

## CURRICULUM VITAE GIRI NARASIMHAN

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### □ EDUCATION

DEGREE	DISCIPLINE	INSTITUTION	YEAR
B. Tech.	Electrical Engineering	Indian Institute of Technology, Bombay, India	1982
Ph. D.	Computer Science	University of Wisconsin - Madison	1989

### □ EXPERIENCE

RANK/POSITION	DEPARTMENT/DIVISION	INSTITUTION	PERIOD
Professor	School of Computer Science	Florida International University	From Fall 2004
Associate Professor	School of Computer Science	Florida International University	2001-2004
Professor (on leave)	Mathematical Sciences Department	University of Memphis	2001-2002
Associate Professor	Mathematical Sciences Department	University of Memphis	1995-2001
Visiting Professor	Computer Science Department	University of Copenhagen, Denmark	May-July 2000
Visiting Professor	Computer Science Department	Lund University, Sweden	May-June 1999
Visiting Professor	Inst. for Advanced Computer Studies(UMIACS)	University of Maryland, College Park	Nov-Dec 1997
Visiting Professor	Applied Mathematics Department	University at Stony Brook, NY	Sept-Oct 1997
Visiting Professor	Computer Science Department	University of Magdeburg, Germany	July 1997
Visiting Professor	Computer Science Department	University of Copenhagen, Denmark	May 1997
Assistant Professor	Mathematical Sciences Department	University of Memphis	1989 – 1995
Graduate Assistant	Computer Science Department	University of Wisconsin - Madison	1982 – 1989

### □ RESEARCH AREAS

- Computational Biology, Bioinformatics, Biotechnology, and Biomedical Engineering
- Design and Analysis of Geometric Algorithms
- Experimental Algorithmics
- Computational Statistics
- Neural Networks and Genetic Algorithms
- Graph Theory and Combinatorics

## □ PROFESSIONAL HONORS

- **FIU Faculty Award for Excellence in Research**, 2004.
- **Editor, Journal of Discrete Algorithms**, since 2000. [<http://www.elsevier.com/locate/jda>]
- **Board of Directors, International Society for Symmetry in Bioinformatics (ISSB)**, 2004. [<http://polaris.nova.edu/MST/ISSB/>]
- **Member, Harry W. Feinstone Center for Genomic Research**, University of Memphis, 2001.
- **Member, CROMIUM** (Computational Research on Materials in University of Memphis), 2000. [<http://www.chem.memphis.edu/compchem.html>]
- **Conference Program Committee Memberships:**
  - **ICBA 2004** – International Conference on Bioinformatics & Applications, [<http://polaris.nova.edu/MST/ICBA2004/>, Ft Lauderdale]
  - **WADS 2003** – Workshop on Algorithms & Data Structures, 2003. [<http://www.wads.org/>]
  - **ALLENEX'02** – Algorithm Engineering & Experiments, San Francisco, Jan 6-8, 2002. [<http://www.cs.umd.edu/~mount/ALLENEX02/>]
  - **SPIRE 2000** – String Processing and Information Retrieval Conference, September 27-29, 2000, A Coruña, Spain. [<http://rosalia.dc.fi.udc.es/spire2000/>];
  - **SPIRE 1999** – String Processing and Information Retrieval Conference, September 22-24, 1999, Cancun, Mexico. [<http://www.algos.inesc.pt/spire99/>]
- **Invited Speaker:**
  - **ICISIP-2004** – The International Conference on Intelligent Sensors and Information Processing, Jan 4-7, 2004, Chennai, India. [<http://www.icisip.org>]
  - **CIT-2001** – The Fourth International Conference on Information Technology, Dec 20 - 22, 2001, Gopalpur-on-Sea, India. [<http://nist.edu/cit2001/>]
  - **Theory Pearls Lecture Series**: 1999 (Computational Geometry), Lund University, Sweden.
  - **Theory Pearls Lecture Series**: 2000 (Computational Biology), Lund University, Sweden.
- **Invited Tutorial Session** (Bioinformatics), **ICISIP-2004** – The International Conference on Intelligent Sensors and Information Processing, Jan 4-7, 2004, Chennai, India. [<http://www.icisip.org/tutabs/giri.htm>]

## □ PUBLICATIONS

### BOOK (Research Monograph) in preparation

1. “**Geometric Spanner Networks**” Coauthor: Michiel Smid; Expected Completion Date: December 2004. To be published by *Cambridge University Press*.

### Book Chapters

1. Renugopalakrishnan, Lakka, Wei, **Narasimhan**, Prabhakaran, Gursahani, Li, Nagaraju, Verma, and Anumanthan, “Protein Engineering: Enhancement of Thermal Stability,” To appear, *Protein-based Nanotechnology*, Kluwer Press, 2004.
2. Zheng, George, **Narasimhan**, “Microarray Data Analysis using Neural Network Classifiers and Gene Selection Methods,” To appear, *Methods of Microarray Data Analysis IV*, Kluwer Academic Publishers, 2004.
3. Mathee, **Narasimhan**, “Detection of DNA-binding Helix-Turn-Helix Motifs in Proteins using the Pattern Dictionary Method,” In press, *Methods in Enzymology*, Eds. S. Adhya and S. Garges, Vol. **370**, Chapter 22, 250-264, 2003. **[Invited]**
4. Manber, **Narasimhan**, “A Generalization of Lovász's  $\Theta$  Function,” in *Polyhedral Combinatorics*, Eds. W. Cook and P. D. Seymour, DIMACS Series, AMS **1**, 19-27, 1990.

