cornell.edu/~arb/silent.html>.
2. Direct QR factorizations for tall-and-skinny matrices in MapReduce architectures.
Austin R. Benson, David F. Gleich, and James Demmel.
Proceedings of the IEEE International Conference on Big Data (BigData), 2013.
Code released at <https://github.com/arbenson/mrtsqr>.
1. The Gamma-Ray Imaging Framework.
Austin R. Benson, Mark S. Bandstra, Daniel H. Chivers, Timothy Aucott, Ben Augarten, Cameron Bates, Adam Midvidy, Ryan Pavlovsky, James Siegrist, Kai Vetter, and Ben Yee.
IEEE Transactions on Nuclear Science, 2013.
Code released at <https://github.com/bearing/grif>.

Teaching Experience

Instructor, Cornell University

CS 4220/Math 4260: Numerical Analysis: Linear and Nonlinear Problems (49 students)	Spring 2021
CS 6210: Matrix Computations (33 students)	Fall 2020
CS 6241: Numerical Methods for Data Science (36 students)	Spring 2020
CS 2850/INFO 2040/ECON 2040/SOC 2090: Networks (642 students)	Fall 2019
CS 6241: Numerical Methods for Data Science (46 students)	Spring 2019
CS 2850/INFO 2040/ECON 2040/SOC 2090: Networks (615 students)	Fall 2018

Instructor, Stanford University

CME 193: Introduction to Scientific Python	Spring 2013
CME 193: Introduction to Scientific Python (created course)	Winter 2013

Advising

Postdocs

Jonas Juul · Cornell CAM Postdoc	2020–
Nate Veldt · Cornell CAM Postdoc	2019–2021
PhD students	
Kiran Tomlinson · Computer Science	2019–
Ilya Amburg · Applied Mathematics	2018–
Junteng Jia · Computer Science	2018–2021
Master of Engineering students	
Haopeng Zhou · Computer Science	2021
Leah Ajmani · Computer Science	2020
Lillyan Pan · Computer Science	2018
Undergraduate students	
Qian Huang · Computer Science & Mathematics	2019–
<i>Finalist, CRA Outstanding Undergraduate Researcher Award, 2020 & 2021</i>	
Abhay Singh · Computer Science	2019–
Horace He · Computer Science & Mathematics	2019–2021
<i>Honorable Mention, CRA Outstanding Undergraduate Researcher Award, 2020</i>	
Derek Lim · Computer Science & Mathematics	2019–2020
<i>Honorable Mention, CRA Outstanding Undergraduate Researcher Award, 2021</i>	
Jakob Kaminsky · Computer Science	2019
Leah Ajmani · Computer Science & Philosophy	2018–2019
Scott Dickson · Computer Science	2018–2019
Shangdi Yu · Computer Science & Operations Research	2018–2019
<i>Recipient, Computer Science Department Prize for Academic Excellence</i>	
Xiang (Felix) Fu · Computer Science & Operations Research	2018–2019

Invited presentations

IPDPS GrAPL Workshop · Virtual Online	May 2021
Worcester Polytechnic Institute · Virtual Online	May 2021
Northeastern University · Virtual Online	Mar 2021
RelationalAI · Virtual Online	Feb 2021
Joint Mathematics Meetings · Virtual Online	Jan 2021
Texas A&M Data Science Institute · Virtual Online	Oct 2020
JPMorgan Chase Machine Learning · Virtual Online	Aug 2020
Kavli Frontiers of Science · Virtual Online	Jul 2020
SIAM Annual · Virtual Online	Jul 2020
SIAM Conference on Mathematics of Data Science · Virtual Online	Jun 2020
Workshop on Mining and Learning with Graphs · Anchorage, AK	Aug 2019
Conference of the International Linear Algebra Society · Rio de Janeiro, Brazil	Jul 2019
Higher-order Models NetSci Satellite · Burlington, VT	May 2019
Statistical Inference for Network Models NetSci Satellite · Burlington, VT	May 2019
GraphEx 2019 · Boston, MA	Apr 2019
Syracuse University Computer Science Seminar · Syracuse, NY	Apr 2019
Clarkson Center for Complex Systems Science Seminar · Potsdam, NY	Feb 2019
University at Buffalo Applied Mathematics Seminar · Buffalo, NY	Oct 2018
Cornell Scientific Computing and Numerics Seminar · Ithaca, NY	Sep 2018
SIAM Annual · Portland, OR	Jul 2018
Higher-order Models NetSci Satellite · Paris, France	Jun 2018
Statistical Learning and Data Science · New York, NY	Jun 2018

