

ASSEFAW H. GEBREMEDHIN

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RESEARCH INTERESTS

*Data science and AI. Network science. High-performance computing.
Applications in cyber security, energy systems, and biomedical informatics.*

EDUCATION

PhD	Computer Science	University of Bergen, Norway	2003
MS	Computer Science	University of Bergen, Norway	1999
BS	Computer Science	University of Bergen, Norway	1996
BS	Electrical Engineering	Addis Ababa University, Ethiopia	1992

APPOINTMENT HISTORY

08/20–present	<i>Associate Professor</i> , School of EECS, Washington State University
2014–2020	<i>Assistant Professor</i> , School of EECS, Washington State University
2010–2014	<i>Research Assistant Professor</i> , Dept. of Computer Science, Purdue University
2008–2010	<i>Research Assistant Professor</i> , Computing Research Institute, Purdue University
2006–2008	<i>Research Scientist</i> , Dept. of Computer Science, Old Dominion University
2004–2006	<i>Postdoctoral Fellow</i> , Dept. of Computer Science, Old Dominion University
1999–2003	<i>Doctoral Fellow</i> , Dept. of Informatics, University of Bergen, Norway

AWARDS

- National Science Foundation CAREER Award, 2016
- My student Helen Catanese won the #ElevatingMath Video Competition conducted by the National Academies of Science, Engineering and Medicine, Board on Mathematical Sciences and Analytics, 2019 (http://sites.nationalacademies.org/DEPS/BMSA/DEPS_190706)
- My student Sayan Ghosh received the Student Innovation Award at IEEE High Performance Extreme Computing Conference (HPEC 2018) for the paper *Scalable Distributed-memory Community Detection using Vite* he co-authored with M. Halappanavar, A. Tumeo, A. Kalyanaraman and myself, 2018
- Our paper titled *Distributed Direction-optimizing Label Propagation for Community Detection*, authored by my student Xu Liu with J. Firos, M. Zalewski, M. Halappanavar, K. Baker, A. Lumsdaine and A.H. Gebremedhin, received the Graph Challenge Innovation Award at the 2019 IEEE High Performance Extreme Computing Conference (HPEC'19).
- Founding member and co-investigator in the Combinatorial Scientific Computing and Petascale Simulations Institute (CSCAPES), a multi-institution project funded by the Department of Energy under the SciDAC-2 program, 2006–2012

- L. Meltzer’s Student Award for Outstanding Talent, University of Bergen, 2001 and 2003
- Doctoral Fellowship, University of Bergen, 1999–2003

GOOGLE SCHOLAR CITATION PROFILE (Google Scholar, Aug 2020):

- H-index: 21
- i10-index: 37
- Total citations: 1,698

PUBLICATIONS LIST

Edited Volumes

1. A.H. Gebremedhin, E. Boman and B. Ucar (Eds.), *Proceedings of the Seventh SIAM Workshop on Combinatorial Scientific Computing*, 2016, SIAM.
2. T. Sørøvik, F. Manne, R. Moe, and A.H. Gebremedhin (Eds.), *New Paradigms for High Performance Computing in Industry and Academia*, Para 2000, Workshop on Applied Parallel Computing, Lecture Notes in Computer Science 1947, 2001, Springer.

Magazine Articles

3. H. Catanese, C. Hauser and A.H. Gebremedhin, *Evaluation of Native and Transfer Students’ Success in a Computer Science Course*, ACM Inroads, 9(2), 53–57, 2018.

Journal Papers

4. R. Saeedi, K. Sasani and A.H. Gebremedhin, *Collaborative Multi-Expert Active Learning for Mobile Health Monitoring: Architectures, Algorithms and Evaluation*, Sensors, 20(7), 1932, 2020.
5. S. Norgaard, R. Saeedi and A.H. Gebremedhin, *Multi-Sensor Time Series Classification for Activity Tracking Under Variable Length*, IEEE Sensors Journal, Vol 20, No 5, 2701–2709, 2020.
6. R. Saeedi and A.H. Gebremedhin, *A Signal-level Transfer Learning Framework for Autonomous Reconfiguration of Wearable Systems*, IEEE Transactions on Mobile Computing, Vol 19, Number 3, 513–527, 2020. DOI: 10.1109/TMC.2018.2878673.
7. A.H. Gebremedhin and A. Walther, *An Introduction to Algorithmic Differentiation*, WIREs Data Mining and Knowledge Discovery, 2020; 10:e1334. <https://doi.org/10.1002/widm.1334>
8. Y. Du, M. Taylor and A.H. Gebremedhin, *Analysis of University Fitness Center Data Uncovers Interesting Patterns, Enables Prediction*, IEEE Transactions on Knowledge and Data Engineering, Vol 31, Issue 8, 1478–1490, 2019.
9. H. Catanese, K. Brayton and A.H. Gebremedhin, *A Nearest-neighbors Network Model for Sequence Data Reveals New Insight into Genotype Distribution of a Pathogen*, BMC Bioinformatics (2018) 19:475. <https://doi.org/10.1186/s12859-018-2453-2>.
10. H. Lu, M. Halappanavar, D. Chavarría Miranda, A.H. Gebremedhin, A. Panyala and A. Kalyanaraman, *Algorithms for Balanced Graph Colorings with Applications in Parallel Computing*, IEEE Transactions on Parallel and Distributed Systems, 28(5), 1240–1256, 2017.