### Refereed journal publications

1. Bose, Maheswari, **Narasimhan**, Smid, Zeh, “Approximating geometric bottleneck shortest paths,” In Press, *Computational Geometry: Theory & Applications*, 2004.
2. Plata, **Narasimhan**, Ohman, Barakat, Hentzer, Molin, Kharazmi, Høiby, Mathee, “Detection of Alginate production affects *Pseudomonas aeruginosa* biofilm development and architecture, but is not essential for biofilm formation,” *Journal of Medical Microbiology*, **53**(7): 679-690, 2004.
3. Andersson, Gudmundsson, Levcopoulos, **Narasimhan**, “Balanced Partition of Minimum Spanning Trees,” *The International Journal of Computational Geometry and Applications*, **13**(4): 303-316, 2003. **[Invited]**
4. T. R. Sutter, X.-R. He, P. Dimitrov, L. Xu, **G. Narasimhan**, E. O. George, C. H. Sutter, C. Grubbs, R. Savory, M. Stephan-Gueldner, D. Kreder, M. J. Taylor, R. Lubet, T. A. Patterson, T. W. Kensler, “Multiple comparisons model-based clustering and ternary pattern tree numerical display of gene response to treatment: Procedure and application to the preclinical evaluation of chemopreventive agents,” *Molecular Cancer Therapeutics*, **1**(14):1283-1292, 2002.
5. **Narasimhan**, Bu, Gao, Wang, Xu, Mathee, “Mining Protein Sequences for Motifs,” *Journal of Computational Biology*, **9**(5): 707-720, 2002.
6. Gudmundsson, Levcopoulos, **Narasimhan**, “Fast Greedy Algorithms for Constructing Sparse Geometric Spanners,” *SIAM Journal of Computing*, **31**(5): 1479-1500, 2002.
7. **Narasimhan**, Smid, “Approximation Algorithms for the Bottleneck Stretch Factor Problem,” *Nordic Journal of Computing*, **9**(1): 13-31, 2002.

8. Bhattacharya, Das, Mukhopadhyay, **Narasimhan**, "Optimally computing a shortest weakly visible line segment inside a simple polygon." *Computational Geometry: Theory and Applications*, **23**(1): 1-29, 2002.
9. Chatterjee, **Narasimhan**, "Graph-Theoretic Techniques in Statistical Design Problems," *Journal of Statistical Planning and Inference*, **102**(2): 377-387, 2002.
10. Levkopoulos, **Narasimhan**, Smid, "Improved Algorithms for Constructing Fault-Tolerant Spanners," *Algorithmica*, **32**(1): 144-156, 2002.
11. **Narasimhan**, Zachariasen, "Geometric Minimum Spanning Trees Via Well-Separated Pair Decompositions," *Journal of Experimental Algorithmics*, **6**, 2001. [Invited]
12. Gudmundsson, Levkopoulos, **Narasimhan**, "Approximating Minimum Manhattan Networks," *Nordic Journal of Computing*, **8**(2): 219-232, 2001.
13. Jagota, **Narasimhan**, Soltes, "A Generalization of Maximal Independent Sets," *Discrete Applied Mathematics*, **109**(3): 223-235, 2001.
14. **Narasimhan**, Smid, "Approximating the Stretch Factor of Euclidean Graphs," *SIAM J. of Computing*, **30**(3): 978-989, 2000.
15. **Narasimhan**, "On Hamiltonian Triangulations in Simple Polygons," *The International Journal of Computational Geometry and Applications*; **9**(3): 261-276, 1999.
16. Jagota, Regan, **Narasimhan**, "Information Capacity of Binary Weights Associative Memories," *Neurocomputing*, **19**(1-3): 35-58, 1998.
17. Das, Heffernan, **Narasimhan**, "LR-Visibility in Polygons," *Computational Geometry - Theory and Applications*, **7**(1-2): 37-57, 1997. [Invited]
18. Das, **Narasimhan**, "A Fast Algorithm for Constructing Sparse Euclidean Spanners," *International Journal of Computational Geometry and Applications*, **7**(4): 297-316, 1997. [Invited]
19. Chandra, Das, **Narasimhan**, Soares, "New Sparseness Results on Graph Spanners," *International Journal of Computational Geometry and Applications*, **5**(1-2): 125-144, 1995.
20. Das, Heffernan, **Narasimhan**, "Finding All Weakly Visible Chords of a Polygon in Linear Time," *The Nordic Journal of Computing*, **1**, 433-457, 1994. [Invited]
21. Manber, **Narasimhan**, "Stability Number and Chromatic Number of Tolerance Graphs" *Discrete Applied Mathematics* **36**, 47-56, 1992.
22. **Narasimhan**, "A Note on the Hamiltonian Circuit Problem on Directed Path Graphs," *Information Processing Letters*, **32**(4), 167-170, 1989.

### Refereed conference publications

1. Buendia, **Narasimhan**, "Distance-based Analysis of Serially-Sampled HIV Quasispecies," To Appear, *Proceedings of the IEEE Bioinformatics Conference (CSB 2004)*, Stanford, IEEE Computer Society Press, August 2004.
2. Cazalis, Milledge, **Narasimhan**, "Probe Selection Algorithms," To Appear, *Proceedings of the 8th World Multiconference on Systemics, Cybernetics and Informatics (SCI 2004)*, Orlando, July 2004.
3. Zheng, George, **Narasimhan**, "Neural Network Classifiers and Gene Selection Methods for Microarray Data on Human Lung Adenocarcinoma," *Proceedings of CAMDA 2003: Critical Assessment of Microarray Data Analysis*, 63-67, November 2003, Durham, NC.
4. Gudmundsson, **Narasimhan**, Smid, "Distance-preserving Approximations of Polygonal Paths," To appear in *Proceedings of Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2003)*, December 2003.

