Blair D. Sullivan

University of Utah
School of Computing
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Education

Ph. D. in Mathematics. Princeton University, Princeton, New Jersey — June 2008
    Thesis: *Extremal Problems in Digraphs.* Advisor: Paul D. Seymour.

M. A. in Mathematics. Princeton University, Princeton, New Jersey — January 2005

B. S. Computer Science,
    B. S. Applied Mathematics. Georgia Institute of Technology, Atlanta, Georgia — May 2003
    Summa Cum Laude, minor in Economics, GPA: 4.0

Professional Experience

Professor, Kahlert School of Computing
    University of Utah, Salt Lake City, UT — July 2023 – present

Associate Professor, School of Computing
    University of Utah, Salt Lake City, UT — July 2019 – June 2023

Associate Professor, Department of Computer Science
    Chancellor's Faculty Excellence Program in Data-Driven Science
    Associate Faculty, Department of Mathematics
    North Carolina State University, Raleigh, NC — August 2016 – June 2019

Joint Faculty, Computer Science & Mathematics Division
    Oak Ridge National Laboratory (ORNL), Oak Ridge, TN — August 2013 – June 2019

Assistant Professor, Department of Computer Science
    North Carolina State University, Raleigh, NC — August 2013 – July 2016

Research & Development Staff Member, Complex Systems Group
    Oak Ridge National Laboratory, Oak Ridge, TN — July 2008 – August 2013

Graduate Research Assistant, Department of Mathematics
    Princeton University, Princeton, NJ — September 2003 – June 2008

Visiting Researcher
    Rényi Institute, Budapest, Hungary — October 2007 – April 2008

Graduate Student Intern, Theory Group
    Microsoft Research, Redmond, WA — Summer 2007

U. S. Department of Homeland Security (DHS) Graduate Fellow Intern
    Oak Ridge National Laboratory, Oak Ridge, TN — Summer 2004

Undergraduate Researcher, Departments of Mathematics and Computer Science
    Georgia Institute of Technology, Atlanta, GA — June 2001 – August 2003

Honors

Moore Investigator in Data-Driven Discovery (2014); *1 of 14 selected from 1100.*

National Consortium for Data Science Faculty Fellow (2014)

Best LDRD SEED Project Poster, Oak Ridge National Laboratory (2012)

Supplemental Performance Award, Oak Ridge National Laboratory (2009, 2011)

DHS Dissertation Grant (2006 – 2007)

DHS Graduate Fellowship (2003 – 2006)

Phi Kappa Phi Scholarship Cup (2003); *Georgia Tech senior with most outstanding academic record*

Georgia Tech President's Scholar (1999 – 2003); Jo Baker Scholar (2003)

University System of Georgia Outstanding Scholar (2003)

Manuscripts
All manuscripts listed are complete and available upon request.

M1. T. E. Reiter, L. Irber, A. Gingrich, D. Haynes, N. T. Pierce-Ward, P. T. Brooks, Y. Mizutani*, D. Moritz, F. Reidl, A. D. Willis, B. D. Sullivan, C. T. Brown. Meta-analysis of metagenomes via machine learning and assembly graphs reveals strain switches in Crohn's disease. *to be submitted for journal review in fall 2023.* bioRxiv:2022.06.30.498290v1.

M2. A. Crane*, B. Lavallee*, B. D. Sullivan, N. Veldt. Overlapping and Robust Edge-Colored Clustering in Hypergraphs. *Under conference review.* ArXiv:2305.17598.

M3. A. Giannopoulou, T. Hamm, B. D. Sullivan. Fast Constant-Factor Approximation of Treedepth. *Under conference review.*

M4. S. Jain, B. D. Sullivan. An $O(k)$-Approximate Kernel for Directed Feedback Vertex Set. *Under conference review.*

Journal Publications

J1. M. Pividori, S. Lu, B. Li, C. Su, M. E. Johnson, W. Wei, Q. Feng, B. Namjou, K. Kiryluk, I. Kullo, Y. Luo, B. D. Sullivan, B. F. Voight, C. Skarke, M. Ritchie, S. Grant, C. S. Greene. Projecting genetic associations through gene expression patterns highlights disease etiology and drug mechanisms. *Nature Communication - in press, 2023.* bioRxiv:2021.07.05.450786.

J2. D. Himmelstein, M. Zietz, V. Rubinetti, K. Kloster, B. J. Heil, F. Alquaddoomi, D. Hu, D. N. Nicholson, Y. Hao, B. D. Sullivan, M.W. Nagle, C. S. Greene. Hetnet connectivity search provides rapid insights into how biomedical entities are related. *GigaScience*, Volume 12, 2023.

J3. M. Breen-McKay*, B. Lavallee*, B. D. Sullivan. Hardness of the Generalized Coloring Numbers. ArXiv:2112.10562. *European Journal of Combinatorics (EuJC) - in press, 2023.*

J4. F. Reidl, B. D. Sullivan. A color-avoiding approach to subgraph counting in bounded expansion classes. *Algorithmica 2023. ArXiv:2001.05236.*

J5. P. Drange, M. Dregi, D. Lokshtanov, B. D. Sullivan. On the threshold of intractability. *Journal of Computer and System Sciences (JCSS)* 124:1-25, 2022. ArXiv:1505.00612.

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*graduate students, †undergraduate students (direct mentees at time work performed).

J6. T. D. Goodrich[*], E. Horton[*], B. D. Sullivan. An Updated Experimental Evaluation of Graph Bipartition Methods. *ACM Journal of Experimental Algorithmics*, 26, Article 12 (December 2021). ArXiv:1805.01041.

J7. J. Kun, M. P. O'Brien[*], M. Pilipczuk, B. D. Sullivan. Polynomial treedepth bounds in linear colorings. *Algorithmica* 83, 361–386 (2021). ArXiv:1802.09665v4.

J8. C. T. Brown, D. O. Moritz, M. P. O'Brien[*], F. Reidl, T. E. Reiter, B. D. Sullivan. Exploring neighborhoods in large metagenome assembly graphs reveals hidden sequence diversity. *Genome Biology* 21, 164 (2020). bioRxiv:10.1101/462788.

J9. E. D. Demaine, F. Reidl, P. Rossmanith, F. Sanchez Villaamil, S. Sikdar, B. D. Sullivan. Structural sparsity of complex networks: random graph models and linear algorithms. *Journal of Computer & System Sciences* (JCSS) 105:199–241, 2019. ArXiv:1406.2587.

