

## Curriculum Vitae

### Aravind Srinivasan

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### Affiliation and Rank

Department of Computer Science, and Institute for Advanced Computer Studies (UMIACS); affiliated with the Applied Mathematics & Statistics, and Scientific Computation (AMSC) program since 2012.

Rank: Professor (since July, 2006).

### Research Interests

Algorithms, networks, and probabilistic methods; computing in the service of society. Specific interests include:

- algorithms and combinatorial optimization;
- probabilistic methods, algorithmic statistics, and machine learning;
- public health: networked phenomena in infectious diseases, sensing, optimization, and climatic effects; algorithmically-enabled low-cost devices for medical diagnosis;
- algorithms, AI, and machine learning in (cancer) genomics, organ exchange, and pharmacology;
- algorithms, AI, and machine learning in E-commerce;
- networking (wireless and peer-to-peer), social networks, and distributed algorithms; and
- computational approaches to sustainable growth.

### Education

B.Tech.	Indian Institute of Technology, Madras	1989	Computer Science
M.S.	Cornell University	1993	Computer Science
Ph.D.	Cornell University	1993	Computer Science

## Work Experience

- 2006–** Professor, Computer Science Department, University of Maryland.
- 2001–2006** Associate Professor with Tenure, Computer Science Department, University of Maryland.
- 1998–2001** Member of Technical Staff, Mathematics of Networks and Systems Research Dept., Bell Laboratories, Lucent Technologies, Murray Hill, NJ, USA.
- 1998** Senior Lecturer with tenure (equivalent to *Associate Professor* in the USA), School of Computing, National University of Singapore, Singapore.
- 1997–1998** Tenure-track Senior Lecturer (equivalent to *Associate Professor* in the USA), School of Computing, National University of Singapore, Singapore.
- 1995–1997** Tenure-track Lecturer (equivalent to *Assistant Professor* in the USA), School of Computing, National University of Singapore, Singapore.
- 1994** Member, Institute for Advanced Study, Princeton, USA.
- 1993–1994** Joint postdoctoral fellow, Institute for Advanced Study and DIMACS (Center for Discrete Mathematics and Theoretical Computer Science), USA.
- 1989–1992** Teaching Assistant, Dept. of Computer Science, Cornell University, USA.

**Visiting Appointments** Various institutions including BRICS – Center for Basic Research in Computer Science (Aarhus, Denmark), CWI – Centrum voor Wiskunde en Informatica (Center for Mathematics and Computer Science, Amsterdam, Netherlands), Cornell University (USA), Indian Institute of Technology Madras (Chennai, India), Johns Hopkins University (USA), Los Alamos National Laboratory (USA), MIT (Massachusetts Institute of Technology, USA), Max-Planck Institute (Germany), Microsoft Research (Redmond, USA; Bangalore, India), Nanyang Technological University (Singapore), Sandia National Laboratories (USA), University of Melbourne (Australia), University of Rome (Italy), University of Venice (Italy), University of Warwick (England), University of Washington (USA), and the Weizmann Institute of Science (Israel).

## Awards, Patents, and Recognition

- Elected Fellow of professional societies:
  - Fellow of the ACM (Association for Computing Machinery), “For contributions to algorithms, probabilistic methods, and networks”, 2015.
  - Fellow of the IEEE (Institute of Electrical and Electronics Engineers), “For contributions to randomized algorithms and probabilistic methods”, 2010.
  - Fellow of the AAAS (American Association for the Advancement of Science), “For distinguished contributions to algorithms, probabilistic methods, and networks”, 2012.

- Fellow of the AMS (American Mathematical Society), “For contributions to theoretical computer science, discrete probability network science and applications and for service to the profession”, 2019.
- Fellow of the EATCS (European Association for Theoretical Computer Science), “For major contributions to algorithms, the uses of randomisation in algorithms, randomness in networks, and the real-world applications of these topics”, 2017.
- Elected Member of *Academia Europaea*, the Academy of Europe, 2018.
- Distinguished Faculty Award from the Board of Visitors of the College of Computing, Mathematical, and Natural Sciences (University of Maryland), 2016.
- Distinguished Alumnus Award, Indian Institute of Technology Madras, 2016.
- Appointed Editor-in-Chief of the *ACM Transactions on Algorithms* (TALG), starting September 2014.
- Appointed Vice Chair of the *IEEE Technical Committee on the Mathematical Foundations of Computing* starting January 2015. (Stepped down near the end of 2017.)
- Honoree four times, *Annual University-Wide Celebration of Scholarship and Research*, University of Maryland (2017, 2015, 2013, and 2010).
- Invitee twice, *Annual Research Leaders Luncheon*, University of Maryland (2014 and 2011).
- Our paper “Modelling Disease Outbreaks in Realistic Urban Social Networks” that appeared in *Nature* in May 2004, received a good deal of media coverage, including *Reuters*, *MSNBC*, *International Herald Tribune*, and the *Boston Globe*.
- IBM Graduate Fellowship, 1992–1993.
- Research Fellowship, Mathematical Sciences Institute of Cornell University, Summer 1992.
- Best-Paper Awards:
  - For the paper “Examining the Evolution of Ties in Social Networks: A Longitudinal Multi-Method Study” coauthored with S. Shivarajan and T. DuBois, *Proc. Academy of Management Annual Meeting*, 2012. (Adjudged one of the best accepted papers; appears in the Best Paper Proceedings.)
  - For the paper “Predicting Trust and Distrust in Social Networks” coauthored with T. DuBois and J. Golbeck, *IEEE International Conference on Social Computing* (SocialCom), 2011.
  - For the paper “Distributed Ranked Search” coauthored with V. Gopalakrishnan, R. Morselli, B. Bhattacharjee, and P. Keleher, *Annual International Conference on High Performance Computing* (HiPC), 2007.
  - Co-Winner, Best Student Paper Award for the paper “Improved Distributed Algorithms for Coloring and Network Decomposition Problems” coauthored with A. Panconesi, *ACM Symposium on Theory of Computing* (STOC), 1992.