5. Wei, Kuhn, **Narasimhan**, "Degenerate Primer Design via Clustering," *Proceedings of the IEEE Bioinformatics Conference (CSB 2003)*, Stanford, IEEE Computer Society Press, 75-83, August 2003.
6. Bose, Maheswari, **Narasimhan**, Smid, Zeh, "Approximating geometric bottleneck shortest paths," *Proceedings of the 19th Annual Symposium on Theoretical Aspects of Computer Science (STACS 2003)*, Lecture Notes in Computer Science, Vol. 2607, Springer Verlag, 38-49, February 2003.
7. Gudmundsson, Levkopoulos, **Narasimhan**, Smid, "Approximate distance oracles revisited," *Proceedings of the 13<sup>th</sup> Annual International Symposium on Algorithms and Computation, ISAAC'02*, Vancouver, 357-3658, Nov. 2002. **Invited** for submission to special issue of *Algorithmica*.
8. Andersson, Gudmundsson, Levkopoulos, **Narasimhan**, "Balanced Partition of Minimum Spanning Trees," *Proceedings of the 2<sup>nd</sup> International Workshop on Computational Geometry and Applications, CGA'02*, Amsterdam, April 2002. Also, presented at the *18th European Workshop on Computational Geometry*, Warszawa, April 2002; **Invited** for submission to special issue of *Nordic Journal of Computing*.
9. Gudmundsson, Levkopoulos, **Narasimhan**, Smid, "Approximation Distance Oracles for Geometric Graphs," *Proceedings of the SIAM-ACM Symposium on Discrete Algorithms*, 828-837, San Francisco, January 2002.
10. Bhattacharya, Mukhopadhyay, **Narasimhan**, "Optimal Linear-time Algorithms for Weak Visibility Problems," *Proceedings of the Workshop on Data Structures and Algorithms*, Providence, Lecture Notes in Computer Science, Vol. 2125, Springer Verlag, 438-449, August 2001.
11. Charikar, Khuller, Mount, **Narasimhan**, "Algorithms for Facility Location Problems with Outliers," *Proceedings of SIAM-ACM Symposium on Discrete Algorithms*, Washington D.C., 642-651, 2001.
12. **Narasimhan**, Smid, "Approximation Algorithms for the Bottleneck Stretch Factor Problem," *Proceedings of 18<sup>th</sup> International Symposium on Theoretical Aspects of Computer Science*, Dresden, Germany, Lecture Notes in Computer Science, Vol. 2010, Springer Verlag, 502-513, 2001.
13. Gudmundsson, Levkopoulos, **Narasimhan**, "Improved Greedy Algorithms for Constructing Sparse Geometric Spanners," *Proceedings of the Seventh Scandinavian Workshop on Algorithm Theory*, Lecture Notes in Computer Science, Vol. 1851, 314-327, Springer Verlag (2000); **Invited** for submission to special issue of *Nordic Journal of Computing*.
14. **Narasimhan**, Zachariasen, Zhu, "Experiments with Computing Geometric Minimum Spanning Trees," *Proceedings of the Workshop on Algorithm Engineering and Experiments*, January 2000; **Invited** for submission to special issue of *Journal of Experimental Algorithms*.
15. Gudmundsson, Levkopoulos, **Narasimhan**, "Approximating Minimum Manhattan Networks," *Proceedings of APPROX-RANDOM*, 28-37, 1999.
16. Gao, Mathee, **Narasimhan**, Wang, "Detection of HTH Motifs via Data Mining," *Proceedings of SPIRE' 99 – String Processing and Information Retrieval*, 63-72, 1999.
17. Hernandez, **Narasimhan**, Niño, "Evolutionary Set Matching," *Smart Engineering Systems: Neural Networks, Fuzzy Logic, Evolutionary Programming, Data Mining, and Rough Sets*, Volume 8, Editors: C. H. Dagli, M. Akay, A. L. Buczak, O. Ersoy, B. R. Fernandez, 265-272, 1998.
18. Arkin, Mitchell, **Narasimhan**, "Resource-Constrained Geometric Network Optimization," *Proceedings of the ACM Symposium on Computational Geometry*, 307-316, 1998.
19. Levkopoulos, **Narasimhan**, Smid "Efficient algorithms for constructing fault-tolerant geometric spanners," *Proceedings the ACM Symposium on the Theory of Computing*, 186-195, 1998.
20. **Narasimhan**, "On Hamiltonian Triangulations in Simple Polygons," *Proceedings of the Fifth International Workshop, WADS '97*, Lecture Notes in Computer Science No. 1272, Springer Verlag, 321-330, 1997.

21. Das, **Narasimhan**, Salowe, "A New Way to Weigh Malnourished Euclidean Graphs," *Proceedings of the Sixth Annual SIAM-ACM Symposium on Discrete Algorithms*, 215-222, 1995.
22. Das, **Narasimhan**, "Short Cuts in Higher Dimensional Space," *Proceedings of the Seventh Canadian Conference on Computational Geometry*, 103-108, 1995.
23. Das, Heffernan, **Narasimhan**, "Finding All Weakly Visible Chords of a Polygon in Linear Time," *Proceedings of the Fourth Scandinavian Workshop on Algorithm Theory*, Lecture Notes in Computer Science, Vol. 824, Springer Verlag, 119-130, 1994.
24. Das, **Narasimhan**, "Optimal Linear-Time Algorithm for the Shortest Illuminating Line Segment in a Polygon," *Proceedings of the Tenth Annual ACM Symposium on Computational Geometry*, 259-268, 1994.
25. Das, **Narasimhan**, "A Fast Algorithm for Constructing Sparse Euclidean Spanners," *Proceedings of the Tenth Annual ACM Symposium on Computational Geometry*, 132-139, 1994.
26. Das, Heffernan, **Narasimhan**, "Optimally Sparse Spanners in 3-dimensional Euclidean Space," *Proceedings of the Ninth Annual ACM Symposium on Computational Geometry*, 53-62, 1993.
27. Das, Heffernan, **Narasimhan**, "LR-Visibility in Polygons," *Proceedings of the Fifth Canadian Conference on Computational Geometry*, Waterloo, Canada, 303-308, 1993.
28. Chandra, Das, **Narasimhan**, Soares, "New Sparseness Results on Graph Spanners," *Proceedings of the Eighth Annual ACM Symposium on Computational Geometry*, 192-201, 1992.
29. Das, **Narasimhan**, "Geometric Searching and Rectilinear Link Distances," *Algorithms and Data Structures*, Lecture Notes in Computer Science, Eds. F. Dehne, J.-R. Sack, and N. Santoro, Springer Verlag **519**, 261-272, 1991.

### Refereed journal submissions

1. Yang, Wang, Mills, Mathee, Jayachandran, Gillevet, Entry, **Narasimhan**, "An Ecoinformatics Tool for Microbial Diversity Studies: Supervised Classification of ALH Profiles of 16S rRNA." Submitted 2004.

### Recent Nonrefereed Publications/Abstracts/Posters

1. Milledge, Yang, **Narasimhan**, "Sequeunce-Structure Patterns in Proteins," Poster to be presented at *In Silico The Fourth Georgia Tech and UGA International Conference on Bioinformatics*, Atlanta, GA, November 2003.
2. Cazalis, Milledge, **Narasimhan**, "Probe Selection Problem: Structure and Algorithms," Poster to be presented at *In Silico The Fourth Georgia Tech and UGA International Conference on Bioinformatics*, Atlanta, GA, November 2003.
3. Zheng, Zeng, George, **Narasimhan**, "Integrating Information from Different Microarray Data Sets," Poster to be presented at *In Silico The Fourth Georgia Tech and UGA International Conference on Bioinformatics*, Atlanta, GA, November 2003.
4. Parra, Samant, **Narasimhan**, "An Optimized Point-Based Multi-Modality Image Registration Algorithm," Poster, *AAPM 45<sup>th</sup> Annual Meeting*, San Diego, August 2003. [\[http://www.cs.fiu.edu/~giri/bioinf/posters/AAPM03.pdf\]](http://www.cs.fiu.edu/~giri/bioinf/posters/AAPM03.pdf)
5. Yang, Wang, Mills, Mathee, Jayachandran, Gillevet, Entry, **Narasimhan**, "An Ecoinformatics Tool for Microbial Diversity Studies: Supervised Classification of ALH Profiles of 16S rRNA," Poster, ASM Meeting, Washington DC, June 2003. [\[http://www.cs.fiu.edu/~giri/bioinf/posters/ASMYang03.pdf\]](http://www.cs.fiu.edu/~giri/bioinf/posters/ASMYang03.pdf)
6. Wang, Yang, Mills, Mathee, Gillevet, Entry, Jayachandran, **Narasimhan**, "Ecoinformatics Tools: Unsupervised Clustering and Classification of Microbial Communities Using ALH Profile Data from