J10. E. Horton[*], K. Kloster, B. D. Sullivan. Walk-regularity and subgraph centrality. *Linear Algebra and its Applications*, 2019. ArXiv:1804.05966.

J11. E. F. Dumitrescu, A. L. Fisher[†], T. D. Goodrich[*], T. S. Humble, B. D. Sullivan, A. L. Wright[†]. Benchmarking treewidth as a practical component of tensor-network-based quantum simulation. *PLoS ONE*, 13(12):e0207827, 2018. ArXiv:1807.04599.

J12. K. Kloster, D. Král', B. D. Sullivan. Walk entropy and walk-regularity. *Linear Algebra and its Applications*, 546, 2018. 10.1016/j.laa.2018.02.009. ArXiv:1708.09700.

J13. T. D. Goodrich[*], T. S. Humble, B. D. Sullivan. Optimizing Adiabatic Quantum Program Compilation using a Graph-Theoretic Framework. *Quantum Information Processing*, 17:118, 2018. ArXiv:1704.01996.

J14. M. Farrell[†], T. Goodrich[†], N. Lemons, F. Reidl, F. Sanchez Villaamil, B. D. Sullivan. Hyperbolicity, degeneracy and expansion of random intersection graphs. *Journal of Internet Mathematics* 2017. DOI:10.24166/im.06.2017

J15. R. Bridges, J. Collins, E. Ferragut, J. Laska, B. D. Sullivan. A multi-level anomaly detection algorithm for time-varying graph data with interactive visualization. *Social Network Analysis and Mining* 6:99, 2016.

J16. A. Adcock[*], M. Mahoney, B. D. Sullivan. Tree decompositions and social graphs. *Journal of Internet Mathematics* 12(5):315–361, 2016. ArXiv:1411.1546

J17. A. Adcock[*], E. Demaine, M. Demaine, M.P. O'Brien[*], F. Reidl, P. Rossmanith, F. Sánchez Villaamil, B. D. Sullivan. Zig-Zag Number Link is NP-complete. *Journal of Information Processing* 23(3):239–245, 2015. Special issue on Recreational Discrete Mathematics.

J18. T. Humble, A. McCaskey, R. Bennink, J. Billings, E. D'Azevedo, B. D. Sullivan, C. Klymko[*], H. Seddiqi. An integrated development framework for adiabatic quantum programming. *Computational Science & Discovery* 7 015006, 2014.

J19. C. Klymko[*], B. D. Sullivan, and T. Humble. Adiabatic quantum programming: minor embedding with hard faults. *Quantum Information Processing* 13(3):709–729, 2014.

J20. B. D. Sullivan. On a conjecture of Andrica and Tomescu. *Journal of Integer Sequences* 16(3):1, 2013.

J21. C. Groer, B. D. Sullivan, and S. Poole. A mathematical analysis of the R-MAT random graph generator. *Networks* 58(3):159–170, 2011.

J22. P. Seymour and B. D. Sullivan. Counting paths in digraphs. *European Journal of Combinatorics* 31(3):961–975, 2010.

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[*]graduate students, [†]undergraduate students (direct mentees at time work performed).

J23. M. Chudnovsky, P. Seymour, and B. D. Sullivan. Cycles in dense digraphs. *Combinatorica* 28(1):1–18, 2008.

J24. M. Nathanson and B. D. Sullivan. Heights in finite projective space, and a problem on directed graphs. *Integers* 8(A13), 2008.

J25. V. Blair Dowling [Sullivan] and W. A. Dowling. Intellectual property and academia. *Journal of Business and Economics Research* 4(1):103–109, 2003.

PEER-REVIEWED CONFERENCE PUBLICATIONS

C1. Y. Mizutani*, D. Dursteler*, B. D. Sullivan. Hydra Prime: An Exact Solver for Twin-width. *To appear at IPEC 2023.*

C2. E. Arrighi, M. Bentert, P. Drange, B. D. Sullivan, P. Wolf. Cluster Editing with Overlapping Communities. *To appear at IPEC 2023.*

C3. A. Fraser*, B. Lavallee*, B. D. Sullivan. Gerrymandering Trees: Parameterized Hardness. ArXiv:2205.06857. *To appear at SAGT 2023.* ArXiv:2205.06857

C4. A. Bashardoust*, S. Friedler, C. Scheidegger, B. D. Sullivan, S. Venkatasubramanian. Reducing Access Disparities in Networks Using Edge Augmentations. *Proceedings of the ACM Conference on Fairness, Accountability, and Transparency (FAccT) 2023.* ArXiv:2209.07616

C5. S. Jain, Y. Mizutani*, B. D. Sullivan. Faster Decomposition of Weighted Graphs into Cliques using Fisher's Inequality. *Proceedings of the SIAM Conference on Applied & Computational Discrete Algorithms (ACDA) 2023.* ArXiv:2206.07286.

C6. Y. Mizutani*, B. D. Sullivan. Improved Parameterized Complexity of Happy Set Problems. *Proceedings of the 17th International Symposium on Parameterized and Exact Computation (IPEC 2022).* ArXiv:2207.06623.

C7. Y. Mizutani*, A. Staker†, B. D. Sullivan. Minimizing Congestion for Balanced Dominators. *ACM SIGKDD Conference on Knowledge Discovery & Data Mining 2022.* ArXiv:2112.10973.

C8. M. Cooley, C. Greene, D. Isaac, M. Pividori, B. D. Sullivan. Parameterized algorithms for identifying gene co-expression modules via weighted clique decomposition. *SIAM Conference on Applied & Computational Discrete Algorithms (ACDA) 2021.* ArXiv:2106.00657

C9. B. Lavallee*, H. Russell†, B. D. Sullivan, A. van der Poel*. Approximating Vertex Cover using Structural Rounding. *Algorithm Engineering & Experiments (ALENEX) 2020.* ArXiv:1909.04611.

C10. E. D. Demaine, T. D. Goodrich*, K. Kloster, B. Lavallee*, Q. Liu, B. D. Sullivan, A. Vakilian, A. van der Poel*. Structural rounding: approximation algorithms for graphs near an algorithmically tractable class. *Proceedings of the 27th Annual European Symposium on Algorithms (ESA 2019)*, LIPIcs 144 pp 37:1–37:15, 2019. ArXiv:1806.02771.