- Papers invited to journal special-issues for conferences:
  - Paper “Lift-and-Round to Improve Weighted Completion Time on Unrelated Machines” invited to the special issue of the *SIAM Journal on Computing* dedicated to selected papers from the *STOC 2016* conference.
  - Paper “An Improved Approximation for  $k$ -median, and Positive Correlation in Budgeted Optimization” invited to and published in the special issue of the *ACM Transactions on Algorithms* dedicated to selected papers from the *SODA 2015* conference.
  - Paper “On Computing Maximal Independent Sets of Hypergraphs in Parallel” chosen as among the best submissions to the *SPAA 2014* conference, invited to and published in a special issue of the *ACM Transactions on Parallel Computing*.
  - Paper “Maximum Bipartite Flow in Networks with Adaptive Channel Width” invited to and published in the special issue of *Theoretical Computer Science* dedicated to selected papers from the *ICALP 2009* conference.
  - Paper “Scheduling on Unrelated Machines under Tree-Like Precedence Constraints” invited to and published in the special issue of *Algorithmica* dedicated to selected papers from the *APPROX 2005* conference.
  - Paper “Integrality Ratio for Group Steiner Trees and Directed Steiner Trees” invited to the special issue of the *Journal of Algorithms* dedicated to selected papers from the *SODA 2003* conference; declined.
- Member, winning team (team-mates: A. Nagarajan and R. Venkatasubramani), First Mathematics Contest held among the students of the Indian Institute of Technology Madras, 1988.
- Eighth in India, Joint Entrance Examination for the Indian Institutes of Technology, 1985.
- U. S. Patent 7,280,526, *Fast and scalable approximation methods for finding minimum cost flows with shared recovery strategies, and system using same*, with L. K. Fleischer, F. B. Shepherd, and I. Saniee. (Issued 2007; assigned to Lucent Technologies.)
- U. S. Patent 7,020,698, *System And Method For Locating A Closest Server In Response To A Client Domain Name Request*, with M. Andrews, M. Hofmann, F. B. Shepherd, P. Winkler, and F. Zane. (Issued 2006; assigned to Lucent Technologies.)
- U. S. Patent 6,687,363, *Method of Designing Signaling Networks for Internet Telephony*, with M. Aravamudan, K. Kumaran, and K. G. Ramakrishnan. (Issued 2004; assigned to Lucent Technologies.)

### Recognition for Students Advised

- High-school student Steven Qu’s project “Maximizing Social Leverage in Linear Threshold Influence Networks” won 42<sup>nd</sup> place in the September 2018 round of the *International Pioneer Tournament*. (This tournament is open to people of all ages and projects of all types, and this year’s tournament had thousands of participants.)
- Ph.D. student Pan Xu was a recipient of an *Ann G. Wylie Dissertation Fellowship* from the University of Maryland’s Graduate School, 2018.