11. H.N. Catanese, K.A. Brayton and A.H. Gebremedhin, *RepeatAnalyzer: A Tool for Analyzing and Managing Short-Sequence Repeat Data*, BMC Genomics 2016 17:422. DOI: 10.1186/s12864-016-2686-2.
12. Z.T.H. Khumalo, H.N. Catanese, N. Leisching, P. Hove, N.E. Collins, M.E. Chaisit, A.H. Gebremedhin, M.C. Oosthuizen and K.A. Brayton, *Characterization of Anaplasma marginale subspecies centrale using msp1aS genotyping reveals wildfire reservoir*, Journal of Clinical Microbiology, 2016, 54:10, 2503-2512.
13. M. Wang, A.H. Gebremedhin and A. Pothen, *Capitalizing on Live Variables: New Algorithms for Efficient Hessian Computation via Automatic Differentiation*, Mathematical Programming Computation, 8(4), 393–433, 2016. DOI = 10.1007/s12532-016-0100-3.
14. R.A. Rossi, D.F. Gleich and A.H. Gebremedhin, *Parallel Maximum Clique Algorithms with Applications to Network Analysis*, SIAM Journal on Scientific Computing, Vol 37, Issue 5, pages C589–C618, 2015.
15. B. Pattabiraman, M.M.A. Patwary, A.H. Gebremedhin, W.K. Liao and A. Choudhary, *Fast Algorithms for the Maximum Clique Problem on Massive Graphs with Applications to Overlapping Community Detection*, Internet Mathematics, Vol 11, No 4-5, pp 421–448, 2015.
16. A.H. Gebremedhin, D. Nguyen, M.M.A. Patwary and A. Pothen, *ColPack: Software for Graph Coloring and Related Problems in Scientific Computing*, ACM Transactions on Mathematical Software, Vol 40, No 1, pp 1–31, 2013.
17. U. Catalyurek, J. Feo, A.H. Gebremedhin, M. Halappanavar and A. Pothen, *Graph Coloring Algorithms for Multi-core and Massively Multithreaded Architectures*, Parallel Computing, Vol 38, pp 576-594, 2012.
18. D. Bozdağ, U. Catalyurek, A.H. Gebremedhin, F. Manne, E.G. Boman and F. Özgüner, *Distributed-memory Parallel Algorithms for Distance-2 Coloring and Related Problems in Derivative Computation*, SIAM Journal on Scientific Computing, Vol 32, Issue 4, pp 2418–2446, 2010.
19. A.H. Gebremedhin, A. Pothen, A. Tarafdar and A. Walther, *Efficient Computation of Sparse Hessians using Coloring and Automatic Differentiation*, INFORMS Journal on Computing, Vol 21, No 2, pp 209–223, 2009.
20. D. Bozdağ, A.H. Gebremedhin, F. Manne, E.G. Boman and U. Catalyurek, *A Framework for Scalable Greedy Coloring on Distributed Memory Parallel Computers*, Journal of Parallel and Distributed Computing, Vol 68, No 4, pp 515–535, 2008.
21. A.H. Gebremedhin, A. Tarafdar, F. Manne and A. Pothen, *New Acyclic and Star Coloring Algorithms with Applications to Hessian Computation*, SIAM Journal on Scientific Computing, Vol 29, No 3, pp 1042–1072, 2007.
22. A.H. Gebremedhin, M. Essaidi, I. Guerin Lassous, J. Gustedt, and J.A. Telle, *PRO: A Model for the Design and Analysis of Efficient and Scalable Parallel Algorithms*, Nordic Journal of Computing, Vol 13, pp 1–25, 2006.
23. A.H. Gebremedhin, F. Manne and A. Pothen, *What Color Is Your Jacobian? Graph Coloring for Computing Derivatives*, SIAM Review Vol 47, No 4, pp 629–705, 2005.
24. A.H. Gebremedhin, I. Guérin Lassous, J. Gustedt and J.A. Telle, *Graph Coloring on Coarse Grained Multicomputers*, Discrete Applied Math, Vol 131/1, pp 179–198, 2003.

25. A.H. Gebremedhin and F. Manne, *Scalable Parallel Graph Coloring Algorithms*, Concurrency: Practice and Experience, Vol 12, pp 1131–1146, 2000.

Conference Proceedings

26. X. Liu, M. Halappanavar, K. Baker, A. Lumsdaine and A.H. Gebremedhin, *Direction-optimizing Label Propagation and its Application to Community Detection*, Computing Frontiers, 2020.
27. Y. Du, G. Warnell, A.H. Gebremedhin, P. Stone and M. Taylor, *Work-in-Progress: Corrected Self Learning via Demonstrations*, Proceedings of the Adaptive and Learning Agents Workshop at AAMAS. May 2020.
28. S. Ghosh, M. Halappanavar, A. Kalyanaraman, A. Khan and A.H. Gebremedhin, *Exploring MPI Communication Models for Graph Applications Using Graph Matching as a Case Study*, IEEE International Parallel and Distributed Processing Symposium (IPDPS 2019), May 2019, Rio de Janeiro, Brazil, 10 pages.
29. X. Liu, J. Firos, M. Zalewski, M. Halappanavar, K. Baker, A. Lumsdaine and A.H. Gebremedhin, *Distributed Direction-optimizing Label Propagation for Community Detection*, 2019 IEEE High Performance Extreme Computing Conference (HPEC), Waltham, MA, USA, 2019, pp1–6. [**2019 Graph Challenge Innovation Award**].
30. E. Khaledian, A.H. Gebremedhin, K. Brayton and S. Broschat, *A Network Science Approach for Determining the Ancestral Phylum of Bacteria*, In Proceedings of the 2018 ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics (BCB '18). ACM, New York, NY, USA, 398-403. DOI: <https://doi.org/10.1145/3233547.3233575>
31. S. Ghosh, M. Halappanavar, A. Tumeo, A. Kalyanaraman, H. Lu, D. Chavarria-Miranda, A. Khan and A. H. Gebremedhin, *Distributed Louvain Algorithm for Graph Community Detection*, 2018 IEEE International Parallel and Distributed Processing Symposium (IPDPS), Vancouver, BC, 2018, pp. 885-895. doi: 10.1109/IPDPS.2018.00098
32. S. Ghosh, M. Halappanavar, A. Tumeo, A. Kalyanaraman and A.H. Gebremedhin, *miniVite: A Graph Analytics Benchmarking Tool for Massively Parallel Systems*, 2018 IEEE/ACM Performance Modeling, Benchmarking and Simulation of High Performance Computer Systems (PMBS), Dallas, TX, USA, 2018, pp. 51-56. doi: 10.1109/PMBS.2018.8641631 (Supercomputing'18 Workshop)
33. K. Sasani, M. Namaki and A.H. Gebremedhin, *Network Similarity Prediction in Time-evolving Graphs: A Machine Learning Approach*, 2018 IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW), Vancouver, BC, 2018, pp. 1184-1193. doi: 10.1109/IPDPSW.2018.00183.
34. S. Norgaard, R. Saeedi, K. Sasani and A.H. Gebremedhin, *Synthetic Sensor Data Generation for Health Applications: A Supervised Deep Learning Approach*, 2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Honolulu, HI, 2018, pp. 1164-1167. doi: 10.1109/EMBC.2018.8512470
35. R. Saeedi, K. Sasani, S. Norgaard and A.H. Gebremedhin, *Personalized Human Activity Recognition using Wearables: A Manifold Learning-based Knowledge Transfer*, 2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Honolulu, HI, 2018, pp. 1193-1196. doi: 10.1109/EMBC.2018.8512533