C11. B. D. Sullivan, A. van der Poel*, T. Woodlief†. Faster Biclique Mining in Near-Bipartite Graphs. *Analysis of Experimental Algorithms (SEA^2)*, LNCS 11544, 2019. ArXiv:1903.01538.

C12. K. Kloster, B. D. Sullivan, A. van der Poel*. Mining maximal induced bicliques using odd cycle transversals. *Proceedings of SIAM Conference on Data Mining (SDM19)*, 2019. ArXiv:1810.11421.

C13. J. Kun, M. P. O'Brien*, B. D. Sullivan. Treedepth Bounds in Linear Colorings. *Proceedings of 44th International Workshop on Graph-Theoretic Concepts in Computer Science (WG)*, 2018. ArXiv:1802.09665v3.

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*graduate students, †undergraduate students (direct mentees at time work performed).

C14. K. Kloster, P. Kuinke, M. P. O'Brien*, F. Reidl, F. Sanchez Villaamil, B. D. Sullivan, A. van der Poel*. A practical algorithm for Flow Decomposition and transcript assembly. *Algorithm Engineering & Experiments (ALENEX) 2018.* ArXiv:1706.07851.

C15. Irene Muzi, M. P. O'Brien*, F. Reidl, B. D. Sullivan. Being even slightly shallow makes life hard. *Mathematical Foundations of Computer Science (MFCS) 2017.* ArXiv:1705.06796.

C16. A. J. Chin[†], T. D. Goodrich*, M. P. O'Brien*, F. Reidl, B. D. Sullivan, and A. van der Poel*. Asymptotic Analysis of Equivalences and Core-Structures in Kronecker-Style Graph Models. *2016 IEEE 16th International Conference on Data Mining (ICDM)*, Barcelona, 2016, pp. 829-834.
[full paper acceptance rate=9.7%]

C17. B. D. Sullivan, A. van der Poel*. A Fast Parameterized Algorithm for Co-Path Set. *11th International Symposium on Parameterized and Exact Computation (IPEC 2016)*, 2016. ArXiv:1603.04376

C18. M. Farrell[†], T. Goodrich*,[†], N. Lemons, F. Reidl, F. Sanchez Villaamil, B. D. Sullivan. Hyperbolicity and expansion of random intersection graphs. *Proceedings of WAW15 (12th Workshop on Algorithms and Models for the Web Graph*, 2015. ArXiv:1409.8196

C19. P. Drange , M. Dregi, D. Lokshtanov, B. D. Sullivan. On the threshold of intractibility. *Proceedings of the European Symposium on Algorithms (ESA)*, LNCS 9294:411–423, 2015. ArXiv:1505.00612.
[full paper acceptance rate=26%]

C20. R. Bridges, J. Collins, E. Ferragut, J. Laska, B. D. Sullivan. Multi-level anomaly detection on time-varying graph data. *Proceedings of the IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, 2015. ArXiv:1410.4355.
[short paper acceptance rate=18%]

C21. M. P. O'Brien*, B. D. Sullivan. Locally estimating core numbers. *Proceedings of the 2014 IEEE International Conference on Data Mining (ICDM)*: 460–469, 2014. Shenzhen, China.
[full paper acceptance rate=9.7%]

C22. A. Adcock*, B. D. Sullivan, and M. Mahoney. Tree-like structure in social and information networks. *Proceedings of the 2013 IEEE International Conference on Data Mining (ICDM'13)*: 1–10, 2013.
[full paper acceptance rate=11.62%]

OTHER PEER-REVIEWED PUBLICATIONS

O1. H. Du, M. M. Ferrari, C. Heitsch, F. Hurley[†], C. V. Mennicke, B. D. Sullivan, B. Xu. Secondary Structure Ensemble Analysis via Community Detection. In: Segal R., Shtylla B., Sindi S. (eds) *Using Mathematics to Understand Biological Complexity.* Association for Women in Mathematics Series, vol 22. Springer, Cham. `https://doi.org/10.1007/978-3-030-57129-0_4`

O2. A. Adcock*, B. D. Sullivan, O. Hernandez, and M. Mahoney. Evaluating OpenMP tasking at scale for the computation of graph hyperbolicity. *Proceedings of the International Workshop on OpenMP (IWOMP)*, September 2013. Canberra, Australia.

O3. B. D. Sullivan, D. Weerapurage, and C. Groer. Parallel algorithms for graph optimization using tree decompositions. *Proceedings of the International Parallel and Distributed Processing Symposium Workshops (IPDPSW)*, May 2013. Cambridge, Massachusetts.

TECHNICAL REPORTS

T1. J. Lothian, S. Powers, B. D. Sullivan, M. Baker, J. Schrock, and S. Poole. Graph generator survey. Technical Report ORNL/TM-2013/339. Oak Ridge National Laboratory, Oak Ridge, TN, 2013.

T2. C. Groer, B. D. Sullivan, and D. Weerapurage. INDDGO: Integrated Network Decompositions & Dynamic programming for Graph Optimization. Technical Report ORNL/TM-2012/176. Oak Ridge National Laboratory, Oak Ridge, TN, 2013.

T3. B. D. Sullivan, C. Groer, and S. Poole. Computational analysis of two graph compression algorithms. Technical Report ORNL/TM-2009/193. Oak Ridge National Laboratory, Oak Ridge, TN, 2009.

T4. B. D. Sullivan. A summary of results and problems related to the Caccetta-Haggkvist conjecture. Technical Report 2006-13. American Institute of Mathematics, Palo Alto, CA, 2006.

Refereed Extended Abstracts
1-2 page conference submissions accepted for oral presentation; full research results published independently.

E1. A. Crane*, D. Dursteler†, Y. Mizutani*, B.D. Sullivan. Practical Weighted Clique Decomposition for Identifying Gene Co-Expression Modules *SIAM ACDA23* (poster), May 2023.

E2. A. Crane*, B. Lavallee*, B.D. Sullivan, N. Veldt. Overlapping Edge-Colored Clustering *SIAM ACDA23* (poster), May 2023.

E3. Y. Mizutani*, A. Staker†, B.D. Sullivan. Minimizing Congestion for Balanced Dominators. *SIAM NS22*, virtual, Sept 2022.

E4. Y. Mizutani*, A. Staker†, B.D. Sullivan. Minimizing Congestion for Balanced Dominators. *SIAM NS22*, virtual, Sept 2022.

E5. M. Cooley*, B. Lavallee*, B.D. Sullivan. Rounding Out Structural Rounding. *SIAM NS20*, virtual, July 2020.