- Ph.D. student Pan Xu was a recipient of an *Outstanding Graduate Assistant Award* from the University of Maryland’s Graduate School, 2018.
- Ph.D. student Pan Xu was the single nominee by the University of Maryland’s Computer Science department for the College’s *Board of Visitors Outstanding Graduate Student Award*, 2018.
- High-school student Naveen Durvasula was selected to the highly-selective Research Science Institute (RSI) at MIT and Harvard for Summer 2018.
- High-school student Steven Qu’s project won first place in the Computer Science category at the Montgomery County Science Fair in 2018. The project also won a Meritorious Achievement Award from the U.S. Public Health Service Commissioned Officers Association for having “clearly demonstrated creative ability, scientific thought, and independent skill to address issues relevant to public health.”
- Ph.D. student Karthik A. Sankararaman was selected to the UMD *Future Faculty Fellows* Program for 2018.
- Ph.D. student Brian Brubach was selected to the UMD *Future Faculty Fellows* Program for 2018.
- Ph.D. Student Karthik A. Sankararaman was one of two students nominated by the Computer Science Department, University of Maryland, for the IBM PhD Fellowship (2017).
- Research on kidney-exchange methodologies by Naveen Durvasula (high-school student advised by Prof. John Dickerson and me), was selected at the Montgomery Area Science Fair in March 2017 to compete in the *Intel International Science and Engineering Fair* (Intel ISEF) in May 2017.
- Ph.D. student Brian Brubach was a recipient of the University of Maryland Graduate School’s *Outstanding Graduate Assistant* award, 2017.
- Thesis written by my Undergraduate Gemstone team (topic: “Combating Drowsy Driving”, advised by me 2013–2016) was a finalist for the *James M. Wallace Outstanding Gemstone Team Thesis* Award, 2016.
- Undergraduate Gemstone team advised by me from 2013 to 2016 (topic: “Combating Drowsy Driving”) had their research-paper accepted at the National Conference on Undergraduate Research (NCUR), University of North Carolina at Asheville, 2016.
- Ph.D. student D. Harris’ thesis, *Algorithms and Generalizations for the Lovász Local Lemma*, 2015, was nominated for the ACM Doctoral Dissertation Award by the University of Maryland. (One of two nominations in 2015.)
- Antares Chen, student of Montgomery Blair High School whose research project was co-supervised by Ph.D. student D. Harris and me, had his paper with us accepted to the top-tier *ACM-SIAM Symposium on Discrete Algorithms* (SODA), 2016.

- Antares Chen, student of Montgomery Blair High School whose research project was co-supervised by Ph.D. student D. Harris and me, was admitted to U. C. Berkeley in 2015.
- Ph.D. student D. Harris was selected to speak at *China Theory Week*, 2014. This annual workshop is “for the rising stars of CS theory, with the most accomplished PhD students from institutions worldwide meeting, presenting and discussing their research”.
- Undergraduate Gemstone team advised by me from 2011 to 2014 (topic: “Reducing Information Overload”) had their research-paper accepted at the National Conference on Undergraduate Research (NCUR), University of Kentucky, 2014.
- Ph.D. student T. DuBois was a co-author of our paper “Examining the Evolution of Ties in Social Networks: A Longitudinal Multi-Method Study” that was adjudged one of the best accepted papers in the *Proc. Academy of Management Annual Meeting*, 2012; the paper appears in the Best Paper Proceedings.
- Ph.D. student T. DuBois was a co-author of our paper “Predicting Trust and Distrust in Social Networks” that received the Best Paper Award at the *IEEE International Conference on Social Computing* (SocialCom), 2011.
- Ph.D. student T. DuBois received a Dean’s Fellowship award for 2009-2010.
- Ph.D. student D. Levin was an author of the paper that was co-winner of the Best Paper Award at the *USENIX Symposium on Networked Systems Design and Implementation* (NSDI), April 2009.
- Ph.D. student D. Levin received a Microsoft Live Labs Fellowship in January 2008.
- Levon Mkrtchyan, student of Montgomery Blair High School, whose Senior Research Project on *Distributed Algorithms* was supervised by me, joined the University of Maryland (Computer Science major) in Fall 2007, supported by a four-year President’s Scholarship.
- Ph.D. student D. Levin received a Dean’s Fellowship award for 2006-2007.
- Ph.D. student S. Parthasarathy’s thesis, *Resource Allocation in Networked and Distributed Environments*, 2006, was nominated for the ACM Doctoral Dissertation Award by the Dept. of Computer Science, University of Maryland. (One of two nominations in 2006.)
- Ph.D. student S. Parthasarathy received a Dean’s Fellowship award for 2005-2006.

## Papers in Refereed Journals

1. N. Bansal, A. Srinivasan, and O. Svensson, “Lift-and-Round to Improve Weighted Completion Time on Unrelated Machines”. To appear, special issue of the *SIAM Journal on Computing* devoted to selected papers from the STOC 2016 conference.
2. A. Baveja, A. Chavan, A. Nikiforov, A. Srinivasan, and P. Xu, “Improved Bounds in Stochastic Matching and Optimization”. *Algorithmica*, Vol. 80, Number 11, 3225–3252, 2018.

