Bhaskar Dasgupta

Department of Computer Science
University of Illinois at Chicago
Chicago, IL 60607-7053

312-355-1319
bdasgup@uic.edu
http://bdasgup.github.io/

Education

University of Minnesota, Minneapolis, MN
PhD, Computer Science 01/1995
- Cumulative GPA: $^{4.0}/_{4.0}$; Advisor: Prof. Ding-Zhu Du

Pennsylvania State University, University Park, PA
Master of Science, Computer Science 08/1992
- Cumulative GPA: $^{4.0}/_{4.0}$

Indian Institute of Science, Bangalore, India
Master of Engineering, Computer Science 12/1987
- Cumulative GPA: $^{3.45}/_{4.0}$; 1st class with Honors

Jadavpur University, Kolkata, India
Bachelor of Engineering, Computer Science 07/1986
- Cumulative GPA: $^{3.97}/_{4.0}$; Rank – 3rd

Employment history and professional experience

Professor 08/2015–present
Department of Computer Science, University of Illinois at Chicago, Chicago, IL

Associate Professor 08/2005–08/2015
Department of Computer Science, University of Illinois at Chicago, Chicago, IL

Research Visitor 08/2008–05/2009
DIMACS (Center for Discrete Mathematics & Theoretical Computer Science)
Rutgers University, New Brunswick, NJ

Visiting Fellow 08/2008–05/2009
Lewis-Sanger Institute for Integrative Genomics, Princeton University, NJ

Assistant Professor 08/2001–08/2005
Department of Computer Science, University of Illinois at Chicago, Chicago, IL

Assistant Professor 07/1997–09/2001
Department of Computer Science, Rutgers University at Camden, Camden, NJ

Visiting Assistant Professor 09/1996–06/1997
Department of Computer Science, Rutgers University at Camden, Camden, NJ

Post-Doctoral Fellow 07/1995–08/1996
University of Waterloo & McMaster University (jointly)
- Post-doctoral advisors: Prof. Ming Li and Prof. Tao Jiang

Part-time Professor 01/1996–04/1996
Wilfrid-Laurier University, Waterloo, Canada

Post-doctoral Fellow 01/1995–06/1995
DIMACS (Center for Discrete Mathematics & Theoretical Computer Science)
Rutgers University, New Brunswick, NJ

- Post-doctoral advisor: Prof. Eduardo Sontag

Software Application Engineer/Math Specialist 06/1994–08/1994
Infinite Graphics Incorporated, Minneapolis, MN

Research & Development Engineer 02/1988–07/1989
CMC Ltd., Secunderabad, India

Award, Honors and Affiliations

NSF CAREER award 2004
UIC College of Engineering Faculty Teaching Award 2012
Senior member, IEEE

Research funding

12. **PI (100%)**, NSF IIS-1814931, **$349,986** 08/15/2018–07/31/2022
Network analysis and anomaly detection via global curvatures
11. **PI (100%)**, NSF IIS-1160995, **$356,222** 09/01/2012–08/31/2017
Combinatorial Analysis of Biological and Social Networks
10. **Co-PI (23%)**, NSF IIS-1064681, **$954,730** 08/01/2011–07/31/2017
Scalable kinship inference in wild populations across years and generations
9. **PI (50%)**, NSF DBI-1062328, **$408,140** 05/15/2011–12/31/2015
Algorithms and Software for Discovery of Non-sequential Protein Structure Similarities
8. **PI (34%)**, NSF CCF-1216096, **$200,000** 09/01/2012–08/31/2015
Dynamic Parking Assignment Games
7. **PI (100%)**, NSF IIS-0346973, **$400,001** 4/15/2004–9/30/2010
CAREER: Efficient Algorithms for Computational Problems in Bioinformatics Via Combinatorial and Geometric Techniques
6. **Co-PI (37.5%)**, NSF DBI-0543365, **$399,602** 7/1/2006–6/30/2010
Bioinformatics Tools Enabling Large-Scale DNA Barcoding
5. **Co-PI (25%)**, NSF IIS-0610244, **$608,205** 7/1/2006–6/30/2010
Computational Methods for Kinship Reconstruction
4. **PI (100%)**, NSF CCR-9800086/0296041/0220502, **$127,484** 8/15/1998–7/31/2004
A proposal for Research on Computing with Neural Models of Computation
3. **PI (100%)**, NSF CNS-0206795, **$99,960** 8/15/2002–8/31/2005
Piecewise Linear Hybrid Systems
2. **PI (100%)**, NSF CCF-0208749, **$144,131** 9/1/2002–12/31/2005
Efficient Combinatorial Algorithms for Several Tiling, Packing and Covering Problems With Rectangles and Hyper-rectangles
1. **PI (100%)**, Rutgers Research Council, **$1000** 5/20/1998–5/1/1999
Designing Efficient Algorithms For Computing Distances Between Evolutionary Trees or Genome Sequences Computational Molecular Biology

Publications

Textbook

- **B. DasGupta** and J. Liang, Models and Algorithms for Biomolecules and Molecular Networks, John Wiley & Sons (2016)

Keynote and invited talks

- (invited) **B. DasGupta**, Topological implications of negative curvature for biological networks, in *2018 IEEE* 8^{th} *International Conference on Computational Advances in Bio and Medical Sciences*, page 54, IEEE (2018)
- (keynote) **B. DasGupta**, Models and Algorithmic Tools for Computational Processes in Cellular Biology: Recent Developments and Future Directions, in *International Symposium on Bioinformatics Research and Applications* **LNBI 7292**, L. Bleris *et al.* (eds.), 84-86, Springer (2012)

Editorials for special issues in journals (reverse chronological order)

3. F. Saeed, H. Al-Mubaid and **B. DasGupta** (eds.), Foreword to the special issue on selected papers from the 6^{th} international conference on Bioinformatics and Computational Biology. *Journal of Bioinformatics and Computational Biology* **12 (5)**, 1402001 (2014)
2. H. Al-Mubaid, **B. DasGupta** and F. Saeed (eds.), Foreword to the special issue on selected papers from the 5^{th} international conference on Bioinformatics and Computational Biology. *Journal of Bioinformatics and Computational Biology* **11 (5)**, 1302002 (2013)
1. P. Berman, **B. DasGupta** and J. Liang (eds.), Foreword to the special issue on Algorithmic Methodologies for Processing Protein Structures, Sequences, and Networks. *Algorithmica* **48 (4)**, pp. 301 (2007)

Journals (reverse chronological order)

73. P. Sengupta, N. Azarhooshang, R. Albert and **B. DasGupta**, Finding Influential Cores via Normalized Ricci Flows in Directed and Undirected Hypergraphs with Applications, *Physical Review E*, **111**, 044316 (2025)
72. **B. DasGupta**, E. Grigorescu and T. Mukherjee, On computing Discretized Ricci curvatures of graphs: local algorithms and (localized) fine-grained reductions, *Theoretical Computer Science*, **975**, 114127 (2023)
71. A. Asudeh, T. Berger-Wolf, **B. DasGupta** and A. Sidiropoulos, Maximizing coverage while ensuring fairness: a tale of conflicting objective, *Algorithmica*, **85**, 1287-1331, (2023)
70. T. Chatterjee, R. Albert, S. Thapliyal, N. Azarhooshang and **B. DasGupta**, Detecting Network Anomalies Using Forman-Ricci Curvature and A Case Study for Human Brain Networks, (*Nature*) *Scientific Reports* **11**, 8121 (2021)
69. N. Azarhooshang, P. Sengupta and **B. DasGupta**, A Review of and Some Results for Ollivier-Ricci Network Curvature, *Mathematics* **8**, 1416 (2020)
68. T. Chatterjee, **B. DasGupta**, L. Palmieri, Z. Al-Qurashi and A. Sidiropoulos, On theoretical and empirical algorithmic analysis of the efficiency gap measure in partisan gerrymandering, *Journal of Combinatorial Optimization* **40(2)**, 512-546 (2020)
67. **B. DasGupta**, M. V. Janardhanan and F. Yahyanejad, Why did the shape of your network change? (On detecting network anomalies via non-local curvatures), *Algorithmica* **82(7)**,

1741-1783 (2020)

66. F. Yahyanejad, **B. DasGupta** and R. Albert, A survey of some tensor analysis techniques for biological systems, *Quantitative Biology* **7**(**4**), 266-277 (2019)

65. T. Chatterjee, **B. DasGupta**, N. Mobasheri, V. Srinivasan and I. G. Yero, On the Computational Complexities of Three Privacy Measures for Large Networks Under Active Attack, *Theoretical Computer Science* **775**, 53-67 (2019)

64. **B. DasGupta**, N. Mobasheri and I. G. Yero, On analyzing and evaluating privacy measures for social networks under active attack. *Information Sciences* **473**, 87-100 (2019)