E6. Toboggan. P. Kuinke, M. P. O'Brien*, F. Reidl, F. Sanchez Villaamil, B. D. Sullivan, A. van der Poel*. *Intelligent Systems for Molecular Biology (ISMB/ECCB)*, Prague, Czech Republic, July 2017.

E7. Extracting neighborhood structure from very large DNA graphs. C. T. Brown, D. Moritz, M. P. O'Brien*, F. Reidl, B. D. Sullivan. *SIAM NS17*, Pittsburgh, PA, July 2017.

E8. A Fast Parameterized Algorithm for Co-Path Set. B. D. Sullivan, A. van der Poel*. *SIAM NS16*. Boston, MA, July 2016.

E9. Structural Sparseness and Complex Networks. E. Demaine, M. P. O'Brien*, F. Reidl, P. Rossmanith, F. Sanchez Villaamil, S. Sikdar, B. D. Sullivan. *SIAM NS16*. Boston, MA, July 2016.

E10. Optimizing Adiabatic Quantum Program Compilation using a Graph-Theoretic Framework. T. D. Goodrich*, T. Humble, B. D. Sullivan. *SIAM NS16*. Boston, MA, July 2016.

E11. Characterizing, exploiting and predicting algorithmic structure in complex networks. E. Demaine, F. Reidl, P. Rossmanith, F. Sanchez Villaamil, S. Sikdar, B. D. Sullivan. *NetSci 2015*. Zaragoza, Spain, June 2015.

E12. Hyperbolicity, degeneracy & expansion of random intersection graphs. M. Farrell†, T. Goodrich†, N. Lemons, F. Reidl, F. Sanchez Villaamil, B. D. Sullivan. *SIAM NS15*. Snowbird, Utah, May 2015.

Software
Unless otherwise noted, all packages are hosted at `http://github.com/theoryinpractice`.

S1. HydraPrime
With Y. Mizutani*, D. Dursteler*.
Twin-width solver; Winner in the Exact Track and Theory Award Recipient in the 2023 PACE Challenge (`pacechallenge.org`). Code currently available at `github.com/mogproject/twinwidth-2023`.

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*graduate students, †undergraduate students (direct mentees at time work performed).

S2. DeCAF
With S. Jain, Y. Mizutani*.
Implementation of smaller kernel and improved data reduction rules for solving edge-weighted clique cover (see also Cricca).

S3. Cricca
With M. Cooley*.
Implementation of parameterized algorithms for solving edge-weighted clique cover to identify gene modules in co-expression data.

S4. Structural-Rounding
With M. Cooley*, B. Lavallee*, C. Perschon[†], A. van der Poel*.
Implementation of structural rounding framework for approximating Vertex Cover and Dominating Set on near-bipartite graphs.

S5. SpaceGraphCats
With C. Titus Brown, D. Moritz, M. P. O'Brien*, F. Reidl.
Package for efficiently computing a hierarchy of r-dominating graphs that summarize the neighborhood structure of a sparse graph at multiple resolutions, implemented in Python. Includes functionality for fast extraction of the neighborhood around a set of query vertices. A target use case for spacegraphcats is to organize de Bruijn graphs of large metagenomic sequence data and support queries to enhance binning and detect strain variants. Project hosted at: `https://github.com/spacegraphcats/spacegraphcats`.

S6. MI-Bicliques
With K. Kloster, E. Horton*, A. van der Poel*, T. Woodlief[†]
C++ implementations of algorithms for enumerating maximal bicliques, including `OCT-MIB/OCT-MIB-II` and `OCT-MICA` (for induced and non-induced bicliques, respectively) in near-bipartite instances and `LexMIB` and `Enum-MIB`, variants of the algorithm for general graphs in Dias et al. 2005.

S7. Practical OCT
With T. D. Goodrich*, E. Horton*.
Suite of pre-processing routines, heuristics, solvers, and harnesses used to compare algorithms for Odd Cycle Traversal (graph bipartization) based runtime or solution quality.

S8. ConSequences
With A. L. Fisher[†], T. D. Goodrich*, A. Wright[†].
Framework providing a common interface for all existing algorithms for computing contraction sequences for tensor networks. Includes container-based wrappers for treewidth-based and domain-specific solvers and Python-based utilities for data conversions, command-line usage, and batch experiments.

S9. Toboggan
With K. Kloster, P. Kuinke, M. P. O'Brien*, F. Reidl, F. Sanchez Villaamil, A. van der Poel*.
Implementation of an exact FPT algorithm for decomposing a flow on a directed acyclic graph into a minimal number of paths, a problem that commonly occurs in transcript and metagenomic assembly.

S10. AQC-Virtual-Embedding
With T. D. Goodrich*.
Framework for structured graph minor embeddings of optimization problems into quantum annealing hardware. Supports several embedding algorithms and reduction routines, including an approach using bipartite virtual hardware and odd cycle transversals to improve compilation into the D-Wave Chimera architecture.

S11. SpiderDonuts
With K. Kloster, E. Horton[†].
Python code for exploring walk-regularity in graphs and its signature in functions of the adjacency matrix.

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*graduate students, [†]undergraduate students (direct mentees at time work performed).

S12. BEAVr: Bounded Expansion Algorithm Visualizer
With Y. Ho[†], C. Hobbs[†], B. Mork[†], F. Reidl, N. Rodrigues[†].
Python tool offering interactive visualization of the algorithmic pipeline for counting subgraph isomorphisms in graph classes of bounded expansion, as implemented in CONCUSS. BEAVr was primarily developed by a NC State CSC Senior Design team.

S13. CONCUSS: Combatting Network Complexity Using Structural Sparsity
With C. Hobbs[†], K. Jasnik, B. Mork[†], M. P. O'Brien[*], F. Reidl, N. Rodrigues[†].
Python software package providing proof-of-concept for an end-to-end pipeline for parameterized analytics in bounded expansion classes. Current modules use low-treedepth colorings to support subgraph isomorphism counting (motif counting).

S14. INDDGO: Integrated Network Decomposition & Dynamic programming for Graph Optimization
With C. Groer, D. Weerapurage.
Serial and parallel C++/MPI codes supporting tree-decomposition-based dynamic programming routines for maximum weighted independent set. Primary development occurred while a staff member of Oak Ridge National Laboratory. Project hosted at: `http://github.com/bdsullivan/inddgo`.

