Curriculum Vitae

Bardia Sadri

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Citizen of Iran
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Research Interests

Computational topology, combinatorial and computational geometry, solid modelling, meshing, external memory algorithms, and computer graphics.

Education

09/99 – 12/06 **University of Illinois at Urbana-Champaign** (Urbana, Illinois, USA)
MS and PhD in Computer Science.
PhD thesis titled *Surface and Medial Axis Topology Through Distance Flows Induced by Discrete Samples*, supervised by Edgar A. Ramos and co-advised by Sariel Har-Peled. Degree conferred in December 2006.

MS thesis titled *On the Number of Steps of Lloyd's k-Means Method*, supervised by Sariel Har-Peled. Degree conferred in May 2004.

09/95 – 06/99 **Sharif University of Technology** (Tehran, Iran)
BS in Computer Engineering (Software).

Publications

Refereed Journals

[1] *Medial Axis Approximation and Unstable Flow Complex*. Written Joachim Giesen and Edgar A. Ramos, Invited to the SOCG'06 special issue of the International Journal of Computational Geometry and Applications, Volume 18, Issue 6, Pages 533−565, 2009.

[2] *Critical Points of Distance to an ε-Sampling of a Surfae and Flow-Complex-Based Surface Reconstruction*. Written with Tamal K.Dey, Joachim Giesen, and Edgar A. Ramos, Invited to the SOCG'05

special issue of the International Journal of Computational Geometry and Applications, Volume 18, Issue 1/2, Pages 29−61, 2008.

[3] *How Fast is the k-Means Method?*. Written with Sariel Har-Peled, Algorithmica, Volume 41, Pages 185−202, 2005.

[4] *Forced Orientation of Graphs*. Written with Babak Farzad, Mohammad Mahdian, Ebad S. Mahmoudian, and Amin Saberi, Bulletin of Iranian Mathematical Society, Volume 32, Issue 1, 2006.

Conferences and workshops

[5] *Lipschitz Isotonic and Unimodal Regressions on Paths and Trees*. Written with Pankaj K. Agarwal and Jeff Phillips, In proceedings of the 9th Latin American Theoretical Informatics Symposium (LATIN), to appear.

[6] *Manifold Homotopy via the Flow Complex*. In Proceedings of Symposium on Geometry Processing (SGP), special issue of Computer Graphics Forum, 28(5), 1361−1370, 2009. Extended Abstract In Proceedings of 24th European Workshop on Computational Geometry (EuroCG), 2008.

[7] *I/O-Efficient Algorithms for Computing Contours on a Terrain*. Written with Lars Arge, Pankaj K. Agarwal and Thomas Mølhave, In Proceedings of the 24th ACM Symposium on Computational Geometry (SOCG), Pages 129−138, 2008.

[8] *Untangling Triangulations through Local Explorations*. Written with Pankaj K. Agarwal and Hai Yu, In Proceedings of the 24th ACM Symposium on Computational Geometry (SOCG), Pages 288−297, 2008.

[9] *Topological and Geometric Guarantees for the* Wrap *Reconstruction Algorithm*. Written with Edgar A. Ramos, In Proceedings of the 18th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), Pages 1086−1095, 2007.

[10] *Medial Axis Approximation and Unstable Flow Complex*. Written with Joachim Giesen and Edgar A. Ramos, In Proceedings of the 22nd ACM Symposium on Computational Geometry (SOCG), Pages 327−336, 2006.

[11] *Critical Points of the Distance to an epsilon-Sampling of a Surface and Flow-Complex-Based Surface Reconstruction*. Written with Tamal K. Dey, Joachim Giesen, and Edgar A. Ramos, In Proceedings of the 21st ACM Symposium on Computational Geometry (SOCG), Pages 218−227, 2005.

[12] *How Fast is the k-Means Method?*. Written with Sariel Har-Peled, In Proceedings of the 16th Annual ACM-SIAM Symposium on Discrete Mathematics (SODA), Pages 877−885, 2005.

[13] *NFS v3.0 Implementation and Optimization*. Written with Rasoul Jalili, and Meisam Lavasani, In Proceedings of the third annual conference of the Computer Society of Iran, 1997.

Current Submissions, Preprints, and Works in Progress

[14] *I/O-Efficient Topological Sorting on Bounded Genus DAGs*. Written with Thomas Mølhave, In Preparation.

[15] *I/O-Efficient Contour Queries on Terrains*. Written with Pankaj K. Agarwal and Thomas Mølhave, Submitted.

Theses

[16] *Surface and Medial Axis Topology Through Distance Flows Induced by Discrete Samples*. PhD thesis, Department of Computer Science, University of Illinois at Urbana-Champaign, Supervised by Edgar A. Ramos and co-advised by Sariel Har-Peled, 2006.

[17] *On the Number of Steps of Lloyd's k-Means Method*. Masters thesis, Department of Computer Science, University of Illinois at Urbana-Champaign, Supervised by Sariel Har-Peled, 2004.

Invited Talks

- *Flow-Based Methods in Manifold Reconstruction*, SIAM Conference on Discrete Mathematics, Session on Computational Geometry and Topology and Their Applications, June 16, 2008.

Awards and Honors

- Recipient of Department of Computer Science **Summer Fellowship**, Computer Science Department, University of Illinois at Urbana-Champaign, 2006.
- Recipient of the **silver medal** of the National Mathematics Olympiad of Iran, 1994.
- Recipient of the **silver medal** of the National Computer Olympiad of Iran, 1994.
- Recipient of the **best programming team** cup of the National Computer Olympiad of Iran (jointly with Farrokh Ansari), 1994.