63. D. Ayala, O. Wolfson, **B. DasGupta**, J. Lin and B. Xu, Spatio-temporal Matching for Urban Transportation Applications. *ACM Transactions on Spatial Algorithms and Systems* **3**(**4**), 11:1-11:39 (2018)

62. **B. DasGupta**, M. Karpinski, N. Mobasheri and F. Yahyanejad, Effect of Gromov-hyperbolicity Parameter on Cuts and Expansions in Graphs and Some Algorithmic Implications. *Algorithmica* **80**(**2**), 772-800 (2018)

61. **B. DasGupta** and N. Mobasheri, On optimal approximability results for computing the strong metric dimension. *Discrete Applied Mathematics* **221**, 18-24 (2017)

60. A. D. M. Gunawan, **B. DasGupta** and L. Zhang, A Decomposition Theorem and Two Algorithms for Reticulation-Visible Networks, *Information and Computation* **252**, 161-175 (2017)

59. C.-A. Chou, Z. Liang, W. Chaovalitwongse, T. Y. Berger-Wolf, **B. DasGupta**, S. I. Sheikh, M. V. Ashley and I. C. Caballero, Column Generation Framework of Nonlinear Similarity Model for Reconstructing Sibling Groups. *INFORMS Journal of Computing* **27**(**1**), 35-47 (2015)

58. E. C. Dragut, B. P. Beirne, **B. DasGupta**, A. Neyestani, B. Atassi, C. Yu and W. Meng, Merging Query Results From Local Search Engines for Geo-referenced Objects. *ACM Transactions on the Web* **8**(**4**), 20:1-20:29 (2014)

57. P. Berman, **B. DasGupta**, L. Kaligounder and M. Karpinski, On the Computational Complexity of Measuring Global Stability of Banking Networks. *Algorithmica* **70**(**4**), 595-647 (2014)

56. **B. DasGupta** and L. Kaligounder, On Global Stability of Financial Networks. *Journal of Complex Networks* **2**(**3**), 313-354 (2014)

55. R. Albert, **B. DasGupta** and N. Mobasheri, Topological implications of negative curvature for biological and social networks. *Physical Review E* **89**(**3**), 032811 (2014)

54. **B. DasGupta** and D. Desai, On a Connection Between Small Set Expansions and Modularity Clustering. *Information Processing Letters* **114**(7), 349-352 (2014)

53. S. Aditya, **B. DasGupta** and M. Karpinski, Algorithmic Perspectives of Network Transitive Reduction Problems and their Applications to Synthesis and Analysis of Biological Networks. *Biology* **3**(**1**), 1-21 (2014)

52. R. Albert, **B. DasGupta** and N. Mobasheri, Some perspectives on network modeling in therapeutic target prediction. *Biomedical Engineering and Computational Biology* **5**, 17-24 (2013)

51. **B. DasGupta** and S. Muthukrishnan, Stochastic Budget Optimization in Internet Advertising. *Algorithmica* **65**(**3**), 634-661 (2013)

50. **B. DasGupta** and D. Desai, Complexity of Newman's Community Finding Approach for Social Networks. *Journal of Computer & System Sciences* **79**, 50-67 (2013)

49. M. Comi, **B. DasGupta**, M. Schapira and V. Srinivasan, On Communication Protocols that Compute Almost Privately. *Theoretical Computer Science* **457**, 45-58 (2012)

48. C.-A. Chou, W. Chaovalitwongse, T. Y. Berger-Wolf, **B. DasGupta** and M. V. Ashley, Capacitated Clustering Problem in Computational Biology: Combinatorial and Statistical Approach for Sibling Reconstruction. *Computers & Operations Research* **39**(**3**), 609-619 (2012)

47. R. Albert, **B. DasGupta**, A. Gitter, G. Gürsoy, R. Hegde, P. Pal, G. S. Sivanathan and E. D. Sontag, A New Computationally Efficient Measure of Topological Redundancy of Biological and Social Networks. *Physical Review E* **84**(**3**), 036117 (2011)

46. S. I. Sheikh, T. Y. Berger-Wolf, A. A. Khokhar, I. C. Caballero, M. V. Ashley, W. Chaovalitwongse, C.-A. Chou and **B. DasGupta**, Combinatorial Reconstruction of Half-sibling Groups from Microsatellite Data. *Journal of Bioinformatics and Computational Biology* **8**(**2**), 337-356 (2010)

45. M. V. Ashley, T. Y. Berger-Wolf, W. Chaovalitwongse, **B. DasGupta**, A. A. Khokhar and S. I. Sheikh, On Approximating An Implicit Cover Problem in Wild Population Study. *Discrete Mathematics, Algorithms and Applications* **2**(**2**), 21-31 (2010)

44. W. Chaovalitwongse, C.-A. Chou, T. Y. Berger-Wolf, **B. DasGupta**, S. I. Sheikh, M. V. Ashley and I. C. Caballero, New Optimization Model and Algorithm for Sibling Reconstruction from Genetic Markers. *INFORMS Journal of Computing* **22**(**2**), 180-194 (2010)

43. M. V. Ashley, T. Y. Berger-Wolf, P. Berman, W. Chaovalitwongse, **B. DasGupta** and M.-Y. Kao, On Approximating Four Covering and Packing Problems. *Journal of Computer & System Sciences* **75**(**5**), 287-302 (2009)

42. M. V. Ashley, I. C. Caballero, W. Chaovalitwongse, **B. DasGupta**, P. Govindan, S. I. Sheikh and T. Y. Berger-Wolf, KINALYZER, A Computer Program for Reconstructing Sibling Groups. *Molecular Ecology Resources* **9**(**4**), 1127-1131 (2009)

41. K. Apichonbancha, **B. Dasgupta**, J. Jun, I. Mandoiu and E. Mendonca, A review of the Primer Approximation Multiplex PCR technique for detecting large-scale cancer genome lesions. *Current Bioinformatics* **4**(**1**), 1-7 (2009)

40. R. Albert, **B. DasGupta**, R. Dondi and E. D. Sontag, Inferring (Biological) Signal Transduction Networks via Transitive Reductions of Directed Graphs. *Algorithmica* **51**(**2**), 129-159 (2008)

39. S. Kachalo, R. Zhang, E. D. Sontag, R. Albert and **B. DasGupta**, NET-SYNTHESIS: A software for synthesis, inference and simplification of signal transduction networks. *Bioinformatics* **24(2)**, 293-295 (2008)
38. P. Berman and **B. DasGupta**, Approximating the Online Set Multicover Problems Via Randomized Winnowing. *Theoretical Computer Science* **393(1-3)**, 54-71 (2008)
37. J. Dundas, T.A. Binkowski, **B. DasGupta** and J. Liang, Topology Independent Protein Structural Alignment. *BMC Bioinformatics* **8**, 388 (2007)
36. P. Berman, **B. DasGupta**, M.-Y. Kao and J. Wang, On Constructing An Optimal Consensus Clustering from Multiple Clusterings. *Information Processing Letters* **104(4)**, 137-145 (2007)
35. P. Berman, **B. DasGupta** and E. D. Sontag, Algorithmic Issues in Reverse Engineering of Protein and Gene Networks via the Modular Response Analysis Method. *Annals of the New York Academy of Sciences* **1115**, 132-141 (2007)
34. R. Albert, **B. DasGupta**, R. Dondi, S. Kachalo, E. D. Sontag, A. Zelikovsky and K. Westbrooks, A Novel Method for Signal Transduction Network Inference from Indirect Experimental Evidence. *Journal of Computational Biology* **14**(7), 927-949 (2007)
33. T. Y. Berger-Wolf, S. I. Sheikh, **B. DasGupta**, M. V. Ashley, I. C. Caballero and S. L. Putrevu, Reconstructing Sibling Relationships in Wild Populations. *Bioinformatics* **23(13)**, i49-i56 (2007)
32. P. Berman, B. DasGupta, D. Mubayi, R. Sloan, G. Turán and Y. Zhang, The Inverse Protein Folding Problem on 2D and 3D Lattices. *Discrete Applied Mathematics* **155 (6-7)**, 719-732 (2007)
31. P. Berman, **B. DasGupta** and E. D. Sontag, Randomized Approximation Algorithms for Set Multicover Problems with Applications to Reverse Engineering of Protein and Gene Networks. *Discrete Applied Mathematics* **155(6-7)**, 733-749 (2007)
30. B. DasGupta, G. A. Enciso, E. D. Sontag and Y. Zhang, Algorithmic and Complexity Results for Decompositions of Biological Networks into Monotone Subsystems. *Biosystems* **90(1)**, 161-178 (2007)
29. W. Chaovalitwongse, T. Y. Berger-Wolf, **B. DasGupta** and M. V. Ashley, Set Covering Approach for Reconstruction of Sibling Relationships. *Optimization Methods and Software* **22(1)**, 11-24 (2007)
28. **B. DasGupta**, J. P. Hespanha, J. Riehl and E. D. Sontag, Honey-pot Constrained Searching with Local Sensory Information. *Nonlinear Analysis: Hybrid Systems and Applications* **65(9)**, 1773-1793 (2006)
27. D. Liu, X. Xiong, **B. DasGupta** and H. Zhang, Motif Discoveries in Unaligned Molecular Sequences Using Self-Organizing Neural Networks. *IEEE Transactions on Neural Networks* **17(4)**, 919-928 (2006)
26. **B. DasGupta**, S. Ferrarini, U. Gopalakrishnan and N. R. Paryani, Inapproximability Results for the Lateral Gene Transfer Problem. *Journal of Combinatorial Optimization* **11(4)**, 387-405 (2006)