ACTIVE RESEARCH GRANTS

Computing Innovation Fellowship for Shweta Jain (PI)
Computing Research Association (prime sponsor: NSF)
$ 307,800   Oct 2021 – Oct 2023

Collaborative Research: Evaluating and Maximizing Fairness in Information Flow On Networks (PI)
National Science Foundation
$95,491 (share of Utah funding after taking over from previous PI)   Aug 2022 – Sept 2023

Network-based algorithms for target identification and drug repositioning from genetic associations (PI)
University of Colorado at Denver (prime sponsor: NIH)
$121,900   Jan 2021 – May 2023

Moore Investigator in Data-Driven Discovery: Enabling Science via Structural Graph Algorithms (PI)
Gordon & Betty Moore Foundation
$1,850,000 ($1.5M initial + $350,000 new funds awarded Sept. 2019)   November 2014 – May 2024

PRIOR RESEARCH SUPPORT

Network-based algorithms for target identification and drug repositioning from genetic associations (PI)
University of Pennsylvania (prime sponsor: NIH)
$150,000 (part of this funding re-issued in Colorado award due to PI move)May 2020 – December 2020

Integrating lineage across individuals with phylogenetic tree comparison (co-PI)
University of Utah 1U4U, co-PIs: James Gagnon, Aaron Quinlan
$30,000   January 2020 – August 2021

Algorithms for Exploiting Approximate Network Structure (PI)
Army Research Office, Research Area 10: Network Science, co-PI: E. Demaine (MIT)
$538,199   2017 – 2019

Joint Faculty Appointment (PI)
Oak Ridge National Laboratory (ORNL), Computer Science & Mathematics Division
$205,144   2013 – 2019

Parameterized Algorithms Respecting Structure in Noisy Graphs (PARSiNG) (PI)
Defense Advanced Research Projects Agency (DARPA), GRAPHS Program
$249,200   2014 – 2017

Risk Mitigation of Infectious Diseases via Network Modeling and Mining (site PI)
NC Data Science and Analytics Initiative, co-PIs: D. Janies, X. Shi (UNC-Charlotte)
$150,000 (NCSU $75,000)   2015 – 2017

Tracking Community Evolution in Dynamic Graph Data Using Tree-Like Structure (PI)
DATA SCIENCE FACULTY FELLOW
National Consortium for Data Science (UNC-Chapel Hill)
$30,000   2014 – 2015

Situation Awareness in Complex Networks (co-PI)
Oak Ridge National Laboratory LDRD[1] Program, PI: E. Ferragut (ORNL)
$650,000   2013 – 2015

Scalable Clustering Methods for Dynamic Health Data (co-PI)
NC State Research and Innovation Seed Funding (RISF), PI: A. Wilson (NCSU)
$26,000   2014

Pattern Discovery and Predictive Modeling on Heterogeneous Graphs using Cray's uRiKA (co-PI)
Oak Ridge National Laboratory LDRD Program, PI: R. Sukumar (ORNL)
$390,000   2013 – 2014

SPARTN: Sparse Projections Achieving Randomization in Tree-like Networks (PI)
DARPA GRAPHS Program, co-I: M. Mahoney (Stanford)
$415,000   2012 – 2014

Connecting Combinatorial and Geometric Tree-like Structure in Complex Networks (PI)
Oak Ridge National Laboratory LDRD SEED Fund
$200,000   2011 – 2012

Scalable Graph Decomposition and Algorithms to Support the Analysis of Petascale Data (PI)
Department of Energy, OASCR Applied Mathematics Program, co-PI: C. Groër
$1,200,000   2009 – 2012

KEYNOTES/PLENARIES
∗ indicates confirmed invited talks that were cancelled/postponed due to COVID

Plenary, SIAM Conference on Applied & Computational Discrete Algorithms (SIAMACDA)   June 2023

Invited Address (plenary), AMS Southeastern Sectional Meeting, Atlanta, GA   March 2023

Keynote Tutorial, Lorenz Center, Leiden, Netherlands   October 2022
Workshop on Graph Decompositions: Small Width, Big Challenges

Plenary, SIAM Conference on Discrete Mathematics (SIAMDM), Pittsburgh, Pennsylvania   June 2022

Keynote, Symposium on Experimental Algorithms (SEA), Nice, France   June 2021

Plenary, Cumberland Conf. on Combinatorics, Graph Theory & Computing, postponed   ∗May 2020

Plenary, Parameterized Complexity & Practical Computing Workshop, Bergen, Norway   August 2019

Keynote, Conf. on Combinatorial Optimization & Applications (COCOA), Atlanta, GA   December 2018

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[1]Laboratory Directed Research & Development

OTHER INVITED PRESENTATIONS

Utah Data Science Seminar, University of Utah, Salt Lake City, UT	August 2023
High-Performance Computing Group Seminar, Simula, Oslo, Norway,	June 2023
NORDITA WINQ Workshop on Complex Dynamical Networks, Stockholm, Sweden	June 2022
Minisymposium on Applied & Computational Discrete Algorithms, SIAM AN21, virtual	July 2021
2021 Women Lecture Series (WLS) Invited Speaker, Kansas State Mathematics, virtual	May 2021

AMS Western Sectional Meeting, virtual   Oct 2020
    Special Session on Graphs, Hypergraphs and Set Systems

Discrete Mathematics Seminar, Arizona State University, Tempe, AZ	March 2020
Mathematical Biology Seminar, Georgia Institute of Technology, Atlanta, GA	October 2019
School of Computing Colloquium, University of Utah, Salt Lake City, UT	January 2019
Department of Mathematics Colloquium, University of Central Florida, Orlando, FL	October 2018
Mathematics Department Colloquium, Georgia Institute of Technology, Atlanta, GA	September 2018
Workshop on Structural Sparsity, Logic, and Algorithms, University of Warwick, UK	July 2018
Data Institute Annual Conference (DSCO17), San Francisco, CA	October 2017

AMS Southeastern Sectional Meeting, Orlando, FL   October 2017
    Special Session on Structural Graph Theory