36. K. Sasani, M. Namaki, Y. Wu and A.H. Gebremedhin, *Multi-metric Graph Query Performance Prediction*, In: Pei J., Manolopoulos Y., Sadiq S., Li J. (eds) Database Systems for Advanced Applications. DASFAA 2018. Lecture Notes in Computer Science, vol 10827. Springer, Cham. https://doi.org/10.1007/978-3-319-91452-7_19
37. M. H. Namaki, K. Sasani, Y. Wu and A.H. Gebremedhin, *Performance Prediction for Graph Queries*, In Proceedings of the 2nd International Workshop on Network Data Analytics (NDA'17), Akhil Arora, Shourya Roy, and Arnab Bhattacharya (Eds.). ACM, New York, NY, USA, Article 4, 9 pages. DOI: <https://doi.org/10.1145/3068943.3068947> (Workshop at the ACM SIGMOD International Conference on Management of Data).
38. S. Ghosh, M. Halappanavar, A. Tumeo, A. Kalyanaraman and A.H. Gebremedhin, *Scalable Distributed-memory Community Detection using Vite*, IEEE High Performance Extreme Computing Conference (HPEC 2018), September 2018, Waltham, MA, 8 pages. DOI: 10.1109/HPEC.2018.8547534 [**2018 Graph Challenge Student Innovation Award**].
39. R. Saeedi, S. Norgaard, A.H. Gebremedhin, *A Closed-loop Deep Learning Architecture for Robust Activity Recognition using Wearable Sensors*, 2017 IEEE International Conference on Big Data (Big Data), Boston, MA, 2017, pp. 473-479. doi: 10.1109/BigData.2017.8257960
40. R. Saeedi, K. Sasani and A.H. Gebremedhin, *Co-MEAL: Cost-Optimal Multi-Expert Active Learning Architecture for Mobile Health Monitoring*, In Proceedings of the 8th ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB '17). ACM, New York, NY, USA, 432-441. DOI: <https://doi.org/10.1145/3107411.3107430>
41. R. Saeedi, H. Ghasemzadeh and A.H. Gebremedhin, *Transfer Learning Algorithms for Autonomous Configuration of Wearable Systems*, 2016 IEEE International Conference on Big Data (Big Data), Washington, DC, 2016, pp. 563-569. doi: 10.1109/BigData.2016.7840648
42. S. Ghosh and A.H. Gebremedhin, *Parallelization of Bin Packing on Multicore Systems*, 2016 IEEE 23rd International Conference on High Performance Computing (HiPC), Hyderabad, 2016, pp. 311-320. doi: 10.1109/HiPC.2016.044
43. S. Ghosh, J.R. Hammond, A.J. Pena, P. Balaji, A.H. Gebremedhin and B. Chapman, *One-sided Interface for Matrix Operations using MPI-3 RMA: A Case Study with Elemental*, 2016 45th International Conference on Parallel Processing (ICPP), Philadelphia, PA, 2016, pp. 185-194. doi: 10.1109/ICPP.2016.28
44. H. Lu, M. Halappanavar, D. Chavarría Miranda, A.H. Gebremedhin and A. Kalyanaraman, *Balanced Coloring for Parallel Computing Applications*, 2015 IEEE International Parallel and Distributed Processing Symposium, Hyderabad, 2015, pp. 7-16. doi: 10.1109/IPDPS.2015.113
45. R.A. Rossi, D.F. Gleich, A.H. Gebremedhin and M.M.A. Patwary, *Fast Maximum Clique Algorithms for Large Graphs*, In Proceedings of the 23rd International Conference on World Wide Web (WWW '14 Companion). ACM, New York, NY, USA, 365-366. DOI: <https://doi.org/10.1145/2567948.2577283>
46. B. Pattabiraman, M.M.A. Patwary, A.H. Gebremedhin, W.K. Liao and A. Choudhary, *Fast Algorithms for the Maximum Clique Problem on Massive Sparse Graphs*, In: Bonato A., Mitzenmacher M., Praat P. (eds) Algorithms and Models for the Web Graph. WAW 2013. Lecture Notes in Computer Science, vol 8305. Springer, Cham. https://doi.org/10.1007/978-3-319-03536-9_13.

47. B. Letschert, K. Kulshreshtha, A. Walther, D. Nguyen, A.H. Gebremedhin and A. Pothen, *Exploiting Sparsity in Automatic Differentiation on Multicore Architectures*, In S. Forth et al. (Eds.), Recent Advances in Algorithmic Differentiation (AD2012), Lecture Notes in Computational Science and Engineering, vol 87. Springer, Berlin, Heidelberg. DOI: 10.1007/978-3-642-30023-3_14.
48. S.H.K. Narayanan, B. Norris, P. Hovland and A.H. Gebremedhin, *Implementation of Partial Separability in a Source to Source Transformation AD Tool*, In S. Forth et al. (Eds.), Recent Advances in Algorithmic Differentiation (AD2012), Lecture Notes in Computational Science and Engineering, vol 87. Springer, Berlin, Heidelberg. DOI: 10.1007/978-3-642-30023-3_31.
49. M.M.A. Patwary, A.H. Gebremedhin and A. Pothen, *New Multithreaded Ordering and Coloring Algorithms for Multicore Architectures*, In E. Jeannot, R. Namyst and J. Roman (Eds.), Euro-Par 2011, Lecture Notes in Computer Science 6853, Part II, pp 250–262, 2011.
50. S.H.K. Narayanan, B. Norris, P. Hovland, D. Nguyen and A.H. Gebremedhin, *Sparse Jacobian Computation using ADIC2 and ColPack*, Procedia Computer Science, 4:2115–2123, 2011. Proceedings of the International Conference on Computational Science, ICCS 2011.
51. U. Catalyurek, F. Dobrian, A.H. Gebremedhin, M. Halappanavar and A. Pothen, *Distributed-memory Parallel Algorithms for Matching and Coloring*, 2011 IEEE International Symposium on Parallel and Distributed Processing Workshops and Phd Forum, Shanghai, 2011, pp. 1971–1980. doi: 10.1109/IPDPS.2011.360
52. A.H. Gebremedhin, A. Pothen and A. Walther, *Exploiting Sparsity in Jacobian Computation via Coloring and Automatic Differentiation: a Case Study in a Simulated Moving Bed process*, In C. Bischof et al. (Eds.), Advances in Automatic Differentiation (AD2008), Lecture Notes in Computational Science and Engineering 64, pp 339–349, 2008.
53. E.G. Boman, D. Bozdağ, U. Catalyurek, K. Devine, A.H. Gebremedhin, P. Hovland and A. Pothen, *Combinatorial Algorithms for Computational Science and Engineering*, Journal of Physics: Conference Series 125 (2008) 012071. SciDAC 2008.
54. E.G. Boman, D. Bozdağ, U. Catalyurek, K. Devine, A.H. Gebremedhin, P. Hovland, A. Pothen and M.M. Strout, *Enabling High Performance Computational Science through Combinatorial Algorithms*, Journal of Physics: Conference Series 78 (2007) 012058. SciDAC 2007.
55. S. Bhomwick, E.G. Boman, K. Devine, A.H. Gebremedhin, B. Hendrickson, P. Hovland, T. Munson and A. Pothen, *Combinatorial Algorithms Enabling Computational Science: Tales from the Front*, Journal of Physics: Conference Series 46 (2006), 453–457, SciDAC 2006.
56. D. Bozdağ, U. Catalyurek, A.H. Gebremedhin, F. Manne, E.G. Boman and F. Özgüner, *A Parallel Distance-2 Graph Coloring Algorithm for Distributed Memory Computers*, In L.T. Yang et al. (Eds.): HPC 2005, Lecture Notes in Computer Science 3726, pp 796–806, 2005.
57. E.G. Boman, D. Bozdağ, U. Catalyurek, A.H. Gebremedhin and F. Manne, *A Scalable Parallel Graph Coloring Algorithm for Distributed Memory Computers*, In J. Cunha and P. Medeiros (Eds.): EuroPar 2005, Lecture Notes in Computer Science 3648, pp 241–251, 2005.
58. A.H. Gebremedhin, F. Manne and T. Woods, *Speeding up Parallel Graph Coloring*, In J. Dongarra, K. Madsen, and J. Wasniewski (Eds.): Para 2004, Lecture Notes in Computer Science 3732, pp 1079–1088, 2005.

