Amir Nayyeri

Department Computer Science
Carnegie Mellon University
5000 Forbes Ave.
Pittsburgh, PA 15213-3891

Phone: (217) 819-1798
Email: amirn@cs.cmu.edu
Homepage: http://cs.cmu.edu/∼amirn

Research Interests

Theoretical computer science, design and analysis of algorithms; computational geometry and topology; applications of algorithms.

Education

2012-2014:	Carnegie Mellon University: Postdoctoral fellow Host: Gary Miller
2007-2012:	University of Illinois at Urbana-Champaign: Ph.D. in Computer Science Advisor: Jeff Erickson
2004-2007:	University of Tehran: M.S. in Computer Engineering Advisor: Nasser Yazdani
2000-2004:	University of Tehran: B.S. in Computer Engineering

Employment

2007-2012:	Graduate research and teaching assistant, University of Illinois at Urbana-Champaign, IL.
Summer 2011:	Graduate research intern, Toyota Technological Institute, Chicago, IL.
Fall 2011:	Graduate research intern, Disney Animation Studio, Burbank, CA.
2002-2007:	Graduate research and teaching assistant, University of Tehran, Iran.

Research Papers

Theory of Computer Science:

1. Yury Makarychev, Amir Nayyeri, and Anastasios Sidiropoulos,
   A pseudo-approximation for the genus of Hamiltonian graphs,
   Manuscript.

2. Erin Chambers, Kyle Fox, and Amir Nayyeri,
   Counting and Sampling Minimum Cuts in Genus g Graphs,
   Proceedings of the 29th Annual ACM Symposium on Computational Geometry (SoCG), 2013. To appear.

3. Jeff Erickson and Amir Nayyeri,
   Tracing compressed curves in triangulated surfaces,
   Proceedings of the 28th Annual ACM Symposium on Computational Geometry (SoCG), 2012. Invited to special issue.

4. Sariel Har-Peled, Amir Nayyeri, Mohammad Salavatipour and Anastasios Sidiropoulos,
How to walk your dog in the mountains with no magic leash,
Proceedings of the 28th Annual ACM Symposium on Computational Geometry (SoCG), 2012.

5. Jeff Erickson, Kyle Fox and Amir Nayyeri,
Global minimum cuts in surface embedded graphs,
Proceedings of the 22nd Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2012.

6. Jeff Erickson and Amir Nayyeri,
Computing replacement paths in surface-embedded graphs,
Proceedings of the 22nd Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2011.

7. Jeff Erickson and Amir Nayyeri,
Minimum cuts and shortest non-separating cycles via homology covers,
Proceedings of the 22nd Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2011.

8. Jeff Erickson and Amir Nayyeri,
Shortest non-crossing walks in the plane,
Proceedings of the 22nd Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2011.

9. Erin W. Chambers, Jeff Erickson and Amir Nayyeri,
Homology flows, cohomology cuts,
Proceedings of the 41st Annual ACM Symposium on Theory of Computing (STOC), 2009.
Invited and published in the special issue of SIAM Journal on Computing devoted to the symposium.

10. Erin W. Chambers, Jeff Erickson and Amir Nayyeri,
Minimum cuts and shortest homologous cycles,
Proceedings of the 25th Annual ACM Symposium on Computational Geometry (SoCG), 2009.

Computer Networks:

11. Sajjad Zarifzadeh, Amir Nayyeri, Nasser Yazdani, Ahmad Khonsari and Hamid Hajabdolali,
Joint range assignment and routing to conserve energy in wireless ad hoc networks,
Computer Networks, Volume 53, Issue 11, 2009.

12. Hamid Hajabdolali, Sajjad Zarifzadeh, Ahmad Khonsari and Amir Nayyeri
On optimizing survivable multihoming,
Proceedings of IEEE Conference of Local Computer Networks (LCN), 2009.

13. Amir Nayyeri, Sajjad Zarifzadeh, Nasser Yazdani and Mohammad Mahmoody,
Load sensitive topology control: Towards minimum energy consumption in dense ad hoc sensor networks,
Computer Networks, Volume 52, Issue 3, 2008.
Preliminary version appeared in Proceedings of the 49th IEEE Global Communication Conference (GLOBECOM), 2006.

14. Sajjad Zarifzadeh, Amir Nayyeri and Nasser Yazdani,
Efficient construction of network topology to conserve energy in wireless ad hoc networks,
Computer Communications, Volume 31, Issue 1, 2008.
Preliminary version appeared in Proceedings of the 3rd Annual IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON), 2006.