Applied Topology Seminar, University of Pennsylvania	March 2017
Cumberland Conference on Combinatorics, Graph Theory and Computing, Nashville, TN	May 2017
Duke Network Analysis Center Seminar, Duke University	November 2016
Minisymposium on The Mathematics behind Big Data Analysis, SIAM DM16, Atlanta, GA	June 2016
Generalized Network Structures and Dynamics, Mathematical Biosciences Institute	March 2016
Mathematics for Data Science, ICERM, Providence, RI	July 2015
AWM Research Symposium, Baltimore, MD	April 2015
Capital Area Theory Seminar, University of Maryland	April 2015
Algorithms Seminar, Duke University	April 2015
PACM Colloquium, Princeton University	February 2015
Computer Science Seminar, Emory University	February 2015
ARC Colloquium, Georgia Institute of Technology	February 2015
Institute for Defense Analysis CCS Seminar, Bowie, MD	February 2015
AMS/MAA JMM, Workshop on the Mathematics of Network Science, San Antonio, TX	January 2015
Atlanta Lecture Series in Combinatorics and Graph Theory, Atlanta, GA	November 2014

AMS Southeastern Sectional Meeting, Greensboro, NC   November 2014
    Special Session on Recent Advances in Graph and Hypergraph Theory

Center for Imaging Science Seminar, Johns Hopkins University   November 2014

Algorithms Group Seminar, University of Bergen   August 2014

Computer Science Seminar, RWTH Aachen University, Germany   August 2014

Gordon & Betty Moore Foundation DDD Investigators Finalist Symposium, Palo Alto, CA   July 2014

Center for Nonlinear Studies Seminar, Los Alamos National Laboratory   June 2014

Topology and Geometry of Networks and Discrete Metric Spaces, IMA   April 2014

AMS Southeastern Sectional Meeting, Special Session on Graph Theory, Knoxville, TN   March 2014

Bertinoro Workshop on Algorithms and Graphs, Italy   December 2013

Theoretical Computer Science Group Seminar, RWTH Aachen University, Germany   December 2013

SAMSI Workshop on Social Network Data, RTP, NC   October 2013

Cumberland Conference on Combinatorics, Graph Theory & Computing, Murfreesboro, TN   May 2013

Center for Nonlinear Studies Colloquium, Los Alamos National Laboratory   May 2013

Combinatorics Seminar, Massachusetts Institute of Technology   April 2013

Industrial Engineering Seminar, University of Tennessee   April 2013

Computer Science Seminar, NC State University   March 2013

Computational Science & Engineering (CSE) Seminar, Georgia Tech   October 2012

SIAM Student Seminar, Emory University   October 2012

Applied Mathematics & Analysis Seminar, Duke University   October 2012

Applied Mathematics Colloquium, UNC-Chapel Hill   September 2012

Institute for Computing in Science (ICiS), Park City, UT   July 2012

Workshop on Massive Modern Data Sets (MMDS), Palo Alto, CA   July 2012

Applied Mathematics Colloquium, Duke University   April 2012

IMA Workshop: Large Graphs: Modeling, Algorithms, and Applications, Minneapolis, MN   October 2011

Virginia Bioinformatics Institute, Virginia Tech   September 2011

International Congress of Industrial and Applied Mathematics, Vancouver BC   July 2011

SAMSI Complex Networks Transitions Workshop, Research Triangle Park, NC   June 2011

Sandia National Laboratories, Livermore, CA   November 2010

Computer Science Colloquium, University of Georgia   October 2010

ORNL Computer Science and Mathematics Division Advisory Board   June 2010

CAAM Colloquium, Rice University   April 2010

Combinatorics Seminar, Georgia Tech   January 2010

Mathematics Department Junior Colloquium, University of Tennessee   September 2009

Princeton-Oxford Graph Theory Workshop, Oxford University, United Kingdom   June 2008

Oak Ridge National Laboratory, Computer Science & Mathematics Division	May 2008
Alfred Renyi Mathematics Institute, Budapest, Hungary	November 2007
Combinatorics Seminar, University of California, San Diego	October 2007
Microsoft Research Theory Group, Redmond, WA	October 2007
Discrete Math Seminar, Simon Fraser University, Canada	October 2007
Graph Theory Seminar, Georgia Tech	September 2007
Theory Group Seminar, Microsoft Research, Redmond, WA	April 2007
New York Number Theory Seminar, CUNY	February 2007

Tutorials

Complex Networks and Sparsity (I-IV). *Sparsity DocCourse*, Charles University Prague, Czech Republic	Nov-Dec, 2018
Exploiting Graph Structure in Algorithms. *ICERM Research Cluster*, Providence, RI	April, 2014

Teaching Experience

Instructor

- Programming for All 2: Extended Applications (COMP1020), University of Utah — Spring 2023
- Graduate Algorithms (CS5150/6150), University of Utah — Fall 2022
  Co-taught with Haitao Wang
- Introduction to Parameterized Algorithms & Complexity (CS5958/6958), University of Utah Fall 2021
- Algorithms (CS4150), University of Utah — Spring 2021
  Taught online due to COVID.
- Algorithms (CS4150), University of Utah — Fall 2020
  Course re-designed; taught online due to COVID.
- Introduction to Graph Theory (CS5956/6957), University of Utah — Fall 2019
- Graph Theory (CSC/MA/OR 565), NC State University — Spring 2019
- Parameterized Algorithms & Complexity (CSC 791/495), NC State University — Fall 2017
  New course; designed from scratch.
- Automata, Languages and Computability (CSC 333), NC State University — Spring 2017
- Computer Science Theory Reading Group (CSC 295/801), NC State University — Spr16, Fall16, Spr17
- Automata, Languages and Computability (CSC 333), NC State University — Fall 2015
- Theory of Computation (CSC 707), NC State University — Fall 2014
- Automata, Languages and Computability (CSC 333), NC State University — Fall 2014
- Discrete Mathematics for Computer Scientists (CSC 226), NC State University — Spring 2014
- Introduction to Calculus & Analytic Geometry (MAT 101), Princeton University — Fall 2006

Teaching Assistant

- Graph Theory (MAT 306), Princeton University, Spring 2006, Spring 2007
- Calculus II (Math 1502), Georgia Institute of Technology, Fall 2001, Spring 2002

Research Collaborations with Trainees

Graduate Students

Past Ph.D. Students:

- Michael P. O'Brien, NC State University, Computer Science — 2013 – 2018
  now Software Engineer, Google
- Andrew van der Poel, NC State University, Computer Science — 2014 – 2019
  now Asst. Teaching Prof., Northeastern
- Michael Breen-McKay, NC State University, Mathematics (co-advised) — 2018 – 2022
  now Professor, Durham Tech Community College
- Ashkan Bashardoust, University of Utah, School of Computing (co-advised) — 2021 – 2022
  defended July 11, 2022
- Brian Lavallee, University of Utah, Computer Science — 2017 – 2023
  defended October 18, 2022