59. A.H. Gebremedhin, F. Manne and A. Pothen, *Parallel Distance-k Coloring Algorithms for Numerical Optimization*, In B. Monien and R. Feldmann (Eds.): EuroPar 2002, Lecture Notes in Computer Science 2400, pp 912-921, 2002.
60. A.H. Gebremedhin, I. Guérin Lassous, J. Gustedt and J.A. Telle, *PRO: a Model for Parallel Resource-Optimal Computation*, IEEE International Symposium on High Performance Computing Systems and Applications, pp 106–113, 2002
61. A.H. Gebremedhin, I. Guérin Lassous, J. Gustedt and J.A. Telle, *Graph Coloring on a Coarse Grained Multiprocessor*, In U. Brandes and D. Wagner (Eds.): WG 2000, Lecture Notes in Computer Science 1928, pp 184–195, 2000.
62. A.H. Gebremedhin and F. Manne, *Parallel Graph Coloring Algorithms using OpenMP*, EWOMP 99, First European Workshop on OpenMP, Sept 1999, Lund, Sweden.

News Journal Articles

63. E. Boman, A. Gebremedhin and S. Toledo, *SIAM Workshop on Combinatorial Scientific Computing Inaugurates Proceedings and Best Paper Award*, SIAM News Dec 2016.
64. A. Pothen, A.H. Gebremedhin, F. Dobrian; E.G. Boman, K.D. Devine, B.A. Hendrickson; P. Hovland, B. Norris, J. Utke; U. Catalyurek; M.M. Strout; *Combinatorial Algorithms for Petascale Science*, SciDAC Review, Issue 5, pp 26–35, Fall 2007.
65. A.H. Gebremedhin, *The Third SIAM Workshop on Combinatorial Scientific Computing*, SIAM News Vol 40, No 4, May 2007.

Workshop Short Papers/Extended Abstracts

66. M. Wang, A.H. Gebremedhin and A. Pothen, *Performance Evaluation of Automatic Differentiation Algorithms for Hessian Computation*, The Seventh International Conference on Algorithmic Differentiation (AD 2016), Christ Church Oxford, UK, September 2016.
67. M. Wang, A.H. Gebremedhin and A. Pothen, *An Efficient Automatic Differentiation Algorithm for Hessians: Working With Live Variables*, The Sixth SIAM Workshop on Combinatorial Scientific Computing (CSC14), Lyons, France, July 2014.
68. A.H. Gebremedhin and A. Pothen, *Combinatorial Mathematics and Algorithms at Exascale: Challenges and Promising Directions*, SIAM Workshop on Exascale Applied Mathematics Challenges and Opportunities (EX14), Chicago, Illinois, USA, July 2014.
69. R. A. Rossi, D.F. Gleich and A.H. Gebremedhin, *Triangle Core Decomposition and Maximum Cliques*, SIAM Workshop on Network Science (NS13), San Diego, CA, July 2013.
70. A.H. Gebremedhin, U. Catalyurek, J. Feo, M. Halappanavar and A. Pothen, *Multithreaded Graph Coloring Algorithms*, The Fifth SIAM Workshop on Combinatorial Scientific Computing (CSC11), Dramstadt, Germany, May 2011.
71. A.H. Gebremedhin, D. Nguyen, A. Tarafdar, and A. Pothen, *Ordering for Coloring and More*, The Fourth SIAM Workshop on Combinatorial Scientific Computing (CSC09), Monterey, CA, 2009.
72. A.H. Gebremedhin, *The Enabling Power of Graph Coloring Algorithms in Automatic Differentiation and Parallel Processing*, In U. Naumann, O. Schenk, H. Simon and S. Toledo (eds), *Combinatorial Scientific Computing*, Dagstuhl Seminar Proceedings, Number 09061, Dagstuhl, Germany, Feb 2009, URL: <http://drops.dagstuhl.de/opus/volltexte/2009/2093>.

73. A.H. Gebremedhin, A. Pothén, A. Tarafdar, and A. Walther, *Sparse Hessian Computation using Automatic Differentiation*, The Third SIAM Workshop on Combinatorial Scientific Computing (CSC07), Costa Mesa, CA, Feb 2007.

Theses

74. A.H. Gebremedhin, *Practical Parallel Algorithms for Graph Coloring Problems in Numerical Optimization*, PhD (Dr.scient) thesis, Dept of Informatics, University of Bergen, Feb 2003. Advisor: Fredrik Manne.
75. A.H. Gebremedhin, *Parallel Graph Coloring*, MS (Cand.scient) thesis, Dept of Informatics, University of Bergen, May 1999. Advisor: Fredrik Manne.