- 16S rRNA,” Poster, ASM Meeting, Washington DC, June 2003. [<http://www.cs.fiu.edu/~giri/bioinf/posters/ASMWang03.pdf>]
7. **Narasimhan**, Bu, Gao, Milledge, Wang, Xu, Zheng, Mathee, “Helix-Turn-Helix Motif Detection in Protein Sequences”, Poster, *Asian Conference on Transcription, ACT-VII*, 2002. [<http://www.cs.fiu.edu/~giri/bioinf/posters/ACT02.pdf>]
  8. Samant, Parra, Davis, Sontag, **Narasimhan**, “A New Multi-Modality Image Registration Algorithm,” Poster, *Medical Imaging Conference*, 2002.
  9. **Narasimhan**, Gao, Zheng, Mathee, “Pattern Discovery Applications in Bioinformatics,” **Invited talk** and abstract at the *Fourth International Conference on Information Technology*, India, 2001.
  10. A.Plata-Stapper, M. Hentzer, A. Heydorn, Q. Li, **G. Narasimhan**, S. Molin, N. Høiby, K. Mathee, “Role of alginate in *Pseudomonas aeruginosa* biofilm matrix formation,” Poster, *American Society for Microbiology Conference*, Orlando, 2001.
  11. Ji, Li, Heydorn, Molin, Mathee, **Narasimhan**, “Quantitative Analysis of *Pseudomonas aeruginosa* biofilm images using fractal dimensions,” Poster at *American Society for Microbiology Biofilms 2000* meeting, Big Sky, Montana, July 2000. [<http://www.cs.fiu.edu/~giri/bioinf/posters/BIP2000.pdf>]
  12. Dimitrov, C. Sutter, George, **Narasimhan**, T. Sutter, “Analysis of the Mechanistic Effects of Cancer Chemopreventive Agents,” Poster at the American Association for Cancer Research Annual Meeting, San Francisco, April 2000.
  13. George, **Narasimhan**, Quas, “Improved Gibbs Sampling,” Abstract, *Joint Statistical Meeting*, Indianapolis, August 2000.
  14. Gao, Yang, Wang, Mathee, **Narasimhan**, “Detection of HTH Motifs via Data Mining,” Poster and Abstract at the *International Conference on Bioinformatics*, Atlanta, November 1997.

### Software Packages Produced

1. **DePiCt** (Web Version): Web-based version of the software for designing degenerate PCR primers using clustering; Joint work with students C. Archer and J. Farrow, 2004. [<http://www.cs.fiu.edu/~giri/bioinf/DePiCt1.0/WebVersion/depict.htm>]
2. **DePiCt**: BioPerl software for designing degenerate PCR primers using clustering; Joint work with X. Wei, 2003. [<http://www.cs.fiu.edu/~giri/bioinf/DePiCt/>]
3. **ASOM**: Adaptive Self-Organizing Maps software in Java; Joint work with Y. Wang, 2003.
4. **μ-NP**: Microarray Data Analysis software in Java using non-parametric statistical analysis for comparison of drugs and for clustering of genes; Joint work with G. Zheng, 2001.
5. **BIP**: *Biofilm Image Processing* (BIP) package (Visual C++); Software available over the internet at <http://www.msci.memphis.edu/~giri/BIP/>; Joint work with Li, Ji, Heydorn, Molin, and Mathee, 2000.
6. **GYM 2.0**: Improved HTH motif detection (C++). Work with C. Bu and K. Mathee, 1999. Java/CGI Version usable over the internet at <http://www.msci.memphis.edu/~giri/GYM2/welcome.html>. Earlier C++ version was done by Y. Gao, K. Mathee, and X. Wang, 1998.
7. **GeoMST**: Computing *Minimum Spanning Trees* of a set of points in higher dimensional space under arbitrary Euclidean metrics (C++); Software available on request; Fastest available software for this problem for input points from three or higher dimensional space, 2000.
8. **SP**: Shortest Path Builder with bottleneck and dilation constraints. Work with V. Chu, 2000.
9. **ELSA**: HiQ and C++ versions of a suite of algorithms for determining laser shot locations for low power lasers used in corrective eye surgery. Joint work with He, Ji, Liu, Thomas, Williams, 1999.
10. **HTH**: Java version of an implementation of the Profile Method of Dodd/Egan for detecting Helix-Turn-Helix Motifs in protein sequences; Software available over the internet at <http://www.msci.memphis.edu/~giri/hth>. Work with K. Mathee, Y. Gao, M. Yang, & X. Wang, 1997.

## □ REFEREEING CONTRIBUTIONS

- **Journals:**
  - *Discrete and Computational Geometry*
  - *Journal of Algorithms*
  - *Algorithmica*
  - *International Journal of Computational Geometry and Applications*
  - *Computational Geometry: Theory and Applications*
  - *Networks*
  - *Computer-Aided Design*
  - *Information Processing Letters*
  - *Parallel Processing Letters*
  - *Bioinformatics*
  - *Discrete Mathematics*
  - *Parallel and Distributed Computing Practices*
- **Conferences:**
  - SoCG
  - ESA
  - SWAT
  - FSTTCS
  - SPAA
  - CGC Workshop
  - APPROX
  - SPIRE
  - ALENEX
- **Books:**
  - *The Algorithm Design Manual*, by Steven Skiena
- **Funding Agencies:**
  - NSF: Reviewed Proposal for *Numerical, Scientific and Geometric Computing, CISE*.
- **SUMMARY of refereeing for recent years:**
  - 1999 (5 papers)
  - 2001 (11 papers)
  - 2002 (12 papers)
  - 2003 (18 papers)