3. B. Saha and A. Srinivasan, “A Randomized Approximation Technique for Resource-Allocation Problems”. *Random Structures & Algorithms*, Vol. 52, 680–715, 2018.
4. J. Byrka and A. Srinivasan, “Approximation Algorithms for Stochastic and Risk-Averse Optimization”. *SIAM Journal on Discrete Mathematics*, Vol. 32, Issue 1, 44–63, 2018.
5. J. Byrka, T. Pensyl, B. Rybicki, J. Spoerhase, A. Srinivasan, and K. Trinh, “An Improved Approximation Algorithm for Knapsack Median Using Sparsification”. *Algorithmica*, Vol. 80, 1093–1114, 2018.
6. D. G. Harris and A. Srinivasan, “Improved Bounds and Algorithms for Graph Cuts and Network Reliability”. *Random Structures & Algorithms*, Vol. 52, Issue 1, 74–135, 2018.
7. D. G. Harris and A. Srinivasan, “A Constructive Algorithm for the Lovász Local Lemma on Permutations”. *Theory of Computing*, Volume 13, Article 17, pages 1–41, 2017.
8. D. G. Harris and A. Srinivasan, “Algorithmic and enumerative aspects of the Moser-Tardos distribution”. *ACM Transactions on Algorithms*, Volume 13, Issue 3, 33:1–33:40, 2017.
9. J. Byrka, T. Pensyl, B. Rybicki, A. Srinivasan, and K. Trinh, “An Improved Approximation for  $k$ -median, and Positive Correlation in Budgeted Optimization”. *ACM Transactions on Algorithms*, Volume 13, Issue 2, 23:1–23:31, March 2017. Special issue of the journal dedicated to selected papers from the *SODA 2015* conference.
10. D. G. Harris, E. Morsy, G. Pandurangan, P. Robinson, and A. Srinivasan, “Efficient Computation of Balanced Structures.” *Random Structures & Algorithms*, Vol. 9, No. 2, 322–344, 2016.
11. V. S. A. Kumar, M. V. Marathe, S. Parthasarathy, and A. Srinivasan, “Distributed Algorithms for End-to-End Packet-Scheduling in Wireless Ad-Hoc Networks”. *ACM Transactions on Algorithms*, Vol. 12, No. 3, 2016.
12. I. Bercea, N. Goyal, D. G. Harris, and A. Srinivasan, “On Computing Maximal Independent Sets of Hypergraphs in Parallel”. *ACM Transactions on Parallel Computing*, Vol. 3, No. 1, 2016.
13. D. G. Harris and A. Srinivasan, “A Note on Near-Optimal Coloring of Shift Hypergraphs”. *Random Structures & Algorithms*, Vol. 48, No. 1, 53–56, 2016.
14. A. Ambainis, W. Gasarch, A. Srinivasan, and A. Utis, “Lower Bounds on the Deterministic and Quantum Communication Complexity of Hamming-Distance Problems”. *ACM Transactions on Computation Theory*, Vol. 7, Issue 3, 2015.
15. S. Shivarajan, T. DuBois, and A. Srinivasan, “Examining how marginalized stakeholders successfully redress their issues: a social networks approach”. *Annals in Social Responsibility*, Vol. 1, 108–130, 2015.
16. B. Han, J. Li, and A. Srinivasan, “On the Energy Efficiency of Device Discovery in Mobile Opportunistic Networks: A Systematic Approach”. *IEEE Transactions on Mobile Computing*, Vol. 14, No. 4, 786–799, 2015.

17. B. Han, J. Li, and A. Srinivasan, “Your Friends Have More Friends Than You Do: Identifying Influential Mobile Users Through Random-Walk Sampling”. *IEEE/ACM Transactions on Networking*, Vol. 22, No. 5, 1389–1400, 2014.
18. S. Alaei, A. Malekian, and A. Srinivasan, “On Random Sampling Auctions for Digital Goods”. *ACM Transactions on Economics and Computation*, Vol. 2, No. 3, 2014.
19. V. S. A. Kumar, S. Parthasarathy, G. Pei, and A. Srinivasan, “Approximation algorithms for throughput maximization in wireless networks with delay constraints”. *IEEE/ACM Transactions on Networking*, Vol. 21, No. 6, 1988–2000, 2013.
20. S. Shivarajan and A. Srinivasan, “The Poor as Suppliers of Intellectual Property: A Social Network Approach to Sustainable Poverty Alleviation”. *Business Ethics Quarterly*, Vol. 23, No. 3, 381–406, 2013.
21. N. Bansal, N. Korula, V. Nagarajan, and A. Srinivasan, “Solving Packing Integer Programs via Randomized Rounding with Alterations”. *Theory of Computing*, Vol. 8, 533–565, 2012.
22. T. DuBois, S. Eubank, and A. Srinivasan, “The Effect of Random Edge Removal on Network Degree Sequence”. *The Electronic Journal of Combinatorics*, Vol. 19, P51, 2012. (Twenty pages.)
23. B. Han, P. Hui, V. S. A. Kumar, M. V. Marathe, J. Shao, and A. Srinivasan, “Mobile Data Offloading through Opportunistic Communications and Social Participation”. *IEEE Transactions on Mobile Computing*, Vol. 11(5), 821–834, 2012.
24. B. Haeupler, B. Saha, and A. Srinivasan, “New Constructive Aspects of the Lovász Local Lemma”. *Journal of the ACM*, Vol. 58, Issue 6, 2011.
25. D. Chafekar, V. S. A. Kumar, M. V. Marathe, S. Parthasarathy, and A. Srinivasan, “Capacity of Wireless Networks under SINR Interference Constraints”. Springer-Verlag *Wireless Networks*, Vol. 17, 1605–1624, 2011.
26. Y. Azar, A. Madry, T. Moscibroda, D. Panigrahi and A. Srinivasan, “Maximum Bipartite Flow in Networks with Adaptive Channel Width”. *Theoretical Computer Science*, Vol. 412, No. 24, 2577–2587, 2011. (Special issue dedicated to selected papers from the *ICALP 2009* conference.)
27. V. S. A. Kumar, M. V. Marathe, S. Parthasarathy, and A. Srinivasan, “A Unified Approach to Scheduling on Unrelated Parallel Machines”. *Journal of the ACM*, Vol. 56, No. 5, 2009.
28. V. S. A. Kumar, M. V. Marathe, S. Parthasarathy, and A. Srinivasan, “Scheduling on Unrelated Machines under Tree-Like Precedence Constraints”. *Algorithmica*, Vol. 55, 205–226, 2009. (Special issue dedicated to selected papers from the *APPROX 2005* conference.)
29. A. Srinivasan, “A Note on the Distribution of the Number of Prime Factors of the Integers”. *Information Processing Letters*, Vol. 109, Issue 2, 133–135, 2008.
30. S. Lee, B. Bhattacharjee, A. Srinivasan, and S. Khuller, “Efficient and Resilient Backbones for Multihop Wireless Networks”. *IEEE Transactions on Mobile Computing*, Vol. 7, 1349–1362, 2008.