MEDIA

- Connecting AI research, WSU INSIDER, January 30, 2020.
- Understanding bacterial pathogens, WSU INSIDER, March 11, 2019.
- Beating the crowds – with data science, WSU INSIDER, September 14, 2018.
- Transfer students in computer science prove successful, WSU INSIDER, May 11, 2018.
- Software improves ability to catalog bacterial pathogen, WSU INSIDER, June 27, 2016. This story was a WSU press release. Several news outlets followed up with their own stories on the topic. Examples include:
 - Puget Sound Business Journal
 - Science Daily
 - Becker’s Healthcare
 - News Medical
 - Seattle Suntimes
 - Phys.org
 - Technobahn
 - Infection Control Today
 - Bioscience Technology
 - Buffalo Breeze
 - Health Canal
 - Big News Network

SOFTWARE

- **RepeatAnalyzer**, a software tool for tracking, managing, analyzing and cataloguing short-sequence repeats and genotypes using *Anaplasma marginale* as a model species. Code available at <https://bitbucket.org/repeatgroup/repeatanalyzer>
- **SuperGAN**, a Generative Adversarial Networks-based Python software tool for generating realistic, synthetic, labeled time-series data (in lieu of sensor data). Work-in-progress. Preliminary code available at <https://scads.eecs.wsu.edu/index.php/software/#SGAN>
- **LivarH**, a Live-variables based Hessian computation via Automatic Differentiation (implemented in ADOL-C). Code available at <https://github.com/CSCsw/LivarH>
- **PMC**, a fast, parallel maximum clique finder. Further information available at <https://github.com/ryanrossi/pmc>
- **ColPack**, a C++ library consisting of implementations of algorithms for a variety of graph coloring and related problems enabling scientific computations. Further information available at <http://www.eecs.wsu.edu/~assefaw/software/software.html>.
- ColPack is interfaced with the operator overloading AD tool **ADOL-C** (housed at the University of Paderborn, Germany) and the source-to-source transformation AD tool *ADIC2* (housed at Argonne National Laboratory).
- Implementations of several distributed-memory coloring algorithms developed together with colleagues are included in **Zoltan**, a load balancing toolkit of Sandia National Laboratories.

RESEARCH FUNDING

Total funding since joining WSU: \$740K (\$640K as PI)

Total funding before joining WSU: \$7.8M (all as Co-PI)

- *Fast and Scalable Combinatorial Algorithms for Data Analytics*. National Science Foundation, CAREER, 2016–2021. Total \$520K. A. Gebremedhin (Single PI).
- *PNNL-WSU Distinguished Graduate Research Program*. Awarded to support my PhD student Xu (Tony) Liu. 05/2018–05/2020. Total: \$120K.
- *US-India Collaborative for Smart Distribution System with Storage (UI-ASSIST)*. Department of Energy, 2017–2022. Lead (Team US): N. Schulz, Co-Lead: A. Srivastava. Role: WSU Co-PI (joined the project after it was funded). Share: \$100K for Oct 2018 – Sept 2020.
- *Smart Environments: National Science Foundation Research Experience for Under Graduate Students (REU)*. 2015–2017; 2018–2020; PI: Larry Holder. Role: Senior Personnel.
- *Combinatorial Algorithms to Enable Scientific Computing on Multithreaded Architectures*. Department of Energy, Office of Science, 2013–2015. Total: \$300K. A. Pothen (PI) and A. Gebremedhin (co-PI).
- *Combinatorial Algorithms to Enable Derivative Computations on Multicore Architectures*. National Science Foundation, 2012–2015. Total: \$300K. A. Pothen (PI) and A. Gebremedhin (co-PI).
- *Combinatorial Scientific Computing and Petascale Simulations (CSCAPES) Institute*. Department of Energy, SciDAC program, 2006–12. Total: \$7M. A. Pothen (Lead PI), A. Gebremedhin (co-PI), F. Dobrian (co-PI); E. Boman (Sandia PI), K. Devine (co-PI), B. Hendrickson (co-PI); P. Hovland (Argonne PI), B. Norris (co-PI), J. Utke (Co-PI); U. Catalyurek (Ohio State PI).
- *Empowering Computational Science and Engineering via Automatic Differentiation*. National Science Foundation, 2008–2011. Total: \$200K. A. Pothen (PI) and A. Gebremedhin (co-PI).

TEACHING: AT WSU

- *Automata and Formal Languages*, CptS 317. Spring 2020.
- *Data Science*, CptS 475/575. Fall 2015, 2016, 2017, 2018, 2019, 2020. (Fall 2015–17 offered under the course number CptS 483). Designed course.
- *Elements of Network Science*, CptS 591. Spring 2015, 2016, 2017, 2018, 2019, 2020. (Spring 2015–2017 offered under the course number CptS 580). Designed course.
- *Data Analytics Capstone*, CptS/STAT 424. Spring 2019. Very first offering in the new BS in Data Analytics program.

TEACHING: PRIOR TO WSU

Purdue University

- *Elements of Network Science*, Spring 2013.
- *Parallel Computing*, Spring 2011 (guest lectured a few times).

Old Dominion University

- *Combinatorial Scientific Computing*, Spring 2006.
A graduate level course. Co-taught with Alex Pothen.
- *Approximation Algorithms*, Spring 2004.
A graduate level course. Co-taught with Alex Pothen.

ADVISING: GRADUATED STUDENTS (PHD AND MS THESIS)

- Sayan Ghosh, PhD, Jan 2015 – Apr 2019. Graduated in April 2019.
Thesis Title: *Supporting Efficient Graph Analytics and Scientific Computation using Asynchronous Distributed-Memory Programming Models*
- Ramyar Saeedi, PhD, May 2016 – July 2018. Graduated in July 2018.
Thesis Title: *Efficient Machine Learning Algorithms for Automatic Reconfiguration of Mobile Health Monitoring Systems*
- Keyvan Sasani, MS, Jan 2017 – Dec 2018. Graduated in Dec 2018.
Thesis Title: *Machine Learning for Predicting Performance of Graph Algorithms with Applications in Graph Databases and Network Similarity*
- Helen Catanese, MS, Jan 2015 – Dec 2016. Graduated in May 2017.
Thesis Title: *RepeatAnalyzer: A Tool for Analyzing and Managing Short-Sequence Repeat Data*

ADVISING: FORMER POSTDOC

- Ramyar Saeedi, Postdoc, Sept 2018 – July 2019.
Accepted position in industry in Aug 2019.

ADVISING: CURRENT PHD STUDENTS

- James Halvorsen, PhD student, Summer 2020 – present
- Shruti Sunil Patil, PhD student, Fall 2020 – present
- Helen Catanese, PhD student, Jan 2017 – present.
Passed Prelim Exam in Summer 2019.
- Xu (Tony) Liu, PhD student, WSU-PNNL DGRP fellow, co-advised with Andrew Lumsdaine,
August 2017 – present. Passed Prelim Exam in Spring 2019.
- Yunshu Du, PhD student, co-advised with Matt Taylor, Aug 2018 – present.
Passed Prelim Exam in Spring 2019.