## □ INVITED TALKS AND PRESENTATIONS

1. *Coloring Problems*, Arizona State University, Fall 1988.
2. *Algebraic Methods for Coloring*, University of Arizona, Fall 1988.
3. *Generalization of Lovász's Sandwich Theorem*, DIMACS Workshop on Polyhedral Combinatorics, NJ, 1989.
4. *Optimal 3-dimensional Spanners*, SUNY Stonybrook, March 1993.
5. *Graph Spanners*, L.R.I., Université de Paris - Sud, Orsay, France, June 1993.
6. *Graph Spanners*, Vanderbilt University, Nashville, February 1995.
7. *Graph Spanners*, Kent State University, Kent, March 1995.
8. *Geometric Networks*, University of Missouri, Kansas City, March 1997.
9. *Geometric Networks*, University of Copenhagen, Denmark, May 1997.
10. *Geometric Networks*, Lund University, Sweden, May 1997.
11. *Generalizations of Independent Sets*, L.R.I., Université de Paris - Sud, Orsay, June 1997.
12. *Geometric Networks*, Otto-von-Guericke-Universität, Magdeburg, Germany, July 1997.
13. *PTAS for Geometric Optimization Problems*, Otto-von-Guericke-Universität, Magdeburg, Germany, July 1997.
14. *Geometric Networks and Fault-tolerant Spanners*, State University of New York, Stony Brook, NY, Oct 1997.
16. *Geometric Networks and Fault-tolerant Spanners*, University of Maryland, College Park, MD, November 1997.
17. *Resource Constrained Geometric Network Optimization*, Lund University, Sweden, May 1998.
18. *Resource Constrained Geometric Network Optimization*, University of Copenhagen, Denmark, May 1998.
19. *Fault-Tolerant Spanners*, Lund University, Sweden, June 1998.
20. *Fault-Tolerant Spanners*, Otto-von-Guericke-Universität, Magdeburg, Germany, June 1998.
21. *Facility Location with Dynamic Distance Functions*, SWAT Conference, Stockholm, Sweden July 1998.
22. *Resource Constrained Geometric Network Optimization*, University of Maryland, College Park, MD, Oct 1998.
23. *Geometric Networks*, Special Seminar for GAs, Math Sciences Dept., University of Memphis, October 1998.
24. *Computational Methods for Motif Detection*, Chemistry Department, University of Memphis, October 1998.
25. *Geometric Networks*, Simon Fraser University, Canada, March 1999.
26. *Geometric Networks*, University of British Columbia, Canada, March 1999.
27. *Geometric Spanners*, Talk for the **Theory Pearls** lecture series, Lund University, May 1999.
28. *Approximating Stretch Factors of Euclidean Graphs*, University of Copenhagen, July 1999.
29. *Motif Detection in Protein Sequences*, SPIRE '99 Conference, Cancun, September 1999.
30. *Experiments with Geometric Minimum Spanning Trees*, ALENEX'00 Conference, San Francisco, Jan 2000.
31. *Motif Detection in Protein Sequences*, Talk for the **Theory Pearls** lecture series, Lund University, May 2000.
32. *Experiments with Geometric MSTs*, ARCO Workshop, **Invited Talk**, Copenhagen, May 2000.
33. *Experiments with Geometric MSTs and Spanners*, Dagstuhl Workshop, Germany, September 2000.
34. *Applications of Pattern Discovery in Bioinformatics*, University of Miami, Miami, March 2001.
35. *Geometric Spanner Networks: A Survey*, **Invited Speaker**, ARCO'01, Lund, Sweden, May 2001.
36. *Geometric Spanner Networks*, University of Florida, Gainesville, November 2001.
37. *Pattern Discovery Applications in Bioinformatics*, **Invited Speaker**, CIT '01, India, December 2001.
38. *Open Problems in Geometric Networks*, **Invited Lecture**, First Utrecht-Carleton Workshop, March 2002.
39. *Detection of Helix-Turn-Helix Motifs in Protein Sequences*, ACT-VII, Malaysia, July 2002.
40. *Pattern Discovery Applications in Bioinformatics*, University of Alabama, Birmingham, April 2003.
41. *Degenerate Primer Design via Clustering*, Stanford University, CSB'03, August 2003.
42. *Bioinformatics for CS*, Universidad Nacional de Colombia, Bogota, November 2003.
43. *Distance Preserving Approximations of Polygonal Paths*, FST&TCS'03, Mumbai, December 2003.
44. *Pattern Discovery and its Applications to Bioinformatics*, Tutorial Session, ICISIP 2004, Chennai, Jan 2004.
45. *Microarray Data Analysis using Neural Network Classifiers*, Invited Talk, ICISIP 2004, Chennai, Jan 2004.
46. *Bioinformatics Research at FIU*, University of Miami Medical Center, Maimi, FL, March 2004.
47. *Microarray Data Analysis*, University of Florida College of Dentistry, Gainesville, FL, April 2004.
48. *Bioinformatics Research at FIU*, USDA Subtropical Horticulture Research Station, Miami, May 2004.

□ **FUNDING SUPPORT**

<b>FUNDED EXTERNAL GRANTS</b>	<b>AGENCY</b>	<b>AMOUNT</b>	<b>PERIOD</b>
Research Initiation Award ( <b>Sole PI</b> ) <i>Title: Sparse Geometric Spanner, Geometric Analysis, and Applications</i>	NSF	\$ 60,000	1994-98
Research Grant (PI) <i>Title: Graph-Theoretic Approaches to VLSI Design Problems</i>	Cadence Design Systems, Inc.	80,000	1996-97
Travel Grant, W. Europe Program (CoPI) <i>Title: Cycles, Paths, and Communication Networks</i>	NSF	14,000	1993-95
Research Grant ( <b>Sole PI</b> ) <i>Title: Algorithms for Eye Laser Surgery</i>	F.E.O. Medical, Inc.	10,000	1999
Pre-NPEBC: Bioinformatics Center for Excellence Planning Grant (CoPI) <i>Title: Bioinformatics for Mouse Phenotype Analysis</i>	NIH (Subcontract from U Memphis)	1,800,000 (49,963)	2003-05
CREST: Center for Research Excellence in Science and Technology (Co-Investigator) <i>Title: Center of Emerging Technologies for Advanced Information Processing and High-Confidence Systems (Subproject: Multi-dimensional and Multi-modal Data Modeling and Query Research)</i>	NSF	4,500,000	2003-08
Curricular Supplements in MARC-U*STAR Institutes (Participant) <i>Title: Quantifying Biology in the Classroom (The Q'BIC Plan)</i>	NIH	49,259	2004