31. A. Gupta, A. Srinivasan, and É. Tardos, “Cost-Sharing Mechanisms for Network Design”. *Algorithmica*, Vol. 50, 98–119, 2008.
32. E. Halperin, G. Kortsarz, R. Krauthgamer, A. Srinivasan, and N. Wang, “Integrality Ratio for Group Steiner Trees and Directed Steiner Trees”. *SIAM Journal on Computing*, Vol. 36, 1494–1511, 2007.
33. R. Morselli, B. Bhattacharjee, M. Marsh, and A. Srinivasan, “Efficient Lookup on Unstructured Topologies”. *IEEE Journal on Selected Areas in Communications* (Special Issue on Peer-to-Peer Communications and Applications), Vol. 25, 62–72, 2007.
34. A. Srinivasan, “An Extension of the Lovász Local Lemma, and its Applications to Integer Programming”. *SIAM Journal on Computing*, Vol. 36, 609–634, 2006.
35. R. Gandhi, S. Khuller, S. Parthasarathy, and A. Srinivasan, “Dependent Rounding and its Applications to Approximation Algorithms”. *Journal of the ACM*, Vol. 53, 324–360, 2006.
36. V. S. A. Kumar, M. V. Marathe, S. Parthasarathy, A. Srinivasan, and S. Züst, “Provable Algorithms for Parallel Generalized Sweep Scheduling”. *Journal of Parallel and Distributed Computing*, Vol. 16, 807–821, 2006.
37. S. Banerjee, S. Lee, B. Bhattacharjee, and A. Srinivasan, “Resilient Multicast using Overlays”. *IEEE/ACM Transactions on Networking*, Vol. 14, 237–248, 2006.
38. R. Gandhi, S. Khuller, A. Srinivasan, and N. Wang, “Approximation Algorithms for Channel Allocation Problems in Broadcast Networks”. *Networks*, Vol. 47, 225–236, 2006.
39. A. Gupta and A. Srinivasan, “On the Covering Steiner Problem”. *Theory of Computing*, Vol. 2, 53–64, 2006.
40. R. Gandhi, E. Halperin, S. Khuller, G. Kortsarz, and A. Srinivasan, “An Improved Approximation Algorithm For Vertex Cover with Hard Capacities”. *Journal of Computer and System Sciences*, Vol. 72, 16–33, 2006.
41. R. Sherwood, B. Bhattacharjee, and A. Srinivasan, “ $\mathcal{P}^5$ : A Protocol for Scalable Anonymous Communication”. *Journal of Computer Security*, Vol. 13, 839–876, 2005.
42. D. Dubhashi, A. Mei, A. Panconesi, J. Radhakrishnan, and A. Srinivasan, “Fast Distributed Algorithms for (Weakly) Connected Dominating Sets and Linear-Size Skeletons”. *Journal of Computer and System Sciences*, Vol. 71, 467–479, 2005.
43. H. Shachnai and A. Srinivasan, “Finding Large Independent Sets in Graphs and Hypergraphs”. *SIAM Journal on Discrete Mathematics*, Vol. 18, 488–500, 2004.
44. R. Gandhi, S. Khuller, and A. Srinivasan, “Approximation Algorithms for Partial Covering Problems”. *Journal of Algorithms*, Vol. 53, 55–84, 2004.
45. S. Eubank, H. Guclu, V. S. A. Kumar, M. V. Marathe, A. Srinivasan, Z. Toroczkai, and N. Wang. “Modelling Disease Outbreaks in Realistic Urban Social Networks”. *Nature*, Vol. 429, 180–184, 13 May 2004.