Stanford Linear Algebra/Optimization Seminar · Stanford, CA	Apr 2018
CMStatistics Conference · London, England	Dec 2017
Cornell Center for Applied Math Colloquium · Ithaca, NY	Oct 2017
Data Institute SF Annual Conference · San Francisco, CA	Oct 2017
Purdue Center for Science of Information Seminar · West Lafayette, IN	Oct 2017
Cornell Scientific Computing and Numerics Seminar · Ithaca, NY	Sep 2017
AMS Spring Western Sectional Meeting · Pullman, WA	Apr 2017
University of Chicago Scientific Computing Seminar · Chicago, IL	Jan 2017
Lawrence Livermore National Laboratory Seminar · Livermore, CA	Jun 2016
MX16 Multi-dimensional Networks Symposium · Davis, CA	May 2016
Purdue Center for Science of Information Seminar · West Lafayette, IN	May 2016
Copper Mountain Conference on Iterative Methods · Copper Mountain, CO	Mar 2016
Stanford Linear Algebra/Optimization Seminar · Stanford, CA	Feb 2016
Santa Fe Institute Inference on Networks Workshop · Santa Fe, NM	Dec 2015
NeurIPS Multiresolution Methods Workshop · Montreal, Canada	Dec 2015
SIAM Applied Linear Algebra · Atlanta, GA	Oct 2015
UC-Berkeley DMML Workshop · Berkeley, CA	Oct 2015
Allerton Conference · Monticello, IL	Oct 2015
Lawrence Livermore National Laboratory Seminar · Livermore, CA	Sep 2015
Higher-order Models NetSci Satellite · Zaragoza, Spain	Jun 2015
SIAM Computational Science & Engineering · Salt Lake City, UT	May 2015
Stanford ICME Colloquium · Stanford, CA	Oct 2014
UT-Austin BLIS Retreat · Austin, TX	Sep 2014
Purdue Machine Learning Seminar · West Lafayette, IN	Sep 2014
Stanford ICME Colloquium · Stanford, CA	May 2013
Stanford MapReduce Workshop · Stanford, CA	Apr 2013
Stanford MapReduce Workshop · Stanford, CA	May 2012

Awards

Kavli Fellow, Kavli Frontiers of Science, National Academy of Sciences	2020
JPMorgan Chase Faculty AI Research Award	2020
Best Research Paper Award, KDD '19	2019
Best Research Paper Award Runner-up, ASONAM '19	2019
LAA Early Career Speaker, International Linear Algebra Society	2019
Outstanding program committee member, WSDM '19	2019
Stanford Gene Golub Doctoral Dissertation Award	2017
Teaching Fellow, ICME, Stanford University	2016
Office of Technology Licensing Stanford Graduate Fellowship	2012–2016

Service

Editorial roles	
Associate Editor, <i>Science Advances</i>	2019–
Guest Editor, <i>Applied Network Science: Machine Learning with Graphs Special Issue</i>	2019
Conference and workshop organizational activities	
Co-chair, Statistical Inference for Network Models	2021–
Annual Satellite Workshop at NetSci	
Member of Engagement Committee, SIAM ACDA	2021
https://www.siam.org/conferences/cm/conference/acda21	

