

NASSIM SOHAEI, Ph.D.

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EDUCATION

Ph.D. Computer Science and Engineering, 2006 - 2009
University of Texas at Dallas
Dissertation title: Optimization in design of underwater sensor networks
Adviser: Dr. Ding-Zhu Du

Ph.D. Mathematical Science, 2001 - 2003
University of Texas at Arlington
Dissertation title: Upward Embedding of Digraphs on the Surfaces
Adviser: Dr. Irinel Dragan

M.S. Mathematics, 1998 - 2000
Sharif University of Technology, Tehran, Iran
Thesis title: List Coloring of Graphs (in farsi)

B.S. Mathematics, 1994 - 1998
AmirKabir University of Technology (Tehran Polytechnic University), Tehran, Iran

PUBLICATIONS

Nassim Sohaei, Christian V. Forst, “Comparing Clustering Algorithms based on structural Similarity”, *Proceeding of Computational Intelligence and Bioinformatics*, Pittsburgh, November 7-9, 2011.

Donghyun Kim, Wei Wang, **Nassim Sohaei**, Changcun Ma, Weili Wu, Wonjun Lee, and Ding-Zhu Du, “Minimum Data-Latency-Bound k -Sink Placement Problem in Wireless Sensor Networks”, *IEEE/ACM Transactions on Networking*, Feb. 24, 2011.

Ding-Zhu Du, Weili Wu, Panos M. Pardalos, **Nassim Sohaei**, “Feasible Direction Method”, published by John Wiley Sons, Inc., DOI: 10.1002/9780470400531.eorms0320, Feb. 15, 2011.

Nassim Sohaei, Christian Forst, “Identification of Functional Modules in a PPI Network by Bounded Diameter Clustering”, *Journal of Bioinformatics and Computational Biology (JBCB)*, December 2010.

Changcun Ma, Donghyun Kim, Yuexuan Wang, Wei Wang, **Nassim Sohaei** and Weili Wu, “Hardness of k -Vertex-Connected Subgraph Augmentation Problem”, *Journal of Combinatorial Optimization*, Volume 20, Number 3, 249-258, 2010.

Nassim Sohaei, Christian V. Forst, “Modular Clustering of Protein-Protein Interaction Networks,” 2010 IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology, Montreal, Canada, May 2-5, 2010.

Nassim Sohaei, Christian V. Forst, “Bounded Diameter Clustering Scheme for Protein Interaction Networks,” *International Conference in Computational Biology*, October 2009 (**BEST PAPER AWARD**).

Changcun Ma, Donghyun Kim, Wei Wang, **Nassim Sohaee**, and Weili Wu, “APX-completeness of k-Connected m-Dominating Set Problem”, *Journal of Combinatorial Optimization (JOCO)*, 2009.

Wei Wang, Donghyun Kim, **Nassim Sohaee**, Changcun Ma, and Weili Wu, “A PTAS for A New Clustering Scheme for Underwater Sensor Networks”, *Discrete Mathematics, Algorithms and Applications*, June 2009.

Nassim Sohaee, “List VEF Coloring of Planar Graphs”, *Journal of Applied Mathematical Sciences*, Vol. 3, no. 25, 1243 - 1247, 2009.

Nassim Sohaee, “Layered Upward Embedding of Digraphs”, Proceeding of The 13th WSEAS International Conference on Applied Mathematics, Spain, December 2008.

OTHER PUBLICATIONS

Nassim Sohaee, “ Optimization in Design of Underwater Sensor Network” , Ph.D. Dissertation, Department of Computer Science and Engineering, University of Texas at Dallas, August 2009.

Nassim Sohaee, “ Upward Embedding of Digraphs on Orientable Surfaces” , Ph.D. Dissertation, Faculty of Mathematics, University of Texas at Arlington, Arlington, Texas, August 2003.

Nassim Sohaee, “ Pioneer Women in the History of Mathematics”, Kharazmi Publication, Tehran, Iran, September 2003.

Nassim Sohaee, “ Graph Coloring” , Master thesis, Sharif university of Technology, Tehran, Iran, August 2000.

TALKS AND PRESENTATIONS

“Clustering Techniques in Biological Networks”, Poster presentation, Molecular Biophysics Symposium, Fort Worth, TX, May 14, 2010.

“Algorithm for Modular Clustering of PPI Network,” Poster presentation, The 10th International Conference on Systems Biology, Stanford, CA, August 30-September 4.

“Modular Clustering Algorithm for Protein Interaction Networks,” Poster presentation, Workshop of young mathematicians on computational biology, August 2009.

A new Clustering algorithm for Protein Interaction Networks”, Poster presentation, UT Metropolex day, UT Arlington, February 6, 2009.

Mathematical Model for RNA-RNA Interaction”, University of Texas Southwestern Medical Center, Dallas, Texas, September 2008 (Invited talk)

Structural Biology: RNA-RNA interaction and Protein Chain Simplification and Alignment”, University of Texas Southwestern Medical Center, Dallas, Texas, April 2008 (Invited talk).