46. A. Srinivasan, “On the Approximability of Clique and Related Maximization Problems”. *Journal of Computer and System Sciences*, Vol. 67, 633–651, 2003.
47. W. Gasarch, E. Golub, and A. Srinivasan. “When does a Random Robin Hood win?”. *Theoretical Computer Science*, Vol. 304, Issues 1–3, 477–484, 2003.
48. C. Barrett, D. Cook, V. Faber, G. Hicks, A. Marathe, M. Marathe, A. Srinivasan, Y. Sussmann, and H. Thornquist. “Statistical Analysis of Algorithms: A Case Study of Market-Clearing Mechanisms in the Power Industry”. *Journal of Graph Algorithms and Applications*, Vol. 7, 3–31, 2003.
49. A. Caprara, G. Italiano, G. Mohan, A. Panconesi, and A. Srinivasan, “Wavelength Rerouting in Optical Networks, or the Venetian Routing Problem”. *Journal of Algorithms*, Vol. 45, 93–125, 2002.
50. U. Feige, M. M. Halldórsson, G. Kortsarz, and A. Srinivasan, “Approximating the Domatic Number”. *SIAM Journal on Computing*, Vol. 32, 172–195, 2002.
51. G. Konjevod, R. Ravi, and A. Srinivasan, “Approximation Algorithms for the Covering Steiner Problem”. *Random Structures & Algorithms* (Special Issue on *Probabilistic Methods in Combinatorial Optimization*), Vol. 20, 465–482, 2002.
52. F. T. Leighton, C.-J. Lu, S. B. Rao, and A. Srinivasan, “New Algorithmic Aspects of the Local Lemma with Applications to Routing and Partitioning”. *SIAM Journal on Computing*, Vol. 31, 626–641, 2001.
53. Y. Li, P. M. Long, and A. Srinivasan, “Improved Bounds on the Sample Complexity of Learning”. *Journal of Computer and System Sciences*, Vol. 62, 516–527, 2001.
54. A. Srinivasan and C.-P. Teo, “A Constant-Factor Approximation Algorithm for Packet Routing and Balancing Local vs. Global Criteria”. *SIAM Journal on Computing*, Vol. 30, 2051–2068, 2001.
55. Y. Li, P. M. Long, and A. Srinivasan, “The One-Inclusion Graph Algorithm is Near-Optimal for the Prediction Model of Learning”. *IEEE Transactions on Information Theory*, Vol. 47, 1257–1261, 2001.
56. L. A. Goldberg, M. S. Paterson, A. Srinivasan, and E. Sweedyk, “Better Approximation Guarantees for Job-Shop Scheduling”. *SIAM Journal on Discrete Mathematics*, Vol. 14, 67–92, 2001.
57. L. A. Goldberg, P. D. MacKenzie, M. S. Paterson, and A. Srinivasan, “Contention Resolution with Constant Expected Delay”. *Journal of the ACM*, Vol. 47, 1048–1096, 2000.
58. S. Chari, P. Rohatgi, and A. Srinivasan, “Improved Algorithms via Approximations of Probability Distributions”. *Journal of Computer and System Sciences*, Vol. 61, 81–107, 2000.
59. A. Baveja and A. Srinivasan, “Approximation Algorithms for Disjoint Paths and Related Routing and Packing Problems”. *Mathematics of Operations Research*, Vol. 25, 255–280, 2000.

60. P. Bai, B. Prabhakaran, and A. Srinivasan, “Retrieval Scheduling For Collaborative Multimedia Presentations”. *ACM/Springer-Verlag Multimedia Systems Journal*, Vol. 8, 146–155, 2000.
61. M. Saks, A. Srinivasan, S. Zhou, and D. Zuckerman, “Low Discrepancy Sets yield Approximate Min-Wise Independent Permutation Families”. *Information Processing Letters*, Vol. 73, 29–32, 2000.
62. J. Radhakrishnan and A. Srinivasan, “Improved Bounds and Algorithms for Hypergraph 2-Coloring”. *Random Structures & Algorithms*, Vol. 16, 4–32, 2000.
63. A. Baveja and A. Srinivasan, “Approximating Low-Congestion Routing and Column-Restricted Packing Problems”. *Information Processing Letters*, Vol. 74, 19–25, 2000.
64. A. Srinivasan and D. Zuckerman, “Computing with Very Weak Random Sources”. *SIAM Journal on Computing*, Vol. 28, 1433–1459, 1999.
65. A. Srinivasan, “Improved Approximation Guarantees for Packing and Covering Integer Programs”. *SIAM Journal on Computing*, Vol. 29, 648–670, 1999.
66. M. Saks, A. Srinivasan, and S. Zhou, “Explicit OR-Dispersers with Polylogarithmic Degree”. *Journal of the ACM*, Vol. 45, 123–154, 1998.
67. P. Auer, P. M. Long, and A. Srinivasan, “Approximating Hyper-Rectangles: Learning and Pseudo-Random Sets”. *Journal of Computer and System Sciences*, Vol. 57, 376–388, 1998.
68. N. Alon and A. Srinivasan, “Improved Parallel Approximation of a Class of Integer Programming Problems”. *Algorithmica*, Vol. 17, 449–462, 1997.
69. A. Panconesi and A. Srinivasan, “Randomized Distributed Edge Coloring via an Extension of the Chernoff-Hoeffding Bounds”. *SIAM Journal on Computing*, Vol. 26, 350–368, 1997.
70. A. Panconesi and A. Srinivasan, “On the Complexity of Distributed Network Decomposition”. *Journal of Algorithms*, Vol. 20, 356–374, 1996.
71. S. Chari, P. Rohatgi, and A. Srinivasan, “Randomness-Optimal Unique Element Isolation with Applications to Perfect Matching and Related Problems”. *SIAM Journal on Computing*, Vol. 24, 1036–1050, 1995.
72. J. P. Schmidt, A. Siegel, and A. Srinivasan, “Chernoff–Hoeffding Bounds for Applications with Limited Independence”. *SIAM Journal on Discrete Mathematics*, Vol. 8, 223–250, 1995.
73. A. Panconesi and A. Srinivasan, “The Local Nature of  $\Delta$ -Coloring and its Algorithmic Applications”. *Combinatorica*, Vol. 15, 255–280, 1995.
74. A. Srinivasan and C. Pandu Rangan, “Efficient Algorithms for the Minimum Weighted Dominating Clique Problem on Permutation Graphs”. *Theoretical Computer Science*, Vol. 91, 1–21, 1991.
75. R. Mahesh, C. Pandu Rangan, and A. Srinivasan, “On Finding the Minimum Bandwidth of Interval Graphs”. *Information and Computation*, Vol. 95, 218–224, 1991.