25. P. Berman, **B. DasGupta** and M.-Y. Kao, Tight Approximability Results for Test Set Problems in Bioinformatics. *Journal of Computer & System Sciences* **71(2)**, 145-162 (2005)

24. D. Liu, X. Xiong, Z.-G. Hou and **B. DasGupta**, Identification of motifs with insertions and deletions in protein sequences using self-organizing neural networks. *Neural Networks* **18(5-6)**, 835-842 (2005)

23. **B. DasGupta**, K. Konwar, I. Mandoiu and A. Shvartsman, Highly Scalable Algorithms for Robust String Barcoding. *International Journal of Bioinformatics Research & Applications* **1(2)**, 145-161 (2005)

22. **B. DasGupta**, K. Konwar, I. Mandoiu and A. Shvartsman, DNA-BAR: Distinguisher Selection for DNA Barcoding. *Bioinformatics* **21(16)**, 3424-2426 (2005)

21. **B. DasGupta** and B. Hammer, On Approximate Learning by Multi-layered Feedforward Circuits. *Theoretical Computer Science* **348(1)**, 95-127 (2005)

20. P. Berman, P. Bertone, **B. DasGupta**, M. Gerstein, M.-Y. Kao and M. Snyder, Fast Optimal Genome Tiling with Applications to Microarray Design and Homology Search. *Journal of Computational Biology* **11(4)**, 766-785 (2004)

19. P. Berman, **B. DasGupta** and S. Muthukrishnan, Approximation Algorithms For MAX-MIN Tiling. *Journal of Algorithms* **47(2)**, 122-134 (2003)
    (This was one of the top 10 most downloaded article from Journal of Algorithms in 2003)

18. P. Berman, **B. DasGupta** and S. Muthukrishnan, Exact Size of the Binary Space Partitioning and Improved Rectangle Tiling Algorithms. *SIAM Journal of Discrete Mathematics* **15(2)**, 252-267 (2002)

17. F. K. Hwang, Y.-C. Yao and **B. DasGupta**, Some permutation routing algorithms for low dimensional hypercubes. *Theoretical Computer Science* **270(1-2)**, 111-124 (2002)

16. P. Berman, **B. DasGupta**, S. Muthukrishnan and S. Ramaswami, Efficient Approximation Algorithms for Tiling and Packing Problems With Rectangles. *Journal of Algorithms* **41(2)**, 443-470 (2001)

15. **B. DasGupta** and M. A. Palis, Online Real-Time Preemptive Scheduling of Jobs with Deadlines on Multiple Machines. *Journal of Scheduling* **4**, 297-312 (2001)

14. **B. DasGupta** and E. D. Sontag, A Polynomial-Time Algorithm for Checking Equivalence Under Certain Semiring Congruences motivated by the State-space Isomorphism Problem for Hybrid Systems. *Theoretical Computer Science* **262(1)**, 161-189 (2001)

13. X. Cheng, **B. DasGupta** and B. Lu, Polynomial Time Approximation Scheme for the Symmetric Rectilinear Steiner Arborescence Problem. *Journal of Global Optimization* **21(4)**, 385-396 (2001)

12. P. Berman and **B. DasGupta**, Multi-phase Algorithms for Throughput Maximization for Real-Time Scheduling. *Journal of Combinatorial Optimization* **4(3)**, 307-323 (2000)

11. **B. DasGupta**, X. He, T. Jiang, M. Li and J. Tromp, On the Linear-Cost Subtree-Transfer Distance between Phylogenetic Trees. *Algorithmica* **25(2)**, 176-195 (1999)

10. **B. DasGupta** and M. A. Palis, Provably Good Algorithms for Transmission Scheduling in WDM Optical Networks. *Journal of Parallel and Distributed Computing* **57(3)**, 345-357 (1999)
9. G. J. Chang, **B. DasGupta**, W. M. Dymàcek, M. Fürer, M. Koerlin, Y.-S. Lee and T. Whaley, Characterizations of Bipartite Steinhaus Graphs. *Discrete Mathematics* **199(1-3)**, 1-25 (1999)
8. **B. DasGupta**, T. Jiang, S. Kannan, M. Li and E. Sweedyk, On the Complexity and Approximation of Syntenic Distance. *Discrete Applied Mathematics* **88(1-3)**, 59-82 (1998)
7. P. Gupta, R. Janardan, M. Smid and **B. DasGupta**, The rectangle enclosure and point-dominance problems revisited. *International Journal of Computational Geometry and Applications* 7**(5)**, 437-455 (1997)
6. P. Berman and **B. DasGupta**, On the Complexities of Efficient Solutions of the Rectlinear Polygon Cover Problems. *Algorithmica* **17(4)**, 331-356 (1997)
5. **B. DasGupta** and E. D. Sontag, Sample Complexity for Learning Recurrent Perceptron Mappings. *IEEE Transactions on Information Theory* **42(5)**, 1479-1487 (1996)
4. **B. DasGupta** and G. Schnitger, Analog versus Discrete Neural Networks. *Neural Computation* **8(4)**, 805-818 (1996)
3. **B. DasGupta**, H. T. Siegelmann and E. D. Sontag, On the Complexity of Training Neural Networks with Continuous Activation Functions. *IEEE Transactions on Neural Networks* **6(6)**, 1490-1504 (1995)
2. S. Pal, **B. DasGupta** and C.E. Veni Madhavan, Optimal Polygon Placement by Translation. *International Journal of Computer Mathematics* **52**, 139-148 (1994)
1. **B. DasGupta** and C.E. Veni Madhavan, An Approximate Algorithm for the Minimal Vertex Nested Polygon Problem. *Information Processing Letters* **33(1)**, 35-44 (1989)

Chapters in edited books (reverse chronological order)

30. R. Albert, N. Azarhooshang, T. Chatterjee, **B. DasGupta**, P. Sengupta, A. Agarwal and G. Kankariya, On analyzing networks via curvature measures: review of methodologies and applications, to appear in *Convex and Variational Analysis with Applications: In Honor of Terry Rockafellar's* 90^{th} *Birthday*, P. M. Pardalos and Th. M. Rassias (eds.), Springer (2025)
29. T. Chatterjee, **B. DasGupta** and R. Albert, A review of two network curvature measures, in *Nonlinear Analysis and Global Optimization*, Th. M. Rassias, and P. M. Pardalos (eds.), Springer Optimization and Its Applications series 167, 51-69, Springer (2021)
28. N. Mobasheri, T. Chatterjee, and **B. DasGupta**, A review of several privacy violation measures for large networks under active attacks, in *Security and Privacy From a Legal, Ethical, and Technical Perspective*, C. Kalloniatis and C. M. Travieso-Gonzalez (eds.), IntechOpen publisher (2020)
27. **B. DasGupta** and V. Srinivasan, A Review of Several Optimization Problems Related to Security in Networked System, in *Operations Research, Engineering, and Cyber Security:*

Trends in Applied Mathematics and Technology, N. J. Daras and Th. M. Rassias (eds.), Springer Optimization and Its Applications series 113, 155-166, Springer (2017)