Protein Chain Simplification and Alignment”, Amirkabir University of Technology, Tehran, Iran, December 2007 (invited talk).

siRNA-RNA Simultaneous binding and folding”, Amirkabir University of Technology, Tehran, Iran, July 2006 (invited talk).

VEF List Coloring of Planar Graphs”; CombinaTexas 2006, Texas State University at San Marcos, February 25-26, 2005.

Approximate Algorithm for Finding Maximum Upward Embeddable Sub-digraph of an acyclic Digraph.”, CombinaTexas 2004, Texas AM university, April 9-10, 2004.

Vertex-Edge-Face Coloring of Planar Graphs”; CombinaTexas 2003, Southwest Texas State University, April 5-6, 2003.

Game Coloring of Trees”; Sectional meeting of AMS, Louisiana State University, Baton Rough, March 2003.

Planarization Problem for Digraphs”; University of Texas at Arlington, November 2002.

Approximate Algorithm for Planarization of an upward Digraph”, Joint meeting of AMS and MAA, Atlanta, Georgia, March 2002.

Nassim Sohaee M. Dehghan; Women in Mathematics”; Proceeding of 1st conference of Women and Mathematics; Zahra University, Tehran, Iran; March 2000.

List Total Coloring of Planar Graphs”, Third Student Seminar of Mathematics in Iran, K. N. Tusi University, Tehran, Iran, 2000.

Embedding of 3-connected Graphs on a surface”, Second Student Seminar of Mathematics in Iran, Sharif University, Tehran, Iran, 1999.

Total Coloring of Graphs”, First Student Seminar of Mathematics in Iran, Shahid Chamran University, Ahvaz, Iran, 1998.

HONORS AND AWARDS

Best Paper Award, International Conference in Computational Biology, 2009.

Outstanding Graduate Student Research Award, University of Texas at Arlington, March 2003.

Outstanding Graduate Student Research Award, University of Texas at Arlington, March 2002.

Rank 17th in Graduate Entrance Examination among 22000 participants.

First rank in class 1998, B.Sc. Amir-Kabir University.

EXPERIENCE

Senior Research Associate September 2011 - Present
Department of clinical science, University of Texas, Southwestern Medical Center,
Dallas, Texas

Postdoctoral Researcher December 2008 - August 2011
Department of clinical science, University of Texas, Southwestern Medical Center,
Dallas, Texas

- Computational models for finding protein complexes in large Protein-Protein networks
- developing new mathematical models for comparing the results of different clustering techniques
- developing new algorithm for aligning biological networks.

PDA representative of Department of Clinical Science 2009 - present
University of Texas, Southwestern Medical Center, Dallas, Texas.

Graduate Research Assistant Fall 2008
Department of Computer Science and Engineering, University of Texas at Dallas,
Dallas, Texas

- Research topic: Underwater sensor network, design and application

Lecturer Fall 2007
Department of Mathematics, University of Texas at Dallas, Dallas, Texas

- Teaching “College Algebra - MATH 1314” to a class of more than 40 undergraduate students.

Graduate Research Assistant Fall 2006
Department of Computer Science and Engineering, University of Texas at Dallas,
Dallas, Texas

- Studying available Protein structure visualization algorithms and softwares.
- Studying the mathematical modeling for rigid substructures in folded protein structure.
- Studying the Protein chain simplification method.
- Developing a new scoring function for alignment of proteins based on simplified chains.
- Studying the possibility of PDB search improvement using position dependent scoring function.

Lecturer Spring and Summer 2004
Department of Mathematics and Computer Science, Collin County College, Plano,
Texas

- Teaching “Statistics - MATH 1342”.

Lecturer Fall 2003
Department of Mathematics, Tarrant County College, Fall 2003

- Teaching “Business College Algebra - MATH 1324”.

Lecturer Fall 2002 - Summer 2003
Department of Mathematics, University of Texas at Arlington

- Teaching 2 classes of “College Algebra” per semester. The class size was about 60 students or more.

Graduate Teaching Assistant Fall 2001 - Summer 2002
Department of Mathematics, University of Texas at Arlington

- Lab Assistant for “Calculus III”. helping student to use Mathematica for solving calculus problems.
- Problem Solving Sessions for “Calculus III”.
- Grading of graduate courses “Game Theory” and “Linear Programming”.

Lecturer Spring 2000
Department of Mathematics and Computer science, Amir-kabir University

- Teaching “Graph Theory” and “Discrete Mathematics and Combinatorics”.

Teaching Assistant Fall 2008 - Spring 2000
Department of Mathematics and Computer Science, Sharif University of Technology.

- Problem Solving Sessions for “Calculus I” and “Calculus II”.
- Grading and Problem Solving Sessions for graduate course “Advanced Abstract Algebra”.

Teaching Assistant Fall 1996 - Spring 2000
Department of Mathematics and Computer Science, Amir-kabir University

- Problem Solving Sessions for “Calculus I”, “Calculus II”, “Discrete mathematics” and, “Graph Theory”.

**RESEARCH
GRANTS AND
FUNDINGS**

A key person on a NSF grant submitted on July 15, 2011. I was involved to write and edit some parts of this grant proposal.