<b>FUNDED INTERNAL GRANTS</b>	<b>SOURCE</b>	<b>AMOUNT</b>	<b>PERIOD</b>
Research Initiation Award Matching Funds	University of Memphis	\$ 8,500	1994
Faculty Research Grant <i>Title: Problems on Graphs</i>	University of Memphis	3,000	1990
Faculty Research Enhancement Award <i>Title: Software for Designing Degenerate Primers to Amplify Resistance Gene Homologues from <i>T. Cacao</i></i>	Access to Biomedical Research (ABR), FIU	3,500	2003

<b>PENDING PROPOSALS as PI/CoPI/Participant</b>	<b>AGENCY</b>	<b>AMOUNT</b>	<b>PERIOD</b>
PREP: Post-Baccalaureate Research Education Program (Research Mentor/Preceptor/Supervisor) <i>Title: Gain Research Experience And Training for Biomed. Grad. School</i>	NIGMS/NIH	1,073,885	2004-09

<b>SUPPORT FOR COLLABORATIONS</b>	<b>SOURCE (Collaborative Project)</b>	<b>PERIOD</b>
Student Research Assistantship (Xintao Wei)	BMEI Department (Protein Engineering)	Since May '03
Student Research Assistantship (Andres Parra)	Radiation Oncology Department, St. Jude Research Hospital (Image Registration)	2000, 2001-02, 2002-present
Student Research Assistantship (Xiao-Rui He)	Feinstone Center (Microarray Data Analysis)	2000-01
Student Internship (Junmin Liu)	UT Memphis (Microarray Data Analysis)	2000-01
Student Research Fellowship (Peter Dimitrov)	Feinstone Center (Microarray Data Analysis)	Spring 2000
Student Co-Op Fellowship Program (Yuan Gao)	IBM TJ Watson Center (Motif Detection)	1998-99
Student Internships (J. Zhou, G. He, L. Liu)	F. E. O. Medical Inc. (Laser Eye Surgery)	Summer 1999

□ DISSERTATIONS / THESES / SOFTWARE PROJECTS DIRECTED

<b>Degree</b>	<b>Name</b>	<b>Year</b>	<b>Title of Dissertation/Thesis/Project</b>
Doctoral	Dimitri Kaznachev (Co-advised)	1998	Neural Network Algorithms for Hypergraph Optimization Problems
Doctoral	Yuan Gao	2001	Motif-Based Structure & Function Prediction of Proteins
Masters	Satish Gannu	1994	A Platform for Distributed Applications (Thesis)
Masters	Yuan Gao	1997	Detection of HTH Motifs in Proteins (Thesis)
Masters	Kalyan Vavilapalli	1997	Circuit Board Layout Using Simulated Annealing (Thesis)
Masters	Xining Zhao	1997	Computing Alpha Shapes using LEDA (Software Project)
Masters	Dr. Mi Zhou	1997	Computing Alpha Shapes using LEDA (Software Project)
Masters	Dr. Firasath Ali	1997	Profile Method Implementation in C (Software Project)
Masters	Jianlin Zhu	1998	Experiments with WSPD and Applications (Thesis)
Masters	Dr. Pascal Bedrossian	1998	Circuit Board Layout Using Genetic Algorithms (Thesis)
Masters	Dr. Rao Li	1999	A Polynomial-time Algorithm for Finding Independence Number of Special classes of graphs (Thesis)
Masters	German Hernandez	1999	An Evolutionary Algorithm for Matching of Binary Images (Thesis)
Masters	Changsong Bu	1999	Improving HTH Motif Detection using BLOSUM Matrices (Thesis)
Masters	Dr. Zhou Ji	2000	Quantitative Analysis of Biofilm Images Using Fractal Dimensions (Thesis)
Masters	Qichang Li	2000	Biofilm Image Processing (Software Project)
Masters	Ning Xu	2000	GYM 3.0: Improved Motif Detection in Proteins (Thesis)
Masters	Dr. Xiao-rui He	2001	Gene Expression Patterns and Clusters (Thesis)
Masters	Junmin Liu	2001	Analysis of Microarray Data (Thesis)
Masters	Gaolin Zheng	2001	Software Tools for Bioinformatics Applications (Thesis)
Masters	Kang Sun	2001	Branch-&Bound for Jigsaw Puzzles (Software Project)
Masters	Dr. Meera Krishnan	2002	Pattern Discovery in anti-DNA Antibodies (Thesis)
Masters	Zongying Xi	2002	Inferences with Microarray Data (Thesis)
Masters	Yong Wang	2003	Unsupervised clustering techniques and applications to bioinformatics
Masters	Xintao Wei	2003	Degenerate Primer Design
Masters	Minchi Hu	2004	Geometric Hashing for Structural Pattern Discovery
Undergrad	Mu Yang	1997	HTH Motif Detection in Java (Software Project)
Undergrad	Zhi Zhao	1997	Computational Finance (Software Project)
Undergrad	Jason Mills	1998	Image Morphing (Software Project)

## □ CURRENT GRADUATE STUDENTS

<b>Degree</b>	<b>Name</b>	<b>Year Started</b>	<b>Tentative Project Title/Area</b>
<b>Florida International University</b>			
Doctoral	Gaolin Zheng	2001	Microarray Analysis
Doctoral	Tom Milledge	2001	Pattern Discovery & Protein Structure Prediction
Doctoral	Daniel Cazalis (Co-advisor)	2002	Combinatorial Optimization Algorithms
Doctoral	Patricia Buendia	2002	Evolutionary Analysis of HIV Data
Doctoral	Chengyong Yang	2002	Pattern Discovery & Protein Structure Prediction
Doctoral	Cassian D'Cunha (Co-advisor)	2003	Computational Chemistry
Doctoral	Erliang Zeng	2003	Microarray Analysis
Doctoral	Xintao Wei	2003	Protein Engineering
<b>University of Memphis</b>			
Doctoral	Andres Nestor Parra	2000	Medical Image Registration