26. S. Behpour and **B. DasGupta**, Algorithmic Perspectives of the String Barcoding Problems, in *Pattern Recognition in Computational Molecular Biology: Techniques and Approaches*, M. Elloumi, C. S. Iliopoulos, J. T. L. Wang and A. Y. Zomaya (eds.), Wiley Book Series on Bioinformatics: Computational Techniques and Engineering, 28-42, John Wiley & Sons (2015)
25. **B. DasGupta** and L. Kaligounder, Densely Entangled Financial Systems, in *Network Models in Economics and Finance*, V. Kalyagin, P. M. Pardalos and Th. M. Rassias (eds.), Springer Optimization and Its Applications series **100**, 85-105, Springer (2014)
24. **B. DasGupta** and V. Srinivasan, A review of some approximate privacy measures of multi-agent communication protocols, in *Frontiers of Intelligent Control and Information Processing*, D. Liu, C. Alippi, D. Zhao, and H. Zhang (eds.), Chapter 10, 267-283, World Scientific Publishing (2014)
23. **B. DasGupta**, Computational Complexities of Optimization Problems Related to Model Based Clustering of Networks, in *Optimization in Science and Engineering–in Honor of the 60$^{\text{th}}$ Anniversary of Birth of Panos Pardalos*, S. Butenko, C. Floudas and Th. M. Rassias (eds.), 97-113, Springer (2014)
22. **B. DasGupta**, J. Dundas and J. Liang, Algorithmic Methodologies for Discovery of Non-sequential Protein Structure Similarities, in *Algorithmic and Artificial Intelligence Methods for Protein Bioinformatics*, 1$^{\text{st}}$ edition, Chapter 15, Y. Pan, J. Wang and M. Li (eds.), Wiley book series on Bioinformatics, 299-316, John Wiley & Sons (2013)
21. **B. DasGupta** and L. Kaligounder, A Survey on Fingerprint Classification Methods for Biological Sequences, in *Biological Knowledge Discovery Handbook: Preprocessing, Mining and Postprocessing of Biological Data*, 1$^{\text{st}}$ edition, A. Zomaya and M. Elloumi (eds.), Chapter 28, 645-655, John Wiley & Sons (2013)
20. **B. DasGupta** and D. Liu, Approximate learning of dynamic models/systems, in *Encyclopedia of the Sciences of Learning*, N. Seel (ed.), Part 1, 291-293, Springer (2012)
19. J. Dundas, **B. DasGupta** and J. Liang, Sequence Order Independent Comparison of Protein Global Backbone Structures and Local Binding Surfaces for Evolutionary and Functional Inference, in *Protein Function Prediction for Omics Era*, D. Kihara (ed.), 125-143, Springer (2011)
18. **B. DasGupta**, M.-Y. Kao and I. Mandoiu, Algorithmic Issues in DNA Barcoding Problems, in *Algorithms in Computational Molecular Biology: Techniques, Approaches and Applications*, Chapter 7, M. Elloumi and A. Zomaya (eds.), John Wiley & Sons (2011)
17. **B. DasGupta**, P. Vera-Licona and E. D. Sontag, Reverse Engineering of Molecular Networks from a Common Combinatorial Approach, in *Algorithms in Computational Molecular Biology: Techniques, Approaches and Applications*, Chapter 40, M. Elloumi and A. Zomaya (eds.), John Wiley & Sons (2011)

16. R. Albert, **B. DasGupta** and E. D. Sontag, Inference of signal transduction networks from double causal evidence, in *Methods in Molecular Biology: Topics in Computational Biology* **673**, D. Fenyo (ed.), Chapter 16, Springer (2010)

15. M. V. Ashley, T. Y. Berger-Wolf, I. C. Caballero, W. Chaovalitwongse, **B. DasGupta** and S. I. Sheikh, Full Sibling Reconstructions in Wild Populations From Microsatellite Genetic Markers, in *Computational Biology: New Research*, A. S. Russe (ed.), 231-258, Nova Science Publishers (2009)

14. **B. DasGupta** and L. Wang, Biology Computing, in *Wiley Encyclopedia of Computer Science and Engineering* **1**, B. W. Wah (ed.), 336-346, John Wiley & Sons (2009)

13. **B. DasGupta**, X. He, T. Jiang, M. Li, J. Tromp and L. Zhang, Nearest Neighbor Interchange and Related Distances, in *Encyclopedia of Algorithms*, M.-Y. Kao (ed.), 573-576, Springer (2008)

12. **B. DasGupta** and M.-Y. Kao, Efficient combinatorial algorithms for DNA sequence processing, in *Bioinformatics Algorithms: Techniques and Applications*, Wiley Book Series on Bioinformatics: Computational Techniques and Engineering, A. Zelikovsky and I. Mandoiu (eds.), 223-239, John Wiley & Sons (2008)

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Some media coverage stuff

▷ *Adding fake accounts to networks can make them less vulnerable to privacy violations*, **UIC Science Blog, 10/02/2018**

Softwares

see http://bdasgup.github.io/professional/software.html for more details

- Software to analyze functional correlations between brain regions to identify changes in their structure caused by Attention Deficit Hyperactivity Disorder
- Software to "un-gerrymander" a gerrymandered US political districting map via minimizing the efficiency gap measure
- **FIN-STAB** an interactive software for shock simulator for financial networks
- **DNA-BAR** Distinguisher Selection for Robust DNA Barcoding
- Software for decomposing a biological network into monotone subsystems
- **NET-SYNTHESIS** a software for synthesis of biological signal transduction networks from indirect experimental evidences
- **KINALYZER** A Computer Program for Reconstructing Sibling Groups
- **CPalign** Software and web server for topology independent protein structural alignment
- Software for causal network inference via set-covering method

TEACHING ASSIGNMENTS AND EVALUATIONS reverse chronological

University of Illinois at Chicago

Semester & Year	Course number and title	Enrollment	Overall comparisons (Max=5)	
F Fall S Spring			Teaching effectiveness	Teaching quality
S 2025	**Sabbatical leave**			
F 2024	CS 301: *Languages and Automata*	145	**4.01**	**4.01**
S 2024	CS 401: *Computer Algorithms I*	92	**4.28**	**4.36**
F 2023	CS 506: *Introduction to Quantum Computing*	33	**4.57**	**4.52**
F 2023	CS 401: *Computer Algorithms I*	85	**4.38**	**4.37**

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Semester & Year	Course number and title	Enrollment	Overall comparisons (Max=5)	
F Fall S Spring			Teaching effectiveness	Teaching quality
S 2023	CS 401: *Computer Algorithms I*	69	**4.70**	4.74
F 2022	CS 506: *Introduction to Quantum Computing*	32	**4.86**	4.77
F 2022	CS 401: *Computer Algorithms I*	60	**4.67**	4.72
S 2022	CS 301: *Languages and Automata*	56	**4.33**	4.13
F 2021	CS 502: *Design and Analysis of Efficient Algorithms in Computational Molecular Biology*	29	**4.80**	4.50
F 2021	CS 401: *Computer Algorithms I*	68	**4.38**	4.61
S 2021	CS 506: *Introduction to Quantum Computing*	34	**4.30**	4.30
F 2020	CS 503: *Applied Graph Theory*	31	**4.75**	4.78
S 2020	CS 594: *Randomized Techniques for Designing Algorithms and Proving Lower Bounds*	25	**4.67**	4.71
S 2020	CS 506: *Introduction to Quantum Computing*	32	**4.52**	4.59
F 2019	CS 501: *Computer Algorithms II*	30	**4.59**	4.59
S 2019	CS 506: *Introduction to Quantum Computing*	32	**4.70**	4.50
S 2019	CS 401: *Computer Algorithms I*	102	**4.32**	4.29
F 2018	CS 501: *Computer Algorithms II*	29	**4.57**	4.48
S 2018	CS 506: *Introduction to Quantum Computing*	21	**4.25**	4.19
S 2018	CS 401: *Computer Algorithms I*	108	**3.94**	3.81
F 2017	CS 301: *Languages and Automata*	166	**4.18**	4.03
S 2017	CS 594: *Introduction to Quantum Computing*	30	**4.39**	4.30
F 2016	CS 401: *Computer Algorithms I*	50	**4.25**	4.25
F 2016	CS 151: *Mathematical Foundations of Computing*	183	**3.78**	3.69
S 2016	CS 501: *Computer Algorithms II*	34	**4.68**	4.70
F 2015	**Sabbatical leave**			
S 2015	CS 501: *Computer Algorithms II*	24	**4.31**	4.31
S 2015	CS 502: *Design and Analysis of Efficient Algorithms in Computational Molecular Biology*	30	**4.31**	4.25
F 2014	CS 501: *Computer Algorithms II*	30	**4.33**	4.29
S 2014	CS 502: *Design and Analysis of Efficient Algorithms in Computational Molecular Biology*	26	**4.70**	4.26
S 2014	CS 501: *Computer Algorithms II*	28	**4.37**	4.32
F 2013	CS 501: *Computer Algorithms II*	30	**4.60**	4.32
S 2013	CS 502: *Design and Analysis of Efficient Algorithms in Computational Molecular Biology*	28	**4.45**	4.74
F 2012	CS 401: *Computer Algorithms I*	66	**3.85**	3.98
F 2012	CS 501: *Computer Algorithms II*	28	**4.13**	4.19
S 2012	CS 502: *Design and Analysis of Efficient Algorithms in Computational Molecular Biology*	26	**4.50**	4.30