UNDERGRADUATE MENTORING

- Aaron Brookhouse (Michigan State Univ.), NSF REU in Smart Environments, Summer 2020.
- Kyla Mallory (WSU, Data Analytics Major), Honors Thesis Advisee, Spring 2019 – Fall 2019.
- Nathaniel Burley (WSU, Math), Deep Learning, Fall 2018–present.
- Zachary Cutler (University of Utah), NSF REU in Smart Environments, Summer 2019.
- Sunny Chiu (Colorado College), NSF REU in Smart Environments, Summer 2018.
- Skyler Norgaard (Kalamazoo College), NSF REU in Smart Environments, Summer 2017. Skyler’s summer project led to a conference publication.
- Jonathan Squibb (University of Illinois at Chicago), NSF REU in Smart Environments, Summer 2016.
- Faculty mentor for over 30 (annually) Computer Science majors at EECS, Fall 2014–present.

ADVISING: GRADUATED MS NON-THESIS STUDENTS

- Geeratigan Arsanathong, MS Non-Thesis, Spring 2019 – Summer 2020
- Prerana Bangalore Parthasarathy, MS Non-Thesis, Summer 2019 – May 2020
- Shruti Sunil Patil, MS Non-Thesis, Summer 2019 – May 2020
- Deepesh Gupta, MS Non-Thesis, Jan 2019 – Spring 2020
- Disha Shetty, MS Non-Thesis, Jan 2019 – Spring 2020
- Rakshitha Vidyam, MS Non-Thesis, Jan 2019 – Spring 2020
- Hitesh Bahar, MS Non-Thesis, Aug 2018 – Spring 2020
- Manasa Malligere Krishna, MS Non-Thesis, Aug 2018 – Spring 2020
- Bhavesh Sanghvi, MS Non-Thesis, August 2017 – May 2019
- Vishal Sanjay Sonawane, MS Non-Thesis, August 2017 – May 2019
- Vinit Karanje, MS Non-Thesis, Jan 2018 – May 2019
- Silu (Lucy) Lyu, MS Non-Thesis, Summer 2019 – Dec 2019
- Dipankar Medhi, MS Non-Thesis, Aug 2018 – Dec 2019
- Sukhjinder Singh, MS Non-Thesis, Jan 2018 – Dec 2019

PHD THESIS COMMITTEE (GRADUATED)

- Peng Lin, Graph Databases, Advisor: Yinghui Wu
Final defense in Spring 2020
- Qi Song, Graph Mining, Advisor: Yinghui Wu
Final defense passed in Spring 2020
- Mohammad Hossein Namaki, Graph Databases, Advisor: Yinghui Wu
Final defense passed in Fall 2019
- Abu Chowdhury, Anti Microbial Resistance, Advisor: Shira Broschat
Final defense passed in Fall 2019
- Zhaodong Wang, Transfer Learning, Advisor: Matthew Taylor
Final defense passed in Fall 2019

- Niloofar Hezarjaribi, Diet monitoring, Advisor: Hassan Ghasemzadeh
Final defense passed in Fall 2019
- Daniel Olivares, Human-Computer Interaction, Advisor: Chris Hundhausen
Final defense passed in Spring 2019
- Seyed Ali Rokni, Embedded and Pervasive Computing, Advisor: Hassan Ghasemzadeh
Final defense passed in Summer 2018
- Paola G. Pesantez Cabrera, Graph Algorithms, Advisor: Ananth Kalyanaraman
Final defense passed in Spring 2018
- Hao Lu, Parallel Computing, Advisor: Ananth Kalyanaraman.
Final defense passed in Spring 2017

PHD THESIS COMMITTEE (CURRENT)

- Sumit Purohit, Graph Mining, Advisor: Larry Holder
Passed prelim exam in Summer 2020
- Niloy Patari, Power Engineering, Advisor: Anurag Srivastava
Passed prelim in Spring 2020
- Kudrat Kaur, Power Engineering, Advisor: Adam Hahn
- Lusha Wang, Power Engineering, Advisor: Noel Schulz
- Ehdieh Khaledian, Bioinformatics, Advisor: Shira Broschat
Passed Prelim Exam in Spring 2018
- Carla de Lira, Learning Analytics, Advisor: Chris Hundhausen

MS THESIS COMMITTEE (GRADUATED)

- Zhilla Esna Ashari Esfahani, Active Learning, Advisor: Hassan Ghasemzadeh.
Graduated in Fall 2019.
- Marjan Nourollahi Darabad, Embedded Systems, Advisor: Hassan Ghasemzadeh.
Graduated in Summer 2019.
- Nathan Wendt, Social Network Analysis, Advisor: Sandip Roy.
Graduated in Spring 2019.
- Gabriel De la cruz, Robotics, Advisor: Matt Taylor.
Graduated in Spring 2019.
- Viresh Duvvuri, Robotics, Advisor: Matt Taylor.
Graduated in Summer 2017.

UNIVERSITY SERVICE (AT WSU)

University Level

- Point-of-Contact, WSU AI Research, Oct 2019 – present
- Member, Data Analytics Curriculum Committee, Jan 2020 – present
- Member, Faculty Senate Academic Affairs Committee (AAC), 2017–2020.
- Member, Steering Committee of the WSU Data Analytics major, 2016–2018.
- Co-organizer, Distinguished Seminar Series in Data Science, 2015–2016.
- Faculty Mentor, PNW Louis Stokes Alliance for Minority Participation (LSAMP) at WSU, 2015–present.

College Level

- Member, VCEA Faculty Committee for Undergrad Recruitment, Spring 2020–present.
- Member, Voiland Junior Faculty Advisory Board, 2019–2020.
- Member, Governance Committee of the Voiland College of Engineering and Architecture HPC cluster Aeolus, 2016–2020.
- Faculty Advisor, National Society of Black Engineers (NSBE) WSU Student Chapter, 2015–present.

School Level

- Member, 2019-20 EECS Graduate Studies Committee (GSC).
- Contributor, Curriculum development for the Data Science Track in the Computer Science program at EECS, WSU, 2015–2017.
- Member, 2014 Faculty Search Committee for multiple tenure-track positions in Data Science at EECS, WSU Pullman campus.