Co-chair, SIAM Workshop on Network Science

<https://ns20.cs.cornell.edu>

Co-organizer, *Mining and Modeling Evolving and Higher-Order Complex Data and Networks*

Minisymposium, International Congress on Industrial and Applied Mathematics (ICIAM '19)

Co-organizer, *Modeling and Mining Network Data*

Minisymposium, SIAM Discrete Mathematics 2018 (DM '18)

<http://www.cs.cornell.edu/~arb/mmnd18/>

Co-organizer, *Tensor Eigenvectors and Stochastic Processes*

Minitutorial, SIAM Applied Linear Algebra 2018 (ALA '18)

<http://www.cs.cornell.edu/~arb/tesp/>

Co-organizer *Eigenvectors and Decompositions of Structured Tensors*

Minisymposium, SIAM Computational Science and Engineering 2017 (CSE '17)

Conference and workshop program committees

KDD '16, '17, '18, '19, '20, '21

WWW / WebConf '17, '18, '19, '20, '21

WSDM '17, '18, '19, '20, '21

NeurIPS '17, '18; Area chair: '19, '20

SIAM Network Science '18, '20 (co-chair)

SIAM ACDA '21

Grant proposal reviewing

Army Research Office

Department of Energy

National Science Foundation Information and Intelligent Systems Panel · 2018, 2019

Journal reviewing

ACM Transactions on Knowledge Discovery in Data (TKDD)

Annals of Statistics

IEEE Transactions on Network Science and Engineering (TNSE)

IEEE Transactions on Knowledge and Data Engineering (TKDE)

Journal of Complex Networks

Journal of Machine Learning Research (JMLR)

Journal of the ACM (JACM)

Linear Algebra and Its Applications (LAA)

Linear and Multilinear Algebra

Multiscale Modeling and Simulation (MMS)

Nature Scientific Reports

Network Science

Proceedings of the National Academy of Sciences (PNAS)

PLOS ONE

SIAM Journal on Applied Mathematics (SIAP)

SIAM Journal on Scientific Computing (SISC)

SIAM Journal on Mathematics of Data Science (SIMODS)

SIAM Journal on Matrix Analysis and Applications (SIMAX)

SIAM Review (SIREV)

Book reviewing

CRC Press

Morgan & Claypool Publishers

Outreach

Co-organizer, Cornell SoNIC Workshop

<https://www.cs.cornell.edu/content/workshop/sonic>

2019, 2021

Faculty mentor for Black in AI	2019
Mentor for PLOS-sponsored hackathon to promote accessible code and data in Network Science https://opennetsci.github.io/	2019
Panelist for the Paper Unwind, Society of Young Network Scientists event at NetSci https://www.networkscienceinstitute.org/syns	2019

Press

Coverage of our 2021 *ICLR* paper “Combining Label Propagation and Simple Models Out-performs Graph Neural Networks”:

[Cornell & Facebook AI Simplified Graph Learning Approach Outperforms SOTA GNNs \(Synced\)](#)

Coverage of our 2021 *ICWSM* paper “Expertise and Dynamics within Crowdsourced Musical Knowledge Curation: A Case Study of the Genius Platform”:

[Crowdsourced Expertise \(Data Skeptic Podcast\)](#)

Coverage of our 2018 *PNAS* article “Simplicial closure an higher-order link prediction”:

[Predicting future combos, from rap songs to pharmaceuticals \(Cornell Chronicle\)](#)

[Algorithm predicts which rappers will work together \(Futurity\)](#)

Coverage of our 2016 *Science* article “Higher-order organization of complex networks”:

[Stanford-led effort creates a new way to analyze and control networks \(Stanford News\)](#)

[Mathematical framework offers a more detailed understanding of network relationships \(Phys.org\)](#)

[Mathematical Framework that Prioritizes Key Patterns in Networks Aims to Accelerate Scientific Discovery \(DARPA\)](#)