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Semester & Year	Course number and title	Enrollment	Overall comparisons (Max=5)	
F Fall S Spring			Teaching effectiveness	Teaching quality
S 2012	CS 501: *Computer Algorithms II*	28	**4.35**	**4.43**
F 2011	CS 501: *Computer Algorithms II*	30	**4.33**	**4.70**
S 2011	CS 401: *Computer Algorithms I*	45	**4.23**	**4.47**
F 2010	CS 401: *Computer Algorithms I*	47	**4.05**	**4.38**
F 2010	CS 501: *Computer Algorithms II*	32	**3.80**	**4.00**
S 2010	CS 502: *Design and Analysis of Efficient Algorithms in Computational Molecular Biology*	29	**4.54**	**4.69**
F 2009	CS 501: *Computer Algorithms II*	28	**4.28**	**4.45**
F 2009	CS 301: *Languages and Automata*	36	**4.39**	**4.78**
S 2009	**Sabbatical leave**			
F 2008	**Sabbatical leave**			
S 2008	CS 502: *Design and Analysis of Efficient Algorithms in Computational Molecular Biology*	10	**4.00**	**4.50**
F 2007	CS 301: *Languages and Automata*	35	**4.45**	**4.55**
F 2007	CS 201: *Discrete Structures I*	59	**3.62**	**4.03**
S 2007	CS 401: *Computer Algorithms I*	19	**3.93**	**3.93**
S 2007	CS 502: *Design and Analysis of Efficient Algorithms in Computational Molecular Biology*	19	**4.39**	**4.72**
F 2006	CS 501: *Computer Algorithms II*	24	**4.59**	**4.71**
S 2006	CS 201: *Discrete Structures I*	39	**3.45**	**3.82**
F 2005	CS 201: *Discrete Structures I*	38	**3.94**	**4.06**
F 2004	CS 401: *Computer Algorithms I*	30	**4.41**	**4.63**
F 2004	CS 501: *Computer Algorithms II*	22	**4.71**	**4.76**
S 2004	CS 502: *Design and Analysis of Efficient Algorithms in Computational Molecular Biology*	27	**4.20**	**4.32**
F 2003	CS 401: *Computer Algorithms I*	32	**3.94**	**4.00**
S 2003	CS 501: *Computer Algorithms II*	20	**4.41**	**4.59**
F 2002	CS 401: *Computer Algorithms I*	53	**3.89**	**4.18**
S 2002	CS 594: *Introduction to Computational Molecular Biology*	34	**4.21**	**4.38**
F 2001	CS 401: *Computer Algorithms I*	60	**3.86**	**4.14**

Rutgers University at Camden

(all courses taught at RU-Camden are at undergraduate level)

Semester & Year			Overall comparisons (Max=5)			
F Fall			Teaching evaluation		Course quality	
S Spring Su Summer	Course title	Enrollment	instructor	dept. mean	instructor	dept. mean
S 2001	*Introduction to Computer Science using C++*	50	4.55	4.20	4.30	4.10
F 2000	*Design and Analysis of Algorithms*	27	4.00	3.86	3.95	3.85
F 2000	*Introduction to Computer Science using C++* (Section 1)	35	3.79	3.86	3.63	3.85
F 2000	*Introduction to Computer Science using C++* (Section 2)	31	3.53	3.86	3.56	3.85
S 2000	*Design and Analysis of Algorithms*	32	3.88	4.02	3.80	3.93
S 2000	*Senior Design Project*	3	—	—	—	—
F 1999	**Sabbatical leave**					
S 1999	*Design and Analysis of Algorithms*	17	4.18	4.12	4.20	4.09
S 1999	*Computer Organization and Assembly Language*	38	3.48	4.12	3.45	4.09
F 1998	*Design and Analysis of Algorithms*	30	—	—	—	—
F 1998	*Introduction to Unix O/S*	11	4.13	4.09	4.14	4.04
F 1998	*Introduction to Programming Methods Using FORTRAN*	11	4.60	4.09	4.20	4.04
Su 1998	*Advanced C and Unix*	14	3.57	4.15	3.43	3.98
Su 1998	*Introduction to Programming Using C*	30	—	—	—	—
S 1998	*Introduction to Programming Methods Using FORTRAN*	26	3.40	3.89	3.20	3.86
S 1998	*Advanced C and Unix*	35	—	—	—	—
F 1997	*Introduction to Programming Methods Using FORTRAN*	10	—	—	—	—
F 1997	*Design and Analysis of Algorithms*	25	—	—	—	—
F 1997	*Data Structures*	35	—	—	—	—
Su 1997	*Advanced C and Unix*	13	4.30	4.17	4.20	4.10
Su 1997	*Introduction to Programming Using C*	24	4.08	4.17	4.13	4.10
S 1997	*Design and Analysis of Algorithms*	33	4.26	3.81	3.84	3.72
S 1997	*Introduction to Programming Using C*	43	3.85	3.81	3.80	3.72
S 1997	*Introduction to Programming Methods Using FORTRAN*	29	3.77	3.81	3.77	3.72
F 1996	*Introduction to Computer Science using C* (Section 1)	34	3.44	4.05	3.28	3.97
F 1996	*Introduction to Computer Science using C* (Section 40)	15	3.92	4.06	4.00	3.97

Editorial responsbility

13. **Associate editor**, *Discrete Mathematics, Algorithms and Applications* 10/2008–present
12. **Member of editorial board**, *BioMed Research International* 10/2019–03/2022
11. **Member of editorial board**, *Biomedical Engineering and Computational Biology* 12/2009–10/2021
10. **Editorial advisory board**, *The Open Bioinformatics Journal* 12/2009–12/2015, 02/2021–present
9. **Member of editorial board**, *Advances in Bioinformatics* 01/2008–10/2019
8. **Area editor**, *Encyclopedia of Algorithms*, 2nd edition, Springer

7. **Member of editorial board**, *New Journal of Science* 05/2013–07/2017
6. **Member of editorial board**, *International Journal of Data Mining and Bioinformatics* 09/2009–12/2018
5. **Associate editor**, *IEEE Transactions on Neural Networks* 07/2009–12/2010
4. **Member of editorial board**, *Theoretical Biology Insights* 03/2008–03/2015
3. **Guest editor** (with H. Al-Mubaid and F. Saeed) of a special issue of *Journal of Bioinformatics and Computational Biology* 10/2014
2. **Guest editor** (with H. Al-Mubaid and F. Saeed) of a special issue of *Journal of Bioinformatics and Computational Biology* 10/2013
1. **Guest editor** (with P. Berman and J. Liang) of a special issue of *Algorithmica* 08/2007

Services and Outreach

Workshop organizer

- (with J. Liang) DIMACS Workshop on Information Processing by Protein Structures in Molecular Recognition (2005)

Conference Chair (reverse chronological order)

15. **Workshop co-Chair**, 8^{th} ACM Conference on Bioinformatics, Computational Biology & Health Informatics (2017)
14. **Program Co-Chair**, 6^{th} International Conference on Bioinformatics & Computational Biology (2014)
13. **Best Student Paper Competition Chair**, IEEE World Congress on Computational Intelligence (2014)
12. **Organizing Committee co-Chair**, International Conference on Brain Inspired Cognitive Systems (2013)
11. **Program Co-Chair**, 5^{th} International Conference on Bioinformatics & Computational Biology (2013)
10. **Plenary Sessions co-Chair**, 9^{th} International Symposium on Neural Networks (2012)
9. **Program co-Chair**, International Symposium on Neural Networks (2011)
8. **Co-Chair of Cross-Cutting Computational Methods & Bioinformatics Infrastructure track**, IEEE International Conference on Bioinformatics & Biomedicine (2009)
7. **Finance Chair**, IEEE/INFORMS International Conference on Service Operations, Logistics & Informatics (2009)
6. **Workshop co-Chair**, 9^{th} IEEE International Conference on Bioinformatics & Bioengineering (2009)
5. **Finance chair**, IEEE International Conference on Networking, Sensing & Control (2008)
4. **Registration co-Chair**, 4^{th} International Symposium on Neural Networks (2007)
3. **Co-Chair of Algorithm & software system for bioinformatics technical track of the Computational Biology & Bioinformatics theme**, 28^{th} International Conference of IEEE Engineering in Medicine & Biology Society (2006)
2. **Co-Chair of Algorithm & software system for bioinformatics technical track of the Computational Biology & Bioinformatics theme**, 27^{th} International Conference of IEEE Engineering in Medicine & Biology Society (2005)

1. **Co-Chair of Algorithm & software system for bioinformatics technical track of the Computational Biology & Bioinformatics theme**, 26^{th} International Conference of IEEE Engineering in Medicine & Biology Society (2004)

Workshop advisory board

- International Workshop on ANN & Elusive Machine Intelligence (2010)

Tutorial for students

- Tutorial on **Systems Biology** to selected undergraduate and graduate students in 5^{th} *International Summer School on Biocomplexity from System to Gene* 06/2005

Conference program committee membership (reverse chronological order)