## □ DISSERTATION COMMITTEES

<b>Degree</b>	<b>Name</b>	<b>Year</b>	<b>Area of Dissertation</b>	<b>Department/University</b>
Doctoral	George Connor	1993	Statistics	Math Sciences / U Memphis
Doctoral	Anita Burris	1993	Graph Theory	Math Sciences / U Memphis
Doctoral	Firasath Ali	1994	Combinatorics	Math Sciences / U Memphis
Doctoral	Lubomir Soltes	1995	Graph Theory	Math Sciences / U Memphis
Doctoral	Jiaxiang Zhao	1997	Differential Equations	Math Sciences / U Memphis
Doctoral	Dimitri Kaznachev	1998	Neural Networks	Computer Science / U Memphis
Doctoral	Rao Li	1999	Graph Theory	Math Sciences / U Memphis
Doctoral	Fernando Niño	2000	Evolutionary Algorithms	Computer Science / U Memphis
Doctoral	German Hernandez	2000	Evolutionary Algorithms	Computer Science / U Memphis
Doctoral	David Weinreich	2000	Graph Theory	Math Sciences / U Memphis
Doctoral	Yuan Gao	2001	Bioinformatics	Computer Science / U Memphis
Doctoral	Congjun Yang	2001	Databases	Computer Science / U Memphis
Doctoral	Jun Deng	2001	Computational Chemistry	Chemistry / U Memphis
Doctoral	Anna Östlin	2001	Computational Biology	Computer Science / Lund U, Sweden

□ TEACHING ACTIVITY

Academic Year	Course #	Course Name	Credit Hours	Percent Taught	Enroll.	New Preparation (Y/N)
<b>University of Memphis</b>						
Fall 98	COMP 7/8713	Advanced Algorithms	3.0	100	23	N
	COMP 3160	File Structures	3.0	100	16	Y
Spring 99	COMP 7/8717	Topics in Algorithms	3.0	100	10	N
	COMP 4/6030	Intro to Algorithms	3.0	100	28	N
Fall 99	COMP 7/8713	Advanced Algorithms	3.0	100	8	N
	COMP 7/8295	Intro to Bioinformatics	3.0	100	23	Y
Spring 00	COMP 7/8717	Topics in Algorithms	3.0	100	10	N
	COMP 4/6030	Intro to Algorithms	3.0	100	38	N
Fall 00	COMP 7/8713	Advanced Algorithms	3.0	100	18	N
	COMP 7/8295	Intro to Bioinformatics	3.0	100	24	N
Spring 01	COMP 3160	File Structures	3.0	100	30	N
	COMP 7/8717	Topics in Algorithms	3.0	100	8	N
<b>Florida International University</b>						
Fall 01	COT 5420	Theory of Computation I	3.0	100	30	Y
Spring 02	COT 6405	Analysis of Algorithms	3.0	100	45	N
	COP 3530	Data Structures	3.0	100	37	Y
Fall 02	COT 6936	Topics in Algorithms: Bioinformatics	3.0	100	20	Y
	CAP 6990	Bioinformatics Tools	2.0	100	4	Y
Spring 03	COT 6405	Analysis of Algorithms	3.0	100	15	N
	COP 3530	Data Structures	3.0	100	34	N
Fall 03	CAP 5991	Introduction to Bioinformatics	3.0	100	10	N
	CGS 5991	Bioinformatics Tools	2.0	100	2	N
Spring 04	COT 6405	Analysis of Algorithms	3.0	100	11	N
	COP 3530	Data Structures	3.0	100	32	N

## □ SERVICE RECORD

### □ Professional & Community Service

#### ◆ **Journal Editorship (since 2000)**

- Journal of Discrete Algorithms (JDA), Editor, Elsevier Publishers.

#### ◆ **International Conference Program Committee Memberships**

- **SPIRE 1999** – String Processing and Information Retrieval Conference, September 22-24, 1999, Cancun, Mexico. [<http://www.algos.inesc.pt/spire99/>]
- **SPIRE 2000** – String Processing and Information Retrieval Conference, September 27-29, 2000, A Coruña, Spain. [<http://rosalia.dc.fi.udc.es/spire2000/>]
- **ALENEX'02** – Algorithm Engineering & Experiments, San Francisco, January 6-8, 2002. [<http://www.cs.umd.edu/~mount/ALENEX02/>]
- **WADS 2003** – Workshop on Algorithms & Data Structures, Ottawa, Canada, August 2003. [<http://www.wads.org/>]
- **ICBA 2004** – International Conference on Bioinformatics & Applications, Ft Lauderdale, December 2004. [<http://polaris.nova.edu/MST/ICBA2004/>]

#### ◆ **Conference/Workshop Organization**

- **Genomics Workshop at U Memphis:** Co-organizer for the Feinstone Symposium on Genomics, which was scheduled to host 6 international speakers in the field. Unfortunately, it was scheduled for September 13, 2001. Because of the tumultuous events of that week, this symposium was postponed. It finally took place in July 2003, which I was not involved in.

#### ◆ **Curriculum Leadership in Bioinformatics (1999)**

- I was responsible for single-handedly designing and implementing a Masters degree concentration in Bioinformatics at the University of Memphis. It was approved by the Tennessee Board of Regents in Summer 1999 and I was the directing coordinator of this program. At the time that this program was started, it was a pioneering program and one of only a handful of such programs across the country; now there are over a 100 such programs around the world. By May 2001, 6 Masters students graduated from this program, after which I left University of Memphis. The concentration was designed to attract excellent students with an advanced degree in the Biological Sciences and to provide them with training in Computer Science, Mathematics and Statistics. Details of this program are at: [<http://www.msci.memphis.edu/~giri/bio.html>]. Information about all the Bioinformatics students and the research is at: [<http://www.cs.fiu.edu/~giri/bioinf/bioinf.html>]. Publications of the group can be found at: [<http://www.cs.fiu.edu/~giri/bioinf/BioPubs.html>].

#### ◆ **New Course Development (1999-2003)**

- The cornerstone course of the Bioinformatics program was the course titled COMP 7295/8295: Introduction to Bioinformatics. The course details can be found at the following web site: [<http://www.msci.memphis.edu/~giri/compbio/7295fall00.html>]. Current incarnations of this course are at: [<http://www.cs.fiu.edu/~giri/teach/6936F02.html>] and [<http://www.cs.fiu.edu/~giri/teach/5991F03.html>]. This course structure was designed in 1999 at a time when no good text books were available for this material. The course has become a model course for similar curricula in other universities.

- ◆ **Refereeing** (Details in Refereeing Section, page 8 of this document.) Summary for recent years:
  - 1999 (5 papers)
  - 2001 (11 papers)
  - 2002 (12 papers)
  - 2003 (18 papers)
- ◆ **PhD Dissertation Committees (External Member)**
  - Anna Östlin, Computational Biology, Lund University, Sweden, 2001.
- ◆ **Judge (1993)**
  - West Tennessee Regional Science Fair, Cumberland Museum of Science, Jackson, Tennessee.

