Rose Hoberman

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Education

Carnegie Mellon University 2000–2006
Ph.D. in Computer Science (expected Dec. 2006)
Dissertation: A Statistical Framework for Spatial Comparative Genomics
Advisor: Dannie Durand
Committee: Jeffrey Lawrence, Andrew Moore, David Sankoff, Russell Schwartz.

University of Texas at Austin 1996–2000
B.A. in Computer Science, *summa cum laude*

Refereed Publications

Narayanan Raghupathy, **Rose Hoberman**, and Dannie Durand. Two Plus Two Does Not Equal Three: Statistical Tests for Multiple Genome Comparison. In *Proceedings of the 5th Asia-Pacific Bioinformatics Conference, Series on Advances in Bioinformatics and Computational Biology*. Imperial College Press, 2007. *In press.*

Dannie Durand and **Rose Hoberman**. Diagnosing Gene Duplications: Can it be Done? *Trends in Genetics*, 22(3), 156-164, March 2006.

Rose Hoberman, David Sankoff, and Dannie Durand. The Statistical Analysis of Spatially Clustered Genes under the Maximum Gap Criterion. *Journal of Computational Biology*, 12(8): 1083–1101, Oct 2005.

Rose Hoberman and Dannie Durand. The Incompatible Desiderata of Gene Cluster Properties. Aoife McLysaght and Daniel H. Huson, eds., In *Comparative Genomics: RECOMB 2005 International Workshop*, Volume 3678 of *Lecture Notes in Bioinformatics*, pages 73–87. Springer-Verlag, Sep 2005.

Rose Hoberman, David Sankoff, and Dannie Durand. The Statistical Significance of Max-Gap Clusters. J. Lagergren, ed., In *Comparative Genomics: RECOMB 2004 International Workshop*, Volume 3388 of *Lecture Notes in Bioinformatics*, pages 55–71. Springer-Verlag, Oct 2004.

Rose Hoberman, Judith Klein-Seetharaman, and Roni Rosenfeld. Inferring Property Selection Pressure from Positional Residue Conservation. *Applied Bioinformatics*, 3(2-3):167–79, 2004.

Elena Eneva, **Rose Hoberman**, and Lucian Lita. Learning Within-Sentence Semantic Coherence. In Lee and Harman, eds., *Proceedings of the 2001 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, pp 20-26, June 2001.

Research Experience

Carnegie Mellon University, Dept. of Computer Science.

Thesis: A statistical framework for analyzing the spatial organization of genes within and across genomes. Applications include reconstruction of ancestral gene order, analysis of whole-genome duplications, and ortholog detection. 2004–present
Advisor: Dannie Durand, Depts. of Biological Sciences & Computer Science.

Project: Detecting site-specific conservation of physio-chemical amino acid properties, in highly diverged protein families. Spring 2004
Advisors: Roni Rosenfeld, Dept. of Computer Science and *Judith Klein-Seetharaman, University of Pittsburgh Dept. of Pharmacology.*

Project: A discrete-state simulation system to model the innate and adaptive immune systems, prototyped for the human cytokine signalling network. Fall 2003
Advisor: Shlomo Ta'asan, Dept. of Mathematics.

Project: Semi-supervised learning of epitopes and auto-immune reactive proteins through statistical analysis of human and pathogen protein sequences. Spring 2003
Advisor: Roni Rosenfeld.

Project: A language-model that generates semantically coherent sentences, based on statistics of word co-ocurrences in broadcast news transcripts. 2000–2002
Advisor: Roni Rosenfeld

AT&T Research, Speech and Image Processing Lab.
Project: Supervised learning of a semantic parser that extracts salient phrases from telephone conversations and maps them to semantic categories. Summer 2000
Advisor: Jerry Wright.

University of Texas at Austin, Dept. of Computer Science.
Project: A speech interface to an intelligent wheelchair. Fall 1999
Advisors: Mary Dee Harris, Ben Kuipers, and Raymond Mooney.