118. 18^{th} International Workshop on Biomedical and Bioinformatics Challenges for Computer Science (2025)
117. 30^{th} International Computing & Combinatorics Conference (2024)
116. 18^{th} Annual Conference on Theory and Applications of Models of Computation (2024)
115. 29^{th} International Conference on Computing & Combinatorics (2023)
114. 16^{th} Workshop on Biomedical & Bioinformatics Challenges for Computer Science (2023)
113. 15^{th} Great Lakes Bioinformatics conference (2023)
112. 28^{th} International Conference on Computing & Combinatorics (2022)
111. 15^{th} Workshop on Biomedical & Bioinformatics Challenges for Computer Science (2022)
110. 9^{th} International Work-Conference on Bioinformatics & Biomedical Engineering (2022)
109. 15^{th} International Conference on Algorithmic Aspects in Information & Management (2021)
108. 10^{th} International Conference on Complex Networks and their Applications (2021)
107. 15^{th} International Conference on Combinatorial Optimization & Applications (2021)
106. 1^{st} International Applied Bioinformatics Conference (2021)
105. 14^{th} Great Lakes Bioinformatics conference (2021)
104. 14^{th} International Conference on Combinatorial Optimization & Applications (2020)
103. 26^{th} International Conference on Computing & Combinatorics (2020)
102. 9^{th} International Conference on Complex Networks and their Applications (2020)
101. International Conference on Computational Science (2020)
100. 46^{th} International Conference on Current Trends in Theory & Practice of Computer Science (2020)
99. 8^{th} International Conference on Complex Networks and their Applications (2019)
98. Foundations of Algorithmic Computational Biology track, 46^{th} International Conference on Current Trends in Theory and Practice of Computer Science (2019)
97. IEEE International Conference on Bioinformatics & Biomedicine (2019)
96. 7^{th} International Work-Conference on Bioinformatics & Biomedical Engineering (2019)
95. International Conference on Computational Science (2019)
94. Great Lakes Bioinformatics Conference (2019)
93. 10^{th} International Workshop on Biological Knowledge Discovery from Big Data (2019)
92. Distributed Algorithms and Theory track, 39^{th} IEEE International Conference on Dis-

tributed Computing System (2019)

91. 25th International Conference on Computing & Combinatorics (2019)
90. 13th International Conference on Algorithmic Aspects in Information & Management (2018)
89. IEEE International Conference on Bioinformatics & Biomedicine (2018)
88. 7th International Conference on Complex Networks and their Applications (2018)
87. 6th International Work-Conference on Bioinformatics & Biomedical Engineering (2018)
86. 11th Workshop on Biomedical & Bioinformatics Challenges for Computer Science (2018)
85. 24th International Conference on Computing & Combinatorics (2018)
84. 29th International Workshop on Combinatorial Algorithms (2018)
83. IEEE International Conference on Bioinformatics & Biomedicine (2017)
82. 9th International Conference on Social Informatics (2017)
81. 6th International Conference on Complex Networks and their Applications (2017)
80. International School and Conference on Network Science (2017)
79. 8th International Workshop on Biological Knowledge Discovery & Data Mining (2017)
78. 5th International Work-Conference on Bioinformatics & Biomedical Engineering (2017)
77. 7th ACM Conference on Bioinformatics, Computational Biology & Health Informatics (2016)
76. IEEE International Conference on Bioinformatics & Biomedicine (2016)
75. 10th International Conference on Combinatorial Optimization & Applications (2016)
74. 7th International Workshop on Biological Knowledge Discovery & Data Mining (2016)
73. 22nd International Conference on Computing & Combinatorics (2016)
72. 11th International Conference on Algorithmic Aspects in Information & Management (2016)
71. IEEE Symposium on Foundations of Computational Intelligence (2015)
70. 9th International Conference on Combinatorial Optimization & Applications (2015)
69. IEEE International Conference on Bioinformatics & Biomedicine (2015)
68. 6th International Workshop on Biological Knowledge Discovery & Data Mining (2015)
67. 8th Workshop on Biomedical & Bioinformatics Challenges for Computer Science (2015)
66. 8th International Conference on Combinatorial Optimization & Applications (2014)
65. IEEE International Conference on Bioinformatics & Biomedicine (2014)
64. 4th IEEE International Conference on Computational Advances in Bio & medical Sciences (2014)
63. 20th International Computing & Combinatorics Conference (2014)
62. 1st International Conference on Algorithms for Computational Biology (2014)
61. International Conference on Applied Algorithms (2014)
60. IEEE International Conference on Bioinformatics & Biomedicine (2013)
59. 7th International Conference on Combinatorial Optimization & Applications (2013)
58. 11th Brazilian Congress on Computational Intelligence & 1st BRICS School on Computational Intelligence (2013)
57. 3rd IEEE International Conference on Computational Advances in Bio & medical Sciences

(2013)

56. Protein Structure & Function area, 21st International Conference on Intelligent Systems for Molecular Biology & 12th European Conference on Computational Biology (2013)
55. IASTED International Conference on Advances in Computer Science & Engineering (2013)
54. 23rd International Conference on Genome Informatics (2012)
53. International Symposium on Network Enabled Health Informatics, Biomedicine & Bioinformatics (2012)
52. 23rd International Symposium on Algorithms & Computation (2012)
51. IEEE International Conference on Bioinformatics & Biomedicine (2012)
50. 8th International Symposium on Bioinformatics Research & Applications (2012)
49. International Conference on Networking Sensing & Control (2012)
48. 7th IASTED International Conference on Advances in Computer Science & Engineering (2012)
47. 4th International Conference on Bioinformatics & Computational Biology (2012)
46. 2nd IEEE International Conference on Computational Advances in Bio & Medical Sciences (2012)
45. Foundations of Computer Science track, 38th International Conference on Current Trends in Theory & Practice of Computer Science (2012)
44. IEEE International Conference on Bioinformatics & Biomedicine (2011)
43. 5th International Conference on Combinatorial Optimization & Applications (2011)
42. 6th International Conference on Future Information Technology (2011)
41. 7th International Conference on Algorithmic Aspects in Information & Management (2011)
40. 7th International Symposium on Bioinformatics Research & Applications (2011)
39. 3rd International Conference on Bioinformatics & Computational Biology (2011)
38. IEEE/ICNSC International Conference on Networking Sensing & Control (2011)
37. IEEE Symposium on Foundations of Computational Intelligence (2011)
36. 10th Workshop on Algorithms in Bioinformatics (2010)
35. IEEE International Conference on Bioinformatics & Biomedicine (2010)
34. 8th International Bioinformatics Workshop (2010)
33. 6th International Symposium on Bioinformatics Research & Applications (2010)
32. Algorithms & Bioinformatics Track, ACS/IEEE International Conference on Computer Systems & Applications (2010)
31. Bioinformatics & Bio-Inspired Computing track, FutureTech (2010)
30. IEEE International Conference of Networking, Sensing & Control (2010)
29. 2nd International Conference on Bioinformatics & Computational Biology (2010)
28. IASTED International Conference on Advances in Computer Science & Engineering (2010)
27. 20th International Symposium on Algorithms & Computation (2009)
26. 20th International Conference on Genome Informatics (2009)

25. 5th International Symposium on Bioinformatics Research & Applications (2009)
24. 3rd International Frontiers of Algorithmics Workshop (2009)
23. 8th Computational Systems Bioinformatics Conference (2009)
22. 15th International Conference on Computing & Combinatorics (2009)
21. 1st International Conference on Bioinformatics & Computational Biology (2009)
20. IASTED International Conference on Computational Biology & Bioinformatics (2008)
19. 19th International Conference on Genome Informatics (2008)
18. IEEE International Conference on Bioinformatics & Biomedicine (2008)
17. International Conference on Wireless Algorithms, Systems & Application (2008)
16. 4th International Symposium on Bioinformatics Research & Applications (2008)
15. 2nd International Frontiers of Algorithmics Workshop (2008)
14. 3rd International Conference on Algorithmic Aspects in Information & Management (2007)
13. International Symposium on Bioinformatics Research & Applications (2007)
12. IEEE International Conference On Networking, Sensing & Control (2007)
11. IASTED International Conference on Computational & Systems Biology (2006)
10. 18th IEEE International Conference on Tools with Artificial Intelligence (2006)
9. 2nd International Workshop on Bioinformatics Research & Applications (2006)
8. IEEE International Conference on Networking, Sensing & Control (2006)
7. 4th Asia Pacific Bioinformatics Conference (2006)
6. 17th IEEE International Conference on Tools with Artificial Intelligence (2005)
5. Intelligent Systems in Design & Manufacturing VI (2005)
4. 11th International Computing & Combinatorics Conference (2005)
3. International Workshop on Bioinformatics Research & Applications (2005)
2. 16th IEEE International Conference on Tools with Artificial Intelligence (2004)
1. 2nd International Workshop on Biological Data Management (2004)

Local organizing committee

- ACM Symposium on Theory of Computing (2004)