### □ University Service

- ◆ **Quantifying Biology In the Classroom (Q`BIC Plan), Biology Department (2003)**
  - This is an interdisciplinary committee that is deliberating specific recommendations for incorporating quantitative aspects into the Biology curriculum.
- ◆ **Biomedical Engineering Curriculum Committee (2001)**
  - This committee prepared a proposal for B.S. in Biomedical Engineering
- ◆ **Graduate Assistantships Task Force (1999) [Memphis]**
  - The task force reviewed existing procedures across campus with a view to finding inefficiencies and inequities in allocations and utilization of graduate assistantships and proposing a plan for the future. The task force produced a comprehensive report on “*Strategic Planning for Graduate Assistantship Allocations Across Campus*”.
- ◆ **Faculty Research Grant Committee, and Faculty Distinguished Research Awards Committee (1997-98, and 1998-99) [Memphis]**
  - This committee reviewed faculty research grant awards (summer awards), and the prestigious Distinguished Research awards.
- ◆ **Writing-Across-the-University (1990) [Memphis]**
  - This task force reviewed existing writing requirements in every undergraduate degree program across campus. It also reviewed efforts made across the country toward this goal. The committee met every week for 2 hours, and at the end of the year, a comprehensive report title “*Strategic Planning for Incorporating Writing in the General Education Requirements for Undergraduate Degree Programs Across All Disciplines*” was produced. This report gave specific recommendations on how this could be done for individual programs.
- ◆ **PhD Dissertation Committees from other departments on campus (External Member)**
  - Jun Deng, Computational Chemistry, Chemistry Department, University of Memphis, 2001.
  - David Weinreich, Anita Burris, Firasath Ali, Lubomir Soltés, Jiayang Zhao, and Rao Li, Mathematics Department, University of Memphis, 1993-2000.
  - George Connor, Statistics, Mathematics Department, University of Memphis, 1993.

## □ CURRENT PROJECTS AND RESEARCH COLLABORATIONS

- **Bioinformatics:** Microarray Data Analysis
  - Collaborators: Prof. **E. O. George**, Statistics, U. Memphis; Prof. **Terrance Cooper**, Molecular Biology, U. Tennessee – Memphis; Prof. **Lidia Kos**, Biology, FIU. Students (Past and Present): P. Dimitrov, X.-R. He, J. Liu, G. Zheng, Z. Xi, E. Zeng.
- **Bioinformatics:** Protein Motif Detection & Pattern Discovery
  - Collaborators: Prof. **Kalai Mathee**, Biology, FIU; Dr. **Isidore Rigoutsos** and Dr. **Yuan Gao**, Computational Biology Group, IBM T.J. Watson Research Center, NY. Students (Past and Present): C. Bu, N. Xu, J. Liu, X.-R. He, G. Zheng, T. Milledge, and C. Yang
- **Bioinformatics:** Primer Design
  - Collaborator: Prof. **David Kuhn**, Biology, FIU. Student (Present): X. Wei.
  - Collaborators for testing of primers: Profs. **Kalai Mathee & Lidia Kos**, Biology, FIU.
- **Bioinformatics:** Probe Design
  - Collaborators: Profs. **Frank Jochem & Kalai Mathee**, Biology, FIU.
- **Bioinformatics:** Marine Genome Project
  - Collaborators: Prof. Kaoru Nakasone, Kinki University, Hiroshima, Japan.
- **Biotechnology:** Protein Engineering
  - Collaborators: Prof. **Renugopalakrishnan**, BMEI, FIU; Students (Present): X. Wei and S. Lakka.
- **Biotechnology:** Biofilm Image Analysis
  - Collaborators: Prof. **Soren Molin**, Microbiology, Danish Technical University (DTU), and Prof. **Kalai Mathee**, Biology, FIU. Students (Past): Qichang Li and Zhou Ji.
- **Eco-informatics:** Microbial Diversity Studies
  - Collaborators: Prof. “**Jay**” **Jayachandran**, Environmental Studies, FIU; Prof. **Kalai Mathee**, Biology, FIU; Dr. **Laurie Richardson**, Biology, FIU; Dr. **DeEtta Mills**, Forensic Research Institute, FIU. Students (Past and Present): C. Yang, Y. Wang
- **Medical Image Processing:**
  - Collaborators: Dr. **Sanjiv Samant**, Radiation Oncology, St. Jude Research Hospital, Memphis. Students (Past and Present): Zhou Ji and Andres Parra
- **Experimental Algorithms**
  - Collaborators: Profs. **Martin Zachariasen**, **Pawel Winter**, Computer Science, U Copenhagen
- **Geometric Algorithms:** Geometric Spanners
  - Collaborators: Prof. **Michiel Smid**, Carleton University, Ottawa, Canada; Prof. **Christos Levcopoulos**, Lund U., Sweden; Dr. **Joachim Gudmundsson**, TU Eindhoven, Netherlands;
- **Computational Statistics**
  - Collaborators: Profs. **E. O George**, **Anthony Quas**, Mathematics, U. Memphis.

## □ HIGHLIGHTS OF LAST FOUR YEARS (2000-04)

- FIU Faculty Award for Excellence in Research, 2004.
- Journal Editorship (JDA)
- Program Committees for 4 conferences (ICBA'04, SPIRE'00, ALENEX'02, WADS'03).
- Invited lectures at international meetings: ARCO'01 (Geometric Networks), CIT'01 (Bioinformatics), the First Utrecht-Carleton Workshop '02 (Geometric Networks), and ICISIP'04 (Bioinformatics); Invited participation in international workshops (Utrecht-Carleton'02, Dagstuhl '01)
- Invited lectures at many universities in US, Scandinavia and Europe; Recent invitation to give series of talks on Bioinformatics as part of a *Visiting Lectureship* at Nacional University de Colombia, Bogota (Nov 2003).
- Leadership in curriculum development with introduction of Bioinformatics Masters degree at U. of Memphis.
- Participation in several large grant proposals, with 2 funded (BISTI & CREST).
- 13 journal publications; 12 conference publications; 3 conference papers invited for special issues of journals; 1 book nearing completion; 10 abstracts/posters; 4 software packages; 13 talks and presentations at major universities and meetings
- 12 Masters theses supervised (1 in progress); 2 PhD dissertations supervised (6 more in progress)
- Over 40 papers reviewed/refereed for major international conferences and journals
- Numerous new research collaborations forged.