Johns Hopkins University, Center for Language and Speech Processing.
Project: Detecting novel stories in streaming broadcast news. Summer 1999
Advisor: James Allan, University of Massachusetts at Amherst Computer Science.

University of Minnesota, Dept. of Computer Science and Engineering.
Project: Web document clustering and categorization. Summer 1998
Advisors: Maria Gini and Dan Boley

Awards and Honors

Barbara Lazarus Women@IT Fellowship, funded in part by the Sloan Foundation	2004–2006
AT&T Bell Labs Graduate Research Grant	2000–2006
National Defense Science and Engineering Graduate Fellowship	2000–2004
Carnegie Scholar Award (graduate student grant), Carnegie Mellon University	2000–2004
Best Student Presentation, Biological Language Conference	2003
National Science Foundation Graduate Fellowship (declined)	2000
Undergraduate Research Fellowship, University of Texas	1999–2000
Workshop in Language Engineering, Johns Hopkins University (one of seven selected from 125 undergraduates)	1999
Summer Research Workshop in Cognitive Science, University of Pennsylvania (one of twenty selected from 116 undergraduates)	1999
National Merit Scholarship, University of Texas	1996–2000

Teaching Experience

Carnegie Mellon University.

Guest lecturer, *Computational Molecular Biology and Genomics* 2003–2006
Lectured on local sequence alignment and hidden markov models, and their applications in computational biology.

Teaching training, *Eberly Center for Teaching Effectiveness.* 2003–2005
Regularly attended pedagogical seminars and participated in a graduate reading and discussion group. Solicited two teaching observation sessions, in which my teaching was taped and critiqued by an Eberly teaching fellow.

Teaching Assistant, *Computational Molecular Biology and Genomics* Fall 2003
Helped develop and grade homework assignments and exams, and held weekly office hours.

Teaching Assistant, *Fundamental Data Structures and Algorithms*
Planned and delivered weekly recitation sections. Developed a new programming assignment (adopted in subsequent years). Guest lecturer on graph traversal and minimum spanning tree algorithms. Spring 2003

University of Texas at Austin.

Peer Instructor, *The Learning Center* The University of Texas, Austin. 1998–2000
Developed individualized curriculums to improve reading and writing skills of first-year students. Provided walk-in writing tutoring for undergraduate and graduate students.

Conference Presentations

RECOMB Satellite Workshop on **Comparative Genomics**, *Montreal, Canada* (Poster).	Sept 2006
RECOMB Satellite Workshop on **Comparative Genomics**, *Dublin, Ireland*.	Sept 2005
Mathematics of Evolution and Phylogeny, *Paris, France*.	June 2005
Biological Language Conference, *Pittsburgh, PA*.	Nov 2004
RECOMB Satellite Workshop on **Comparative Genomics**, *Bertinoro, Italy*.	Oct 2004
International Conference on **Intelligent Systems for Molecular Biology** (ISMB), *Glasgow, Scotland* (Poster).	July 2004
Genomes and Evolution, Annual meeting of the International **Society for Molecular Biology and Evolution (SMBE)**, *State College, PA*.	June 2004
Biological Language Conference, *Pittsburgh, PA*.	Nov 2003
Biological Language Modeling Workshop, *Pittsburgh, PA*.	May 2003
Empirical Methods in Natural Language Processing (EMNLP), *Pittsburgh, PA*.	June 2001

Professional and Service Activities

Program Committee: RECOMB International Workshop on Comparative Genomics. 2005 and 2006.

Reviewed for: RECOMB satellite workshops, and Empirical Methods in Natural Language Processing.

Council Member: Women@SCS graduate student council. Planned and organized events. Helped plan long-term strategy for how the group could best recruit, maintain, and support women in graduate school in the computing sciences, 2000–present.

Member, ACM Special Interest Group in Computer Science Education (SIGCSE). 2004–present

Technical Skills

Programming languages: C/C++, Perl, Java, Matlab, R, Mathematica
Platforms: UNIX, Windows

References

Available upon request.