NIH study section involvement

- NIH study section *Small Business: Computational, Modeling, and Biodata Management* [IMST(14)]
- NIH study section *Biomedical Computing and Health Informatics* [BCHI]

Other review panel activities

- Reviewer for many NSF panels
- Reviewer for the European Commission

Selected Invited Presentations

Keynote speech

- **Models and Algorithmic Tools for Computational Processes in Cellular Biology: Recent Developments and Future Directions**, International Symposium on Bioinformatics Research & Applications, Dallas, TX 05/2012

Other presentations

34. **Removing partisan bias in redistricting: computational complexity meets the science of gerrymandering**
    - ▶ Combinatorics and Complexity Seminar, Department of Mathematics, UCLA, Los Angeles, CA 12/2020
33. **On the Computational Complexities of Three Privacy Measures for Large Networks Under Active Attack**
    - ▶ 9^{th} Slovenian Conference on Graph Theory, Bled, Slovenia 06/2019
32. **Synthesis, Simplification and Analysis of Biological Networks Using Higher Order Topological Connectivities**
    - ▶ Network biology workshop, Simons Institute for the Theory of Computing, UC Berkeley, Berkeley, CA 04/2016
31. **On optimal approximability results for computing the strong metric dimension**
    - ▶ Minisymposium on metric dimension and related parameters, 8^{th} Slovenian International Conference on Graph Theory, Kranjska Gora, Slovenia 06/2015
30. **Topological implications of negative curvature for biological networks**
    - ▶ Protein Network Workshop, National University of Singapore, Singapore 06/2015
    - ▶ 2018 IEEE 8^{th} International Conference on Computational Advances in Bio and medical Sciences, Dallas, TX 10/2018
29. **Topological implications of negative curvature for biological and social networks**
    - ▶ Applied Mathematics and Computational Science, University of Pennsylvania, Philadelphia, PA 10/2014
    - ▶ Department of Physics, Pennsylvania State University, University Park, PA 11/2014
    - ▶ Lewis-Sanger Institute for Integrative Genomics, Princeton University, NJ 12/2014
28. **On Measuring and Evaluating Global Stability of Financial Networks**
    - ▶ Department of Computer Science, Illinois Institute of Technology, Chicago, IL 04/2013
    - ▶ DIMACS/CS Light Seminar, Rutgers University, New Brunswick, NJ 10/2014
27. **Models and Algorithmic Tools for Computational Processes in Cellular Biology: Recent Developments and Future Directions**
    - ▶ Chinese Academy of Sciences, Beijing, China 07/2012
    - ▶ Northwestern Polytechnical University, Xi′an, China 07/2012
26. **Global Stability of Banking Networks Against Financial Contagion: Measures, Evaluations and Implications**
    - ▶ Annual Meeting of the Canadian Applied and Industrial Mathematics Society, Toronto, Canada 06/2012
25. **Synthesizing and Simplifying Biological Networks from Pathway Level Information**
    - ▶ SIAM Conference on Applications of Dynamical Systems, Utah 05/2011
    - ▶ IEEE International Conference on Bioinformatics & Biomedicine, Washington

D.C. 11/2009
- Carnegie Mellon University, Pittsburgh, PA 10/2009
- University of Pennsylvania, Philadelphia, PA 03/2009

24. **On approximating quadratic optimization problems in modularity clustering and stochastic budget optimization**
    - Workshop in Graph Theory and Combinatorics in memory of Uri Peled, Department of Mathematics, Statistics and Computer Science, University of Illinois at Chicago 02/2010
23. **Transitive reduction problems on graphs and Horn formula optimization problems**
    - Johann Wolfgang Goethe-Universität Frankfurt, Germany 06/2009
    - Columbia University, New York 04/2009
    - DIMACS/CS Light Seminar, Rutgers University, New Brunswick, NJ 12/2008
22. **Signal Transduction Network Inference from Double Causal Experimental Evidence**
    - INFORMS Annual meeting, Washington D.C. 10/2008
    - Illinois Institute of Technology, Chicago, IL 10/2007
    - Pennsylvania State University, University Park, PA 07/2007
21. **Randomized approximations for offline and online set-multicover problems**
    - University of Maryland, College Park, MD 10/2008
    - Universität Bonn, Bonn, Germany 01/2008
    - Toyota Technological Institute at Chicago, Chicago, IL 03/2006
20. **Synthesizing and Minimizing Signal Transduction (and Social) Networks**
    - DyDAn Homeland Security Seminar, Rutgers University, New Brunswick, NJ 10/2008
    - Mount Sinai School of Medicine, New York 09/2008
    - Rutgers University, New Brunswick, NJ 09/2008
19. **Approximating Four Covering & Packing Problems with applications to Bioinformatics**
    - University of Toronto, Toronto, Canada 07/2008
    - University of Waterloo, Waterloo, Canada 07/2008
18. **Reverse Engineering of Networks Via the Modular Response Analysis Method**
    - Networks: Biological, Social and Internet Workshop, SIAM Annual Meeting, San Diego, CA 07/2008
17. **A Novel Method for Signal Transduction Network Inference from Indirect Experimental Evidence**
    - 1st Bertinoro Systems Biology Meeting, Italy 05/2007
    - DIMACS Workshop on Discrete Mathematical Problems in Computational Biomedicine, Rutgers University, New Brunswick, NJ 04/2007
    - Università Degli Studi di Milano-Bicocca, Italy 05/2007
16. **Randomized Approximation Algorithms for Set Multicover Problems with Applications to Reverse Engineering of Protein and Gene Networks**

- ▶ Minisymposium on Identifiability and Inference in Biochemical Pathways, SIAM Conference on Life Sciences, Montreal, Canada 08/2006
- ▶ Symposium on Computational Science of Biomolecules: Applications in Medicine and Therapeutics, University of Illinois at Chicago 10/2004

15. **Grouped String Barcoding and related problems**
    - ▶ DIMACS Workshop on Combinatorial Group Testing, Rutgers University, New Brunswick, NJ 05/2006
14. **Inferring (Biological) Signal Transduction Networks via Transitive Reductions of Directed Graphs**
    - ▶ University of Connecticut, Storrs, CT 04/2006
13. **On Approximate Consistent Labeling of Biological Dynamical Systems**
    - ▶ IEEE-EMBC Satellite Symposium on Bioinformatics and Computational Biology, Shanghai, China 08/2005
12. **Several Geometric Tiling and Packing Problems with Applications**
    - ▶ University of Massachusetts, Amherst, MA 11/2004
    - ▶ University of Wisconsin at Milwaukee, WI 09/2003
    - ▶ Pennsylvania State University, University Park, PA 02/2003
11. **Several Geometric Tiling and Packing Problem With Applications To Nonoverlapping local alignments, DNA microarray designs and Homology Searches**
    - ▶ Illinois Institute of Technology, Chicago, IL 11/2002
10. **Algorithmic Problems Related to Sequences and Phylogentic Trees**
    - ▶ UIC-UIUC Symposium on Bioinformatics in Medicine and Biology, Chicago, IL 04/2002
9. **Throughput Maximization Problems in Real-time Scheduling**
    - ▶ University of Osnabrück, Germany 11/2000
    - ▶ Yale University, New Haven, CT 01/2000
8. **On Approximate Learning by Multi-layered Feedforward Circuits**
    - ▶ NeuroCOLT Workshop on New Perspectives in the Theory of Neural Nets, Graz, Austria 05/2000
7. **On Computing Distances Between Evolutionary Trees**
    - ▶ DIMACS Workshop on Discrete Mathematical Problems and Medical Applications, Rutgers University, New Brunswick, NJ 12/1999
    - ▶ DIMACS Workshop on Computational Biology as part of the 50^{th} Anniversary for ENIAC, Princeton University, NJ 05/1996
6. **Provably Good Algorithms for Transmission Scheduling in WDM Optical Networks**
    - ▶ University of Waterloo, Waterloo, Canada 07/1999
5. **Complexity of Algorithms (in Segmented-Channel Routing)**
    - ▶ CALCE Electronic Packaging Research Center, University of Maryland, College Park, MD 09/1995

4. **Analog versus Discrete Neural Networks**
   - ▶ McMaster University, Hamilton, Canada 06/1995
   - ▶ IIT Kharagpur, India 04/1995
3. **Approximation & Learning by Neural Networks with Continuous Activation Functions**
   - ▶ Workshop in Advances in Neural Information Processing Systems 6, Vail, CO 12/1993
2. **Approximation by Neural Networks**
   - ▶ Workshop in Advances in Neural Information Processing Systems 4, Vail, CO 12/1991
1. **Segmented-Channel Routing Problems**
   - ▶ Purdue University, West Lafayette, IN 07/1993

Students supervised at UIC

Doctoral students (reverse chronological order)

