

Christine Frances Klymko

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Research Interests

Network analysis, numerical linear algebra, graph algorithms, data mining, scientific computing, numerical analysis, matrix analysis

Professional Experience

- Postdoctoral Research Staff Member (March 2014 –), Lawrence Livermore National Laboratory, Livermore, CA.
- Technical Graduate Student Summer Intern (May-October 2013), Sandia National Laboratories, Livermore, CA.
- Graduate Student Intern (May-August 2012), Oak Ridge National Laboratory, Oak Ridge, TN.

Education

- **Emory University**, Atlanta, GA
PhD in Computational Mathematics, December 2013
Dissertation Research Area: Network Analysis, Numerical Analysis
Dissertation Advisor: Dr. Michele Benzi
- **Emory University**, Atlanta, GA
MS in Computer Science, May 2013
MS in Mathematics, December 2012
- **Xavier University**, Cincinnati, OH
BS in Mathematics, *Magna Cum Laude*, June 2008

Refereed Journal Articles

- M. Benzi and C. Klymko, On the limiting behavior of parameter-dependent network centrality measures, *SIAM. J. Matrix Anal. & Appl.* 36 (2), pp. 686–706 (2015), [doi:10.1137/130950550](https://doi.org/10.1137/130950550).
- T. S. Humble, A. J. McCaskey, R. S. Bennink, J. J. Billings, E. F. D’Azevedo, B. D. Sullivan, C. F. Klymko and H. Seddiqi, An integrated programming and development environment for adiabatic quantum optimization, *Comput. Sci. Disc.* 7 015006 (2014), [doi:10.1088/1749-4680/7/1/015006](https://doi.org/10.1088/1749-4680/7/1/015006).
- C. Klymko, B. D. Sullivan, and T. S. Humble, Adiabatic Quantum Optimization Programming: Minor Embedding With Variable Hardware, *Quantum Information Processing*, 13 (3), pp. 709-728 (2014), [doi:10.1007/s11128-013-0683-9](https://doi.org/10.1007/s11128-013-0683-9).
- M. Benzi and C. Klymko, Total Communicability as a Centrality Measure, *Journal of Complex Networks* 1 (2) pp. 124–149 (2013), [doi:10.1093/comnet/cnt007](https://doi.org/10.1093/comnet/cnt007).
- M. Benzi, E. Estrada, and C. Klymko, Ranking Hubs and Authorities Using Matrix Functions, *Linear Algebra and its Applications*, 438 (5), pp. 2447–2474 (2013), [doi:10.1016/j.laa.2012.10.022](https://doi.org/10.1016/j.laa.2012.10.022).

Refereed Conference and Workshop Proceedings

- C. Klymko, D. F. Gleich, and T. G. Kolda, Using Triangles to Improve Community Detection in Directed Networks, in *The Second ASE International Conference on Big Data Science and Computing, BigDataScience*, (Stanford, CA, May 27–31, 2014), accepted.

Computer Skills

- Programming Languages: C, MPI
- Operating Systems: Mac OS X, Windows (XP, Vista, 7), Linux
- Software: MATLAB, L^AT_EX, Gephi, Maple

Presentations

- *Detecting highly cyclic structure with complex eigenpairs*, 2105 Graph Exploitation Symposium, Dedham, Ma, 17 July 2015.
- *A Matrix Analysis of Functional Centrality Measures*, 2014 Bay Area Scientific Computing Day, Stanford, Ca, 13 December 2014.
- *A Matrix Analysis of Different Centrality Measures*, 2014 SIAM Annual Meeting, Chicago, Il, 8 July 2014.
- *Using Triangles to Improve Community Detection in Directed Networks*, Emory University Scientific Computing Seminar, Atlanta, Ga, 8 November 2013.
- *Centrality Measures Based on Communicability Functions*, SIAM Workshop on Network Science, San Diego, Ca, 8 July 2013.
- *Methods of Web Information Retrieval: HITS and PageRank*, Network Science Seminar, Emory University, Atlanta, Ga, 13 February 2013.
- *Adiabatic Quantum Optimization Programming: Minor Embedding With Variable Hardware*, Emory University Scientific Computing Seminar, Atlanta, Ga, 24 October 2012.
- *Ranking hubs and authorities using matrix functions*, 2012 SIAM Conference on Applied Linear Algebra, Valencia, Spain, 19 June 2012.

Honors and Awards

- Graduate Teaching Fellowship, Emory University, 2008-Present
- SIAM Student Travel Award: SIAM Workshop on Network Science, San Diego, Ca, July 2013.
- SIAM Student Travel Award: 2012 SIAM Conference on Applied Linear Algebra, Valencia, Spain, June 2012.
- Robert F. Cissell Award for Outstanding Mathematics Majors, Xavier University, April 2008
- Phi Beta Kappa member, inducted April 2008
- Pi Mu Epsilon member, inducted March 2008
- Xavier University Chancellor Scholarship, 2004-2008
- NYS Robert C. Byrd Honors Scholarship, 2004-2008

Professional Activities

- Member: SIAM, AMS, MAA

Service

- Refereed papers for the following journals:
 - Numerical Linear Algebra with Applications
 - SIAM Review
 - Journal of Complex Networks
 - SIAM Journal on Scientific Computing
 - Journal of Combinatorial Theory
- Co-chair of the Workshop on Mining Networks and Graphs at the 2015 SIAM International Conference on Data Mining
- Co-organized an AMS Special Session on Network Science for the 2015 Joint Mathematics Meetings
- Organized invited talks for the SIAM Student Group at Emory

Workshops attended

- ICERM Workshop on Mathematics in Data Science, July 28-30, 2015, ICERM, Providence, RI.
- WhAM! A Research Collaboration Workshop for Women in Applied Mathematics: Numerical Partial Differential Equations and Scientific Computing, 12-15 August 2014, IMA, Minneapolis, Mn.
- AMS Mathematics Research Community on Network Science, 24-30 June 2014, Snowbird Resort, Ut.
- Methods for Optimization, 2-13 August 2010, Mathematical Sciences Research Institute, Berkeley, Ca.

Languages

- English
- Spanish

References

- Dr. Van Emden Henson
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- Dr. Michele Benzi
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- Dr. Tamara G. Kolda
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