Current Ph.D. Students:

- Alex Crane, University of Utah, School of Computing — 2022 – present
- Yosuke Mizutane, University of Utah, School of Computing — 2020 – present

Independent Study/Research Assistants:

- David Dursteler, University of Utah, School of Computing — Summer 2023, Fall 2023 (MS)
- Andrew Fraser, University of Utah, School of Computing — Spring 2022, Fall 2022 (MS)
- Madison Cooley, University of Utah, School of Computing — Fall 2020 – Summer 2021 (PhD)
- Rachel Walker, University of Utah, School of Computing — Fall 2020 (PhD)
- Michael Suggs, NC State University, Computer Science — Fall 2018 (PhD)
- Eric Horton, NC State University, Computer Science — 2017–2018 (MS), Fall 2018 (PhD)
- Timothy D. Goodrich, NC State University, Computer Science — 2014 – 2018 (PhD)
- Abida Haque, NC State University, Computer Science — Fall 2017 (PhD)
- William Hill, NC State University, Computer Science — Fall 2013 (PhD)

Interns (at Oak Ridge National Laboratory):

- Aaron Adcock (Stanford University) — 2011–2013
- Christine Klymko (Emory University) — 2012
- Zhibin Huang (University of Georgia) — 2010

Ph.D. Committees:

- Elnaz Mirzaei Mehrabad, University of Utah, School of Computing — anticipated 2023
  (advisors: Aditya Bhaskara, Benjamin Spike)
- James Elliott, NC State University, Computer Science — October 2015
  "Resilient Iterative Linear Solvers Running Through Errors" (advisor: Frank Mueller)
- Sadia Sharmin, University of Bergen, Computer Science — August 2014
  "Practical Aspects of the Graph Parameter Boolean-width" (advisor: Fredrik Manne)
- Aaron Adcock, Stanford University, Electrical Engineering — June 2014
  "Characterizing, Identifying, and Using Tree-like Structure in Social and Information Networks" (advisor: Gunnar Carlsson)

Postgraduates

- Shweta Jain (Computing Innovation (CI) Fellow) — 2021 – present
- Kyle Kloster (now Software Engineer at Carbon) — 2016 – 2018

○ Felix Reidl (now Senior Lecturer at Birkbeck University of London)　　　　2016 – 2017
○ Diego Galindo (now Technologist at Caterpillar)　　　　2012
○ Charlotte Kotas (now Research Scientist at ORNL)　　　　2012
○ Dinesh Weerapurage, post-MS (now Software Engineering Architect at Salesforce),　　　　2011 – 2012

Undergraduates

○ David Dursteler　　　　Spring 2023
○ Annie Staker　　　　Spring 2021*
○ Cole Perschon　　　　Spring 2020, Summer 2020*, Fall 2020*,†, Spring 2021†
○ Matthew Hooper　　　　Spring 2020
○ Jing Guo　　　　Fall 2019, Spring 2020
○ Forrest Hurley　　　　Spring 2019, Summer 2019, Fall 2019
○ Hayley Russell　　　　Fall 2018×
○ Trey Woodlief　　　　Spring 2018, Fall 2018, Spring 2019×,†
○ Allison Fisher　　　　Fall 2017*, Spring 2018×
○ Andrew Wright　　　　Fall 2017*, Spring 2018*
○ Eric Horton　　　　Fall 2016*, Spring 2017*
○ Jean-Claude Shore　　　　Fall 2016×,†, Spring 2017×,†
○ Yang Ho　　　　Summer 2015, Fall 2015, Spring 2016+
○ Clara (Clayton) Hobbs　　　　Spring 2015×, Summer 2015, Spring 2016+
○ Nishant Rodrigues　　　　Summer 2015, Fall 2015, Spring 2016+
○ Brandon Mork　　　　Spring 2015×, Fall 2015*, Spring 2016+
○ Alex Chin (NCSU Undergraduate Research Grant Recipient)　　　　Fall 2013, Spring 2014
○ Matthew Farrell (Albertson College)　　　　Summer 2013#
○ Timothy Goodrich (Valparaiso University)　　　　Summer 2013#

∗ co-funded by UROP or NC State Provost's Professional Experience Program
× Independent Study/Research (Utah CS 4950 / NCSU CSC 499)
† University of Utah Honors Thesis or NC State Honors Capstone
+ NC State Computer Science Senior Design Project (CSC 492)
# DOE Science Undergraduate Laboratory Internship (SULI) program

High School Math Thesis Students
Oak Ridge High School, Oak Ridge, TN

○ Megan Kelly and Neall Caughman　　　　2012
Semifinalists in 2012 Siemens Competition.
○ Gloria D'Azevedo　　　　2010
Placed at state and national Junior Science & Humanities Symposium.

Selected Professional Activities

Internal Service

Faculty Mentoring Chair, Kahlert School of Computing, University of Utah, 2023 – present

Associate RPT Chair, University of Utah School of Computing, 2020 – 2023

Associate Director of Research, Utah Center for Data Science, 2022–2023

University of Utah School of Computing Committees

○ Lecturing Faculty Search Committee, 2022–2023

- Curriculum Committee, 2019–2022
- Mentoring Committee, 2020–2021
- Director Search Committee, 2019–2020
- Awards Committee, 2019–2020

Organizer, NC State Theory Seminar, 2013 – 2019
`www.csc2.ncsu.edu/theoryseminar`

NC State Data Science Initiative Steering Committee & Advisory Council, 2016 – 2019

NC State Computer Science Algorithms & Theory Focus Group Lead, 2018 – 2019.

NC State Chancellor's Faculty Excellence Program Data-Driven Science Cluster Faculty Search Committee, 2015–2016

NC State Computer Science Department Committees

- Chair, Theory Faculty Search Committee, 2018–2019
- Awards Committee, 2017–2019
- Revamping First Year of Ph.D. Program Task Force, 2016–2017
- Actionable Faculty Goals Task Force, 2014–2015

Faculty Mentor

- Ana Marasović, Assistant Professor, 2022–present
- Eliane Wiese, Assistant Professor, 2022–2023
- Alessandra Scafuro, Assistant Professor, 2016–2019
- Katie Stolee, Assistant Professor, 2017–2019
- Hung-wei Tseng, Assistant Professor, 2017–2019

ORNL Women in Computing Advisory Board, 2012–2013

ORNL Computer Science & Mathematics Division Awards Committee, 2012

Leadership and Organization

Co-Chair, 2024 SIAM Conference on Discrete Mathematics, July 2024.