PROFESSIONAL SERVICE

• **Proposal Review/Panel Service**

- Panelist, U.S. National Science Foundation: 2020, 2019, 2018, 2017, 2016, 2015.
(Multiple panels in some years)
- Reviewer, U.S. Department of Energy: 2020, 2019, 2018, 2017, 2016, 2009.
(Multiple panels in some years)
- Reviewer, *Netherland's Organization for Scientific Research*: 2014, 2008.
- Reviewer, *The French National Research Agency*: 2010.

• **Book Review**

- Chapman & Hall/CRC Press, Statistical Sciences Series, 2017
- *Springer Nature, Advanced Information and Knowledge Processing Series*, 2016
- *SIAM, Frontiers in Applied Mathematics*, 2008

• **Conference Leadership and Committee Membership**

- Program Committee Member, The Web Conference 2021 (formerly known as WWW), April 19–23, 2021, Ljubljana, Slovenia.
- Program Committee Member, SIAM Data Mining (SDM 2021), March 25–27, 2021, Alexandria, Virginia, USA
- Program Committee Member, The Web Conference 2020 (formerly known as WWW), April 20–24, 2020, Taipei, Taiwan.
- Program Committee Member, SIAM Data Mining (SDM 2020), May 7–9, 2020, Cincinnati, Ohio, U.S.
- Program Committee Member, SIAM Workshop on Combinatorial Scientific Computing 2020 (CSC20), Feb. 11–13, 2020, Seattle, WA, USA.
- Program Committee Member, Supercomputing Workshop on Irregular Applications, Architectures and Algorithms (IA3 2019), Nov 18, 2019, Denver, CO, USA.

- Program Committee Member, SIAM Data Mining (SDM 2019), May 2–4, 2019, Calgary, Alberta, Canada.
- Program Committee Member, The Web Conference 2019 (formerly known as WWW), May 13–17, 2019, San Francisco, CA.
- Organizer, Minisymposium on “Distributed-Memory Graph Analytics: Programming Models, Algorithms and Applications” at SIAM Conference on Computational Science and Engineering (CSE19), February 25–March 1, 2019, Spokane, WA.
- Program Committee Member, IEEE International Conference on Machine Learning and Applications (ICMLA 2018), December 17–20, 2018, Orlando, Florida.
- Program Committee Member, IEEE International Conference on Big Data (IEEE Big-Data 2018), December 10–13, 2018, Seattle, Wa.
- Program Committee Member, IEEE International Conference on High Performance Computing, Data and Analytics (HiPC 2018), December 17–20, 2018, Bengaluru, India.
- Primary Program Committee Member, Algorithms Track, IEEE International Parallel and Distributed Processing Symposium (IPDPS 2018), May 21–25, 2018, Vancouver, British Columbia, Canada.
- Program Co-Chair, IPDPS 2018 Workshop on Intersection of Graph Algorithms and Machine Learning (GraML 2018), May 25, 2018, Vancouver, British Columbia, Canada.
- Program Committee Member, The Web Conference 2018 (WWW), April 23–27, 2018, Lyon, France.
- Program Committee Member, Eighth SIAM Workshop on Combinatorial Scientific Computing (CSC18), June 6–8, 2018, Bergen, Norway.
- Program Committee Member, *ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB 2017)*, August 20–23, 2017, Boston, Massachusetts.
- Program Committee Member, *IEEE International Conference on High Performance Computing, Data and Analytics (HiPC 2017)*, December 18–21, 2017, Jaipur, India.
- Program Committee Member, *KDD’17 Workshop on Mining and Learning with Graphs (MLG 17)*, August 14, 2017, Halifax, Nova Scotia, Canada.
- Technical Program Committee Member, *International Conference on Contemporary Computing (IC3 2017)*, August 10–12, 2017, JIIT, Noida, India.
- Co-chair, *The Seventh SIAM Workshop on Combinatorial Scientific Computing (CSC16)*, October 10–12, 2016, Albuquerque, New Mexico. Also served as lead editor of the workshop’s inaugural SIAM proceedings.
- Program Committee Member, *BigGraphs 2016: Third International Workshop on High Performance Big Graph Data Management, Analysis and Mining (at IEEE BigData’16)*, December 5, 2016, Washington DC, USA.
- Program Committee Member, *SIAM Workshop on Network Science (NS16)*, July 15–16, 2016, Boston, Massachusetts.
- Program Committee Member, *IEEE International Conference on Computational Science & Engineering (CSE2015)*, Oct 21–23, 2015, Porto, Portugal.
- Program Committee Member, *IEEE International Parallel and Distributed Processing Symposium (IPDPS 2015)*, May 2015, India.

- Organizing Committee Member, *SIAM Workshop on Combinatorial Scientific Computing*, July 2014, Lyon, France.
 - Program Committee Member, *LATA 2012: International Conference on Language and Automata Theory and Applications*.
 - Organizer, Minisymposium on “Automatic Differentiation and Nonlinear Optimization”, *SIAM Annual Meeting*, July 9–13, 2012, Minneapolis, Minnesota.
 - Technical Program Committee Member, *International Conference on Contemporary Computing*, August 8–10, 2011, India.
 - Organizer, Minisymposium on “Recent Advances in Scientific Computing on Multicore and Multithreaded Architectures”, *SIAM Conference on Computational Science and Engineering*, Feb 28–March 4, 2011, Reno, Nevada.
 - Organizer, Minisymposium on “Parallel Algorithms and Software for Massive Graphs”, *SIAM Conference on Parallel Processing and Scientific Computing*, February 2010, Seattle, Washington.
 - Organizer, Minisymposium on “Automatic Differentiation and Its Application in Computational Science and Engineering”, *SIAM Conference on Computational Science and Engineering*, March 2009, Miami, Florida.
- **Journal Paper Refereeing** (numerous times for most journals)
 - *ACM Transactions on Spatial Algorithms and Systems*.
 - *ACM Transactions on Mathematical Software*.
 - *ACM Transactions on Parallel Computing*.
 - *ACM Journal on Experimental Algorithmics*.
 - *IEEE Transactions on Parallel and Distributed Systems*.
 - *IEEE Transactions on Multi-scale Computing Systems*.
 - *IEEE Transactions on Knowledge and Data Engineering*.
 - *IEEE Transactions on Smart Grid*.
 - *SIAM Journal on Scientific Computing*.
 - *SIAM Journal on Matrix Analysis*.
 - *PLOS One*.
 - *Journal of Parallel and Distributed Computing (JPDC)*.
 - *The Very Large Databases (VLDB) Journal*.
 - *Parallel Computing*.
 - *Concurrency and Computation: Practice and Experience*.
 - *Discrete Applied Mathematics*.
 - *Optimization Methods and Software*.
 - *Algorithms*.
 - *European Journal of Operations Research*.