## Book Chapters and Invited Articles

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101. M. Naor, L. J. Schulman, and A. Srinivasan, “Splitters and Near-Optimal Derandomization”. *Proc. IEEE Symposium on Foundations of Computer Science (FOCS)*, 182–191, 1995.
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103. M. Saks, A. Srinivasan, and S. Zhou, “Explicit Dispersers with Polylog Degree”. *Proc. ACM Symposium on Theory of Computing (STOC)*, 479–488, 1995.
104. A. Srinivasan, “Improved Approximations of Packing and Covering Problems”. *Proc. ACM Symposium on Theory of Computing (STOC)*, 268–276, 1995.
105. A. Srinivasan and D. Zuckerman, “Computing with Very Weak Random Sources”. *Proc. IEEE Symposium on Foundations of Computer Science (FOCS)*, 264–275, 1994.
106. S. Chari, P. Rohatgi, and A. Srinivasan, “Improved Algorithms via Approximations of Probability Distributions”. *Proc. ACM Symposium on Theory of Computing (STOC)*, 584–592, 1994.
107. S. Chari, P. Rohatgi, and A. Srinivasan, “Randomness-Optimal Unique Element Isolation, with Applications to Perfect Matching and Related Problems”. *Proc. ACM Symposium on Theory of Computing (STOC)*, 458–467, 1993.
108. J. P. Schmidt, A. Siegel, and A. Srinivasan, “Chernoff–Hoeffding Bounds for Applications with Limited Independence”. *Proc. ACM-SIAM Symposium on Discrete Algorithms (SODA)*, 331–340, 1993.
109. A. Panconesi and A. Srinivasan, “Fast Randomized Algorithms for Distributed Edge Coloring”. *Proc. ACM Symposium on Principles of Distributed Computing (PODC)*, 251–262, 1992.
110. A. Panconesi and A. Srinivasan, “Improved Distributed Algorithms for Coloring and Network Decomposition Problems”. *Proc. ACM Symposium on Theory of Computing (STOC)*, 581–592, 1992.

### Other Papers and Theses

1. S. Shivarajan and A. Srinivasan, “Bottom of the Pyramid: Served ‘by’ the world’s poor profitably? (A Social Networks Approach for Sustainable Poverty Alleviation)”. *Proc. First CR3 Conference (on Corporate Responsibility/Global Responsibility)*, 2011.
2. J. Byrka, M. R. Ghodsi, and A. Srinivasan, “LP-rounding algorithms for facility-location problems”. Technical Report, arXiv:1007.3611, 2010.

3. L. Fleischer, A. Meyerson, I. Saniee, B. Shepherd, and A. Srinivasan, “A Scalable Algorithm for the Minimum Expected Cost Restorable Flow Problem”. Technical Report TR-2003-10, Computational Optimization Research Center, Columbia University, 2003. (A version was presented by L. Fleischer at the *DIMACS Mini-Workshop on Quality of Service Issues in the Internet*, 2001.)
4. J. H. Spencer, A. Srinivasan, and P. Tetali. “The Discrepancy of Permutation Families”. Unpublished manuscript, 2001.
5. A. Srinivasan, “Techniques for Probabilistic Analysis and Randomness-Efficient Computation”. TR 93-1378, Department of Computer Science, Cornell University, 1993.
6. A. Srinivasan, “A Generalization of Brooks’ Theorem”. TR 92-1302, Department of Computer Science, Cornell University, 1992.
7. A. Srinivasan, “Fast Algorithms for Some Problems on Interval and Permutation Graphs”. B. Tech. Thesis, Department of Computer Science & Engineering, Indian Institute of Technology Madras, Chennai, 1989.