- ▶ Nasibeh Heshmati Molaei continuing
- ▶ Katie Kruzan (MCS PhD student) continuing
- ▶ Nazanin Azarhooshang 12/2024
  - Thesis title: *Exploring Ricci Curvature and Ricci Flow in Social and Biological Graphs and Hypergraphs*
- ▶ Prithviraj Sengupta 10/2024
  - Thesis title: *Ricci Curvature and Ricci Flow for Graphs and Hypergraphs*
- ▶ Tanima Chatterjee 03/2021
  - Thesis title: *Two Novel Network Measures and their applications with a case study on ADHD for Human Brain Networks*
  - Recipient of best student oral presentation award for the Computer Science Division at the 109^{th} annual meeting of the Illinois State Academy of Science (03/31/2017–04/01/2017) based on her oral presentation *On the Computational Complexities of Three Privacy Measures for Large Networks Under Active Attack*
- ▶ Farzane Yahyanejad 02/2019
  - Thesis title: *Curvature Analysis in Complex Networks: Theory and Application*
  - Recipient of best student poster award for the Computer Science Division at the 109^{th} annual meeting of the Illinois State Academy of Science (03/31/2017–04/01/2017) based on her poster *Effect of Gromov-Hyperbolicity Parameter on Cuts and Expansions in Graphs and Some Algorithmic Implications*
- ▶ Nasim Mobasheri 07/2018
  - Thesis title: *Geodesic-Based Properties in Complex Networks*
  - Recipient of the annual *Fifty for the Future* award by the Illinois Technology Foundation (2018)
- ▶ Venkatkumar Srinivasan 04/2017
  - Thesis title: *Analysis of Privacy Measures for Multi-Agent and Networked Systems*
- ▶ Lakshmi Kaligounder 04/2014
  - Thesis title: *Global Stability of Financial Networks : Measures, Evaluations and Policy*

Implications

- Recipient of best student poster award for the Computer Science Division at the 105^{th} annual meeting of the Illinois State Academy of Science (04/05/2013–04/06/2013) based on her poster *On the Stability of Banking Networks*

Master's thesis (reverse chronological order)

- Laura Palmieri — Spring 2018
  - Thesis title: *An Algorithmic Approach to Redraw US Gerrymandered District Boundaries by Minimizing Wasted Votes*
  - Recipient of best student oral presentation award for the Computer Science Division at the 111^{th} annual meeting of the Illinois State Academy of Science (04/13/2018–04/14/2018) based on her oral presentation *Alleviating Partisan Gerrymandering: Can Math and Computers Help to Eliminate Wasted Votes?*
- Santhoshi Jagadeeshan — Fall 2007
  - Thesis title: *Implementation of an Efficient Algorithm for Inferring Haplotype Configuration on Pedigrees*
- Paolo Beretta — Spring 2007
  - Thesis title: *Model Driven Developments of Applications Based on Active Objects*
- Tanu Garg — Summer 2007
  - Thesis title: *Experimental evaluation of an algorithm in reverse engineering of biological networks*
- Haripriya Rajamani — Spring 2006
  - Thesis title: *A Survey of the Protein Folding and the Inverse Protein Folding Problems*
- Sergio Ferrarini — Spring 2005
  - Thesis title: *Inapproximability Results for the Lateral Gene Transfer Problem*
- Tanuja Bompada — Fall 2004
  - Thesis title: *CHISEL: Data Mining Tool for Clustering and Classification of Protein Functions*
- Venkatram Vishwanath — Fall 2003
  - Thesis title: *Efficient Implementations of Combinatorial Algorithms for String Barcoding Problems in Bioinformatics*

Master's project (reverse chronological order)

- Satabdi Aditya — Spring 2016
  - Project title: *Network Transitive Reduction Problems and Their Applications To Biological Networks*
  - Recipient of best student poster award for the Computer Science Division for the 106^{th} annual meeting of the Illinois State Academy of Science (04/25/2014–04/26/2014) based on her poster *Algorithmic Perspectives of Network Transitive Reduction Problems and Their Applications to Synthesis and Analysis of Biological Networks*
- Nihan Tokac — Summer 2012
  - Project title: *Compressed Graphs with Floyd-Warshall Algorithm*
- Mounika Mummaneni — Spring 2012

- Project title: *Parallel processing for protein structure alignment*

▶ Swapna Kolachina Spring 2012
- Project title: *Topology Independent Protein Structural Alignment*

▶ Tamar Makatsaria Fall 2011
- Project title: *Models of 3-Dimensional Electrocardiogram*

▶ Gowri Sangeetha Sivanathan Fall 2011
- Project title: *Measure of Topological Redundancy of Networks*

▶ Kedsuda Apichonbancha Fall 2009
- Project title: *Transitive Reductions of Networks*

▶ Pavan Maguluri Summer 2008
- Project title: *Generalizations and Applications of Secretary Problem*

▶ Vamseedheeras Kanagala Spring 2008
- Project title: *Random Variables, Strategies, and Hiring Problems*

▶ Prasanth Goriparthi Spring 2008
- Project title: *A Study on Scheduling Problems*

▶ Kunduru Charanjithm Spring 2008
- Project title: *The Complexity of Simplex Algorithm for Linear Programming – A survey*

▶ Vindhya Vunnam Fall 2006
- Project title: *Search Algorithms with Local Sensory Information*

▶ Sharad Choudhury Fall 2006
- Project title: *String Barcoding Problem – Analysis*

▶ Nisha Raj Paryani Fall 2006
- Project title: *Phylogenetic Networks*

▶ Manoj Tulala Fall 2006
- Project title: *A survey on Algorithms for Imprefect Phylogeny Haplotyping (IPPH)*

▶ Sushma Dokku Spring 2006
- Project title: *Distributed Algorithm for Connected Sensor Cover Problems*

▶ Reem Jaglith (Baridi) Fall 2004
- Project title: *Finding recurrent sources in sequences*

▶ Vinay Kumar Venkatachalapathy Summer 2003
- Project title: *Online Algorithms for Scheduling Packets in Wavelength-Division Multiplexed Optical Networks*

▶ Balaji Gandhi Spring 2003
- Project title: *Transmission Scheduling in Wavelength Division Multiplexed Optical Networks*

▶ Vandana Gummuluru Spring 2003
- Project title: *Scheduling Jobs Using the Two Phase Algorithm to Obtain Maximum Throughput*

▶ Gowri Venkatesh Spring 2003
- Project title: *Implementation of a Two Phase Algorithm to Improve the Throughput of*

Off-line Scheduling Problem

Undergraduate project (CS 398)

- ▶ Asna M. Khan and Alfonzo Clark — Spring 2011
  - Project title: *Airline Reservation Systems*

Students supervised at Rutgers-Camden

Undergraduate independent study project (reverse chronological order)

- ▶ Curtis Saal — Summer 2000 & Fall 2000
  - Project title: *Implementing algorithms related to binary space partitioning of geometric objects*
- ▶ Joseph Russell — Summer 1999 & Fall 1999
  - Project title: *Investigating properties of Neural Networks*
  - Supported by NSF grant CCR-9800086
- ▶ Valentino Lopez and Mingwei Wang — Fall 1998 & Spring 1999
  - Project title: *Implementing an algorithm for State Equivalence in Hybrid PL Systems*
  - Supported by NSF grant CCR-9800086
- ▶ Antony Donlon — Spring 1998
  - Project title: *Studying JAVA*

Course and Curriculum development

UIC

- ▷ Development of a new graduate-level course with the title *Introduction to Quantum Computing* (CS 506)
- ▷ Development of a new graduate-level course with the title *Introduction to Computational Molecular Biology* (CS 502)
- ▷ Participation in the development of a new bioinformatics PhD program in the Bioengineering department

Rutgers-Camden

- ▷ Participation in the revision of the undergraduate curriculum
- ▷ Participation in the development of an anticipated Master's program

Participation in University or Departmental Committees

UIC

- ▷ **Member** of the *graduate college executive committee* — 2024–2026
- ▷ **Member** of the *departmental promotion and tenure committee* — (current)
- ▷ **Chair** of the *departmental colloquium committee* — (current)
- ▷ **Chair** of the *departmental bioinformatics faculty search committee* — 2021–2023
- ▷ **Member** of the *UIC faculty senate* — (past)
- ▷ **Member** of the *departmental graduate committee* — (past)
- ▷ **Member** of the *college of engineering executive committee* — (past)
- ▷ **Member** of the *departmental graduate admissions committee* — (past)
- ▷ **Chair** of the *departmental Web & Public Relations committee* — (past)
- ▷ **Co-chair** of the *departmental faculty search committee* — 2016–2017
- ▷ **Member** of the *departmental undergraduate committee* — (past)

Rutgers-Camden

- ▷ **Member** of the *faculty senate* (past)
- ▷ **Member** of the *scholastic learning committee* (past)