Bhaskar Dasgupta

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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: $^{3.45}/_{4.0}$; 1^{st} class with Honors

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

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)

11. P. Berman, **B. DasGupta** and E. D. Sontag, Computational Complexities of Combinatorial Problems With Applications to Reverse Engineering of Biological Networks, in *Advances in Computational Intelligence: Theory and Applications*, F.-Y. Wang and D. Liu (eds.), Series in Intelligent Control and Intelligent Automation Volume 5, 303-316, World Scientific publishers (2007)

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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 2026	CS 401: *Computer Algorithms I*	90	—	—
S 2026	CS 506: *Introduction to Quantum Computing*	26	—	—
F 2025	CS 401: *Computer Algorithms I*	90	4.71	4.65
F 2025	CS 506: *Introduction to Quantum Computing*	30	4.67	4.33
S 2025	**Sabbatical leave**			

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Semester & Year	Course number and title	Enrollment	Overall comparisons (Max=5)	
F Fall S Spring			Teaching effectiveness	Teaching quality
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**
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**

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Semester & Year	Course number and title	Enrollment	Overall comparisons (Max=5)	
F Fall S Spring			Teaching effectiveness	Teaching quality
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**
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

14. **Associate editor**, *Discrete Mathematics, Algorithms and Applications* 10/2008–present
13. **Member of editorial board**, *BioMed Research International* 10/2019–03/2022
12. **Member of editorial board**, *Biomedical Engineering and Computational Biology* 12/2009–10/2021
11. **Member of editorial board**, *Mathematics Open* 12/2024–present
10. **Editorial advisory board**, *The Open Bioinformatics Journal* 12/2009–12/2015
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)

121. 32^{nd} International Computing & Combinatorics Conference (2026)
120. 18^{th} International Conference on Combinatorial Optimization & Applications (2025)
119. International Conference on Applied Algorithms (2026)
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 Distributed Computing System (2019)
91. 25^{th} International Conference on Computing & Combinatorics (2019)
90. 13^{th} International Conference on Algorithmic Aspects in Information & Management (2018)
89. IEEE International Conference on Bioinformatics & Biomedicine (2018)
88. 7^{th} International Conference on Complex Networks and their Applications (2018)
87. 6^{th} International Work-Conference on Bioinformatics & Biomedical Engineering (2018)
86. 11^{th} Workshop on Biomedical & Bioinformatics Challenges for Computer Science (2018)
85. 24^{th} International Conference on Computing & Combinatorics (2018)
84. 29^{th} International Workshop on Combinatorial Algorithms (2018)
83. IEEE International Conference on Bioinformatics & Biomedicine (2017)
82. 9^{th} International Conference on Social Informatics (2017)
81. 6^{th} International Conference on Complex Networks and their Applications (2017)
80. International School and Conference on Network Science (2017)
79. 8^{th} International Workshop on Biological Knowledge Discovery & Data Mining (2017)
78. 5^{th} International Work-Conference on Bioinformatics & Biomedical Engineering (2017)
77. 7^{th} ACM Conference on Bioinformatics, Computational Biology & Health Informatics (2016)
76. IEEE International Conference on Bioinformatics & Biomedicine (2016)
75. 10^{th} International Conference on Combinatorial Optimization & Applications (2016)
74. 7^{th} International Workshop on Biological Knowledge Discovery & Data Mining (2016)
73. 22^{nd} International Conference on Computing & Combinatorics (2016)
72. 11^{th} International Conference on Algorithmic Aspects in Information & Management (2016)
71. IEEE Symposium on Foundations of Computational Intelligence (2015)
70. 9^{th} International Conference on Combinatorial Optimization & Applications (2015)
69. IEEE International Conference on Bioinformatics & Biomedicine (2015)
68. 6^{th} International Workshop on Biological Knowledge Discovery & Data Mining (2015)
67. 8^{th} Workshop on Biomedical & Bioinformatics Challenges for Computer Science (2015)
66. 8^{th} International Conference on Combinatorial Optimization & Applications (2014)
65. IEEE International Conference on Bioinformatics & Biomedicine (2014)
64. 4^{th} IEEE International Conference on Computational Advances in Bio & medical Sciences (2014)
63. 20^{th} International Computing & Combinatorics Conference (2014)
62. 1^{st} International Conference on Algorithms for Computational Biology (2014)
61. International Conference on Applied Algorithms (2014)
60. IEEE International Conference on Bioinformatics & Biomedicine (2013)
59. 7^{th} 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: Re-**

cent 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 Through-*

put

- ▶ 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)