15. Foroogh Anoosha, Reza Shokri, Nasser Yazdani and Amir Nayyeri,
ANTMIG: A novel code migration method to conserve energy in wireless sensor networks,
Proceedings of IEEE Wireless Communications and Networking Conference (WCNC), 2008.

16. Reza Shokri, Amir Nayyeri, Nasser Yazdani and Panagiotis Papadimitratos,
Efficient and adjustable recipient anonymity in mobile ad hoc networks,
Proceedings of the 4th IEEE Conference on Mobile Ad-hoc and Sensor Systems (MASS), 2007.

17. Hamid Mousavi, Amir Nayyeri, Nasser Yazdani and Caro Lucas,
Energy conserving movement-assisted deployment of ad hoc sensor networks,
IEEE Communication Letters, Volume 10, Number 4, 2006.

18. Sajjad Zarifzadeh, Amir Nayyeri Nasser Yazdani, and Caro Lucas,
Consumer oriented state aggregation using reinforcement learning approach,
Proceedings of IEEE Consumer Communications and Networking Conference, 2006.

19. Amir Nayyeri and Farhad Oroumchian,
FuFaIR: a fuzzy farsi information retrieval system,
Proceedings of AICCSA, 2006.

20. Amir Nayyeri, Mahmoud Reza Hashemi and Nasser Yazdani,
A novel two tiered proxy caching scheme for video on demand applications,
Proceedings of the 10th International Workshop on Web Content Caching and Distribution (WCW), 2005.

21. Amir Nayyeri, Reza Shokri and Nasser Yazdani,
GAAM: An energy conservation method using code migration for ad hoc sensor networks,
Proceedings of the 13th IEEE International Conference on Networking (ICON), 2005.

Talks

- "Homology flows, cohomology cuts", 41st Annual ACM Symposium on Theory of Computing, Bethesda, MD, June 2009.
- "Homology flows, cohomology cuts", Informs annual meetings, San Diego, CA, October 2009.
- "Flows and cuts in surface embedded graphs", Institute for research in fundamental sciences, Tehran, Iran, January 2011.
- "Flows and cuts in surface embedded graphs", Department of Mathematics, Stanford University, CA, March 2011.
- "Approximating homotopic Frechet distance and homotopy height", Department of Computer Science, University of California at Santa Barbara, November 2011.
- "How to walk your dog in the mountains", Department of Mathematics and Computer Science, Saint Louis University, February 2012.
- "Combinatorial Optimization on Surfaces", Toyota Technological Institute in Chicago, March 2012.
- "Combinatorial Optimization on Surfaces", Department of Computer Science, Purdue University, April 2012.
- "Combinatorial Optimization on Surfaces", Department of Computer Science, University of Houston, April 2012.
- "How to walk your dog in the mountains", Department of Mathematics, University of Illinois at Urbana Champaign, May 2012.

- "How to walk your dog in the mountains", Department of Computer Science, Carnegie Mellon University, May 2012.
- "How to walk your dog in the mountains with no magic leash", 28th Annual ACM Symposium on Computational Geometry, Chapel Hill, NC, USA, June 2012.
- "Tracing Compressed Curves in Triangulated Surfaces", 28th Annual ACM Symposium on Computational Geometry, Chapel Hill, NC, USA, June 2012.
- "Tracing Compressed Curves in Triangulated Surfaces", The 5th Eastern Great Lakes Theory of Computation Workshop, Buffalo, NY, USA, September 2012.

Reviews

- Conferences
  - Annual Symposium on Computational Geometry (SoCG)
  - ACM-SIAM Symposium on Discrete Algorithms (SODA)
  - International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX)
  - Annual IEEE Symposium on Foundations of Computer Science (FOCS)
  - The Latin American Theoretical INformatics Symposium (LATIN)
  - Innovations in Theoretical Computer Science (ITCS)
- Journal
  - Journal of Graph Algorithms and Applications (JGAA)
  - IEEE Communication Letters
  - International Journal of Sensor Networks

Teaching

- Teaching Assistant at UIUC:
  - Fall 2009: CS 173, Discrete Structures, with Margaret Fleck.
  - Summer 2009: CS 421, Programming Languages and Compilers, with Kirill Mechitov.
  - Spring 2009: CS 473, Fundamental Algorithms, with Jeff Erickson.
  - Fall 2008: CS 473, Fundamental Algorithms, with Chandra Chekuri.
- Teaching Assistant at University of Tehran:
  - Spring 2005: Operating Systems
  - Fall 2003: Advanced Algorithms
  - Spring 2003: Automata Theory and Machine Languages
  - Fall 2002: Compilers