Professional Services

Conference and workshop committees

- Program committee, 22nd Canadian Conference on Computational Geometry [CCCG] (2010)

Reviewing and refereeing

- **Referee** ACM Transactions on Algorithms, Discrete and Computational Geometry.
- **External reviewer** ACM Symposium on Computational Geometry [SOCG] (2006, 2007, 2008, 2009, 2010); ACM-SIAM Symposium on Discrete Algorithms [SODA] (2010); Symposium on Theory of Computing [STOC] (2009); International Symposium on Algorithms and Computation [ISAAC] (2007); Foundations of Software Technology and Theoretical Computer Science [FSTTCS] (2006); Symposium on Geometry Processing [SGP] (2007); IEEE Symposium on Foundations of Computer Science [FOCS] (2009)

Employment

09/08 – present Department of Computer Science, **University of Toronto** (Toronto, ON, Canada)
Post-doctoral Fellow. Researching problems in computational geometry and topology.

01/07 – 08/08 Department of Computer Science, **Duke University** (Durham, NC)
Post-doctoral Research Associate supervised by Professor Pankaj K. Agarwal. Researching problems in computational geometry and topology.

08/06 – 12/06 Department of Computer Science, **University of Illinois** (Urbana, IL)
Teaching Assistant for CS 475: Formal Models of Computation.

06/03 – 07/06 Department of Computer Science, **University of Illinois** (Urbana, IL)
Research Assistant supervised by Professor Edgar Ramos. Working on Computational Topology and Mesh Generation Problems.

01/03 – 04/03 Department of Computer Science, **University of Illinois** (Urbana, IL)
Teaching Assistant for CS 173: Discrete Mathematical Structures.

08/01 – 12/02 Department of Computer Science, **University of Illinois** (Urbana, IL)
Teaching Assistant for CS 375: Automata, Formal Languages, and Computational Complexity.

06/01 – 07/01 Department of Computer Science, **University of Illinois** (Urbana, IL)
Research Assistant supervised by Professor Lenny Pitt. Working on abstract and combinatorial specification and complexity of some Data Mining problems.

06/01 – 08/01 **National Center for Supercomputing Applications (NCSA)**, Emerging Technologies Division, University of Illinois (Urbana, IL)
Research Programmer. Designing and Implementing an XML-based space server similar in functionality to JAVA SPACES.

01/01 – 04/01 Department of Computer Science, **University of Illinois** (Urbana, IL)
Teaching Assistant for CS 173: Discrete Mathematical Structures.

08/00 – 12/00 Department of Computer Science, **University of Illinois** (Urbana, IL)
Teaching Assistant for CS 300: Data Structures and Algorithms.

09/99 – 07/00 Department of Computer Science, **University of Illinois** (Urbana, IL)
Research Assistant, Pablo Research Group. *Designed and implemented an instrumented version of MPI (Message Passing Interface) library, allowing easy run-time monitoring and visualization of the behavior of MPI-based parallel applications.*

01/97 – 06/99 **Sharif University of Technology** (Tehran, Iran)
Teaching Assistant and Tutor for the following classes: *Programming (in Pascal)*, *Assembly Language and System Programming*, *Data Structures*, and *Theory of Machines and Languages (Automata Theory)*.

Relevant Skills

- **Programming.** Can program in C, C++, Java, Pascal, ML, and Prolog. Extensive experience in systems Programming under UNIX, including Linux kernel-level programming.

- **Natural Languages.** Fluent in Farsi (native) and English. Moderate knowledge of French. Basic knowledge of Spanish and German. Linguistic knowledge of Arabic.

References

1. **Pankaj K. Agarwal** (pankaj@cs.duke.edu)
   Computer Science Department, Duke University, Box 90129, Durham, NC 27708. 919-660-6548.

2. **Lars Arge** (large@madalo.au.dk)
   Department of Computer Science, University of Aarhus, IT-Parken, Aabogade 34, DK-8200 Aarhus N, Denmark. +45-8942-9336

3. **Jeff Erickson** (jeffe@cs.uiuc.edu)
   Computer Science Department, University of Illinois at Urbana-Champaign, 201 N Goodwin Avenue, Urbana, IL 61801. 217-333-6769.

4. **Edgar A. Ramos** (eramosn@unalmed.edu.co)
   Escuela de Matemáticas, Universidad Nacional de Colombia, Sede Medellín, Colombia.

Additional References

- Herbert Edelsbrunner (edels@cs.duke.edu)
  Computer Science Department, Duke University, Box 90129, Durham, NC 27708. 919-660-6545.

- Sariel Har-Peled (sariel@cs.uiuc.edu)
  Computer Science Department, University of Illinois at Urbana-Champaign, 201 N Goodwin Avenue, Urbana, IL 61801. 217-333-4219

- Tamal K. Dey (tamaldey@cse.ohio-state.edu)
  Department of Computer Science and Engineering, The Ohio State University, 2015 Neil Avenue, Columbus, Ohio 43210. 614-292-3563.

- Joachim Giesen (giesen@informatik.uni-jena.de)
  Lehrstuhl für Theoretische Informatik II, Fakultät für Mathematik und Informatik, Friedrich-Schiller-Universität Jena. Jena, Germany. +49-3641-9-46310.