Chair, SIAM Activity Group on Applied & Computational Discrete Algorithms, 2023–present.

Organizer, SIAM ACDA Online Seminar Series, 2021–2022.

Guest Editor, Special Issue of European Journal of Combinatorics on Sparsity, 2022.

Co-Chair, 2021 SIAM Conference on Applied & Computational Discrete Algorithms, July 2021.

Founding Vice-Chair, SIAM Activity Group on Applied & Computational Discrete Algorithms, 2019–2021.

Co-Organizer, Dagstuhl Seminar on Sparsity in Algorithms, Combinatorics and Logic, September 2021.

Vice-Chair (elected), SIAM Activity Group on Discrete Mathematics, 2018–2020.

Co-Chair, 2016 SIAM Workshop on Network Science

Organizing Committee, 2016 SIAM Conference on Discrete Mathematics (DM)

Steering Committee Member

- ACM-SIAM Symposium on Discrete Algorithms (SODA), 2021–present
- SIAM Workshop on Network Science, 2016–present
- Graph500 Benchmark (`http://www.graph500.org`), 2009–2012

Collaborative Research Event Leadership

- Collaborative Workshop for Women in Mathematical Biology; Research Group Co-Lead with C. Heitsch
  Institute for Pure and Applied Mathematics (IPAM)   June 2019
  https://www.ipam.ucla.edu/wbio2019
- Barnraising for Data-Intensive Discovery; Co-Organizer with B. King, C. Greene, M. Turk
  MDI Biology Laboratory   Spring 2016
  https://mdibl.org/course/barnraising/
- Research Cluster: Towards Efficient Algorithms Exploiting Graph Structure; Co-Organizer w/ E. Demaine, D. Marx
  Institute for Computational & Experimental Research in Mathematics (ICERM)   Spring 2014
  https://icerm.brown.edu/sp-s14/

Minisymposia and Special Sessions Organized

- *Discrete Mathematics (and Theoretical Computer Science).*
  Special Session, Association of Women in Mathematics (AWM) Research Symposium, 2015
- *Treewidth: Connecting Fixed-Parameter Tractability, Graphical Models, and Sparse Linear Algebra.*
  Minisymposium, SIAM Computational Science & Engineering, 2013
- *Anomaly Detection Methods and Applications*
  Minisymposium, SIAM Southeastern Atlantic Sectional, 2013 (with R. Bridges)

Program Committees

- SIAM Conference on Applied & Computational Discrete Algorithms (ACDA) 2023
- European Symposium on Algorithms (ESA) 2021
- Complex Networks 2018, 2019, 2020
- SIAM Meeting on Algorithm Engineering & Experiments (ALENEX) 2018
- SIAM Workshop on Network Science (NS) 2015, 2017, 2020
- SIAM Workshop on Combinatorial Scientific Computing (CSC) 2014

Referee/Reviewer for Conferences, Journals, and Funding Agencies *including* Journal of the ACM; Discrete Mathematics; Combinatorics, Probability and Computing; SIAM Journal on Discrete Mathematics; SIAM Journal on Matrix Analysis and Applications; Combinatorica; Electronic Journal of Linear Algebra; SIAM Combinatorial Scientific Computing; SIAM Workshop on Network Science; Symposium on Theoretical Aspects of Computer Science (STACS), Workshop on Algorithm Engineering and Experiments (ALENEX), National Science Foundation (NSF), Army Research Office (ARO), and Department of Energy (DOE) Office of Science.

Outreach

Invited Presentations

- *Data Science Lunch and Learn*, Research Triangle Institute (RTI), RTP, NC   October 2018
- *Research Horizons Seminar*, Georgia Institute of Technology, Atlanta, GA   September 2018
- *Kennesaw State University, Infinite Horizons Lecture Series*, Marietta, GA   April 2016
- *Oak Ridge National Laboratory, Women in Computing Brown Bag*, Oak Ridge, TN   July 2015
- *National Institute for Environmental Health Sciences, Data Science Seminar*, RTP, NC   April 2015
- *RTP 180°: Big Data*, Research Triangle Park, NC   August 2014
- *SAMSI Education and Outreach Workshop*, Raleigh, NC   May 2014
- *NCDS Data Innovation Showcase*, Chapel Hill, NC   May 2014
- *SAMSI Education and Outreach Workshop*, Research Triangle Park, NC   October 2013
- *PROMYS 20th Reunion*, Boston University, Boston, MA   July 2009
- *Nassau Presbyterian Church Adult Education Series*, Princeton, NJ   February 2007

Panels

- *FPT Fest 2023*
  Bergen, Norway .... June 2023
- ○ *GradSWE Professional Development & Mentorship Panel: Funding*
  Salt Lake City, UT .... March 2021
- ○ *R-Ladies RTP Meetup: Data Science Panel*
  Raleigh, NC .... October 2018
- ○ *CMD-IT National Lab Professional Development Workshop for Underrepresented Participants*
  Moderator. Oak Ridge, TN .... June 2013
- ○ *Emory University Math/CS Graduate Student Lunch & Learn Series*
  Atlanta, GA .... October 2012
- ○ *National Lab Professional Development Workshop for Underrepresented Participants*
  Livermore, CA .... June 2012
- ○ *Department of Homeland Security HS-STEM Career Pathways Conference*
  Washington, DC .... October 2010
- ○ *Career Pathways for Future Homeland Security S&T Professionals*
  Washington, DC .... October 2008

Other

- ○ Kahlert School of Computing, first-year PhD Mentor 2021–present
- ○ *Utah Women in Data Science (WiDS) 2023*, Lightning Talk .... April 2023
- ○ *NC State Women in Computer Science (WiCS)*
  Regular participant in events; faculty judge at annual Symposium 2013–2018
- ○ *Reddit Science AMA Series*
  Moore DDD Investigators .... January 2015
  `www.reddit.com/r/science/comments/2teeeg/science_ama_series_we_are_moore_investigators_and/`
- ○ *Video Interview* for STEMBrite "Mindsets for Computer Science" series (used in CSC116).
  NC State University .... Spring 2014
- ○ *Head Counselor*, Program in Mathematics for Young Scientists (PROMYS)
  Boston University, Boston, MA .... Summer 2001

Professional Memberships

Association of Computing Machinery (ACM)

Americal Mathematical Society (AMS)

Society for Industrial and Applied Mathematics (SIAM)