PROFESSIONAL MEMBERSHIP

- Member of ACM
- Member of IEEE
- Member of the Society for Industrial and Applied Mathematics (SIAM)
- Member of the SIAM activity groups on: (1) Supercomputing; (2) Computational Science and Engineering; (3) Optimization; and (4) Data Mining and Analytics.

SELECT EXPO PRESENTATIONS AND POSTERS

- H. Catanese, K. Brayton and A. Gebremedhin. *RepeatAnalyzer: A Tool for Genotyping and Analyzing Bacterial Strains*. 2017 GPSA Research Exposition, Washington State University, Pullman, WA, March 2017.
- R. Saeedi and A. Gebremedhin. *A Context-Aware Framework for Reconfiguration of Mobile Health Monitoring Systems*. 2017 GPSA Research Exposition, Washington State University, Pullman, WA, March 2017.
- S. Ghosh and A. Gebremedhin. *Asynchronous Models for High performance Computing*, 2017 Academic Showcase, Washington State University, Pullman, WA, March 2017.
- A. Gebremedhin and K. Brayton *Accelerating Vaccine Development with Software Tool*, SciTech Northwest 2016, Seattle, WA, November 2016.
- R. Saeedi and A. Gebremedhin, *Transfer Learning Approaches for Autonomous Reconfiguration of Wearable Systems*, Workshop on Algorithms for Modern Massive Data Sets (MMDS 2016), University of California Berkley, July 2016.

INVITED PRESENTATIONS AT CONFERENCES AND WORKSHOPS

- Participated at the *NSF Workshop “Forging Connections between Machine Learning, Data Science and Power Systems Research”*, March 5–6, 2020, Alexandria, VA.
- Co-led a panel on Scalability of data analytics approaches at the *NSF Workshop on Real Time Data Analytics for the Resilient Electric Grid*, Portland, OR, August 2018.
- Algorithms and Software for Efficient Computation of Sparse Derivative Matrices, Special Session on Geometry and Optimization in Computer Vision organized by Bala Krishnamoorthy (WSU) and Sudipta Sinha (Microsoft), *American Mathematical Society Spring Western Sectional Meeting*, Washington State University, Pullman, WA, April 22-23, 2017.
- Asynchronous, One-sided Communication: Programming Support for Distributed-memory Scientific Applications, Minisymposium titled “Towards Graph Algorithms and Analytics for Exascale Applications” organized by A. Pothen, *SIAM Conference on Parallel Processing for Scientific Computing* (SIAM PP), Tokyo, Japan, March 2018.
- *Exploiting Sparsity in Derivative Computation*, Minisymposium on Automatic Differentiation and Nonlinear Optimization organized by A. Gebremedhin, *SIAM Annual Meeting, July 9–13, 2012, Minneapolis, Minnesota*.
- The ColPack Software Library for Graph Coloring to Enable Derivative Computations, Minisymposium on Automatic Differentiation Software organized by Bradley Bell, *International Congress on Industrial and Applied Mathematics (ICIAM 2011), Vancouver, BC, Canada, July 18–22, 2011*.

- Multithreaded Graph Coloring Algorithms for Scientific Computing, Minisymposium on Combinatorial Scientific Computing organized by Ali Pinar and Alex Pothen, *International Congress on Industrial and Applied Mathematics (ICIAM 2011)*.
- ColPack: A Graph Coloring Package for Sparse Derivative Computation, Minisymposium on Automatic Differentiation and Applications organized by Paul Hovland and A. Gebremedhin, *SIAM Conference on Computational Science and Engineering, March 2–6, 2009, Miami, FL*.
- The Enabling Power of Graph Coloring Algorithms in Automatic Differentiation, *Dagstuhl Seminar on Combinatorial Scientific Computing, Feb 1–6, 2009, Germany*. Organizers: Uwe Naumann, Olaf Schenk, Horst Simon and Sivan Toledo.
- Novel Acyclic and Star Coloring Algorithms and Their Application to Efficient Hessian Computation via Automatic Differentiation, Minisymposium on Combinatorial Algorithms organized by Paul Hovland, *SIAM Conference on Optimization, May 10–13, 2008, Boston, MA*.
- A Scalable Algorithmic Framework for Parallel Graph Coloring on Distributed Memory Computers, Minisymposium organized by Rob Bisseling and Fredrik Manne, *SIAM Conference on Parallel Processing for Scientific Computing, March 12–14, 2008, Atlanta, GA*.
- Graph Coloring for Computing Derivatives: A Unifying Framework, Minisymposium organized by Andrea Walther, *SIAM Conference on Optimization, May 2005, Stockholm, Sweden*.
- What Color Is Your Jacobian? Graph Coloring for Computing Derivatives, Minisymposium organized by Iain Duff, *SIAM Annual Meeting, July 2004, Portland, OR*.
- Parallel Algorithms for Graph Coloring Problems in Numerical Optimization, Minisymposium organized by Ali Pinar, *SIAM Conference on Parallel Processing for Scientific Computing, Feb 2004, San Francisco, CA*.

INVITED PRESENTATIONS AT COLLOQUIA AND SEMINAR SERIES

- Learning and Graph Analytics in Power Systems: Case Studies in Load/DER Disaggregation and Cynthetic Cyber-Power Distribution System Model Generation, *WSU ESIC Seminar Series*, October 1, 2019.
- Context-aware Disaggregation of Behind-the-Meter PV/Load Using Machine Learning, *UI-ASSIST Webinar*, May 30, 2019.
- Effective Parallelization of Graph Algorithms in Computing Applications, *Frontiers of Research Computing in Academic Environments, CIRC Workshop, Washington State University, October 30-31, 2017*.
- Network and Matrix Algorithms in Big Data Analytics, *Computer Science Colloquium, University of Idaho, December 5, 2016*.
- Algorithms and Software for Sparse Derivative Computation and Beyond, *LANS Seminar Series, Argonne National Laboratory, December 1, 2010, Argonne, IL*.
- Accurate and Efficient Computation of Sparse Derivative Matrices, *Computational Science and Engineering Seminar Series, Purdue University, Nov 3, 2010, West Lafayette, IN*.
- Graph Coloring Software for Computational Science and Engineering, *Computer Science Research Institute, Sandia National Laboratories, October 21, 2010, Albuquerque, NM*.
- Graph Coloring for Scientific Computing and Parallel Processing, *Department of Computer and Information Science, Indiana University-Purdue University Indianapolis, October 9, 2009, Indianapolis, IN*.