### Book Reviews and Technical Interviews

1. A. Srinivasan, “Review of *Probability and Computing: Randomization and Probabilistic Techniques in Algorithms and Data Analysis (Second Ed.)* by Michael Mitzenmacher and Eli Upfal”, *ACM SIGACT News*, 2018.
2. A. Srinivasan, “Review of *Visions of Infinity: The Great Mathematical Problems* by Ian Stewart”, *ACM SIGACT News*, Vol. 45, Number 4, 41–45, 2014.
3. A. Srinivasan, “Review of *Concentration of Measure for the Analysis of Randomized Algorithms* by Devdatt P. Dubhashi and Alessandro Panconesi”, *ACM SIGACT News*, Vol. 41, Number 1, 28–30, 2010.
4. A. Srinivasan, “Review of *The Random Projection Method* by Santosh Vempala,” *ACM SIGACT News*, Vol. 37, Issue 4, 41–43, 2006.
5. A. Srinivasan, “An Interview with STOC Best Student Paper Winner Tom Hayes,” *ACM SIGACT News*, Vol. 34, Number 3, 88–89, 2003.

### Plenary, Distinguished, and other Invited Talks (Selected)

- Invited keynote speaker, *Biennial Workshop on Models and Algorithms for Planning and Scheduling Problems* (MAPSP), Renesse, Netherlands, 2019.
- Invited lectures, Workshop on *Modelling of unsecurity*, Department of Mathematics of the University of Technology and the Fraunhofer-Institute for Industrial Mathematics, Kaiserslautern, Germany, September 2017. (Declined due to an injury.)
- Invited plenary lecture, I-CORE (Israeli Center of Research Excellence in Algorithms) annual meeting, Tel-Aviv University, Israel, September 2017. (Declined due to schedule-conflict.)

- One of the hour-long talks, Workshop on *Discrete Optimization via Continuous Relaxation*, Simons Institute, U. C. Berkeley, September 2017.
- Invited talk, *Highlights of Algorithms* conference (HALG), Berlin, 2017.
- Computer Science Distinguished Seminar, University of Houston, February 2017.
- Keynote speaker, *22nd International Computing and Combinatorics Conference (COCOON)*, Ho Chi Minh City, Vietnam, 2016. (The other keynote speaker: Van Vu of Yale University.)
- One of the main hour-long invited talks, Workshop on *Relaxations and Polyhedral Methods*, Program in Combinatorial Optimization, Hausdorff Research Institute for Mathematics, University of Bonn, 2015. (The other hour-long talks were by Michel Goemans (MIT), Monique Laurent (CWI), and James Lee (U. Washington).)
- Invited speaker, *Graph Fest*, National Security Agency, 2015.
- Invited speaker, Institute for Mathematics and its Applications (IMA) Workshop on *The Power of Randomness in Computation*, Georgia Tech., 2015.
- Invited focus lecture, Workshop on *Discrepancy and Modern Roundings*, Bellairs Research Institute of McGill University, 2015.
- Joint Distinguished Seminar, Virginia Bioinformatics Institute and Department of Computer Science, Virginia Tech., 2014.
- Invited speaker, ICERM workshop on *Stochastic Graph Models*, Brown University, 2014.
- One of two invited talks, *SIAM Workshop on Network Science*, SIAM Annual Meeting, San Diego, USA, 2013. (The other invited speaker: Lada Adamic from the University of Michigan; 22 contributed talks.)
- Invited speaker, Institute for Computing in Science Workshop on *Graph and Hypergraph Problems in Computational Science: Applications and Algorithms*, Park City, USA, July 2012.
- Invited speaker, *Workshop on Network Science in Electrical Engineering and Computer Science*, Indian Institute of Science, India, January 2012.
- Invited speaker, *DIMACS and the Center for Computational Intractability Joint Workshop on Approximation Algorithms: The Last Decade and the Next*, Princeton University, USA, June 2011.
- Invited keynote speaker at the *Sixth ACM SIGACT/SIGMOBILE International Workshop on Foundations of Mobile Computing (DIALM-POMC)*, Boston, USA, 2010. (Declined due to schedule-conflict.)
- Lecture at the *PanIIT Research Symposium* (part of the IIT Madras Golden Jubilee Celebrations), Indian Institute of Technology Madras, December 2008.

- Invited speaker, *Forty-Sixth Annual Allerton Conference on Communication, Control, and Computing*, University of Illinois at Urbana-Champaign, September 2008. (Declined due to schedule-conflict.)
- Invited speaker, *Network Design Workshop*, Ninth INFORMS Telecommunications Conference, March 2008.
- Invited speaker, *Fourth Symposium on Stochastic Algorithms, Foundations, and Applications (SAGA)*, ETH Zurich, Switzerland, September 2007.
- Distinguished invited speaker, *Fifty-Third Midwest Theory Day*, Purdue University, December 2006.
- Invited speaker for *FriezeFest*, Workshop in honor of Prof. A. Frieze’s 60th birthday, Carnegie-Mellon University, USA, October 2005.
- Invited speaker, *Workshop on Mathematical Modeling and Implications for Pandemic Influenza Preparedness*, Vancouver, March 2005. (Interdisciplinary workshop sponsored by the Public Health Agency of Canada, the British Columbia Centre for Disease Control, the Centre for Mathematics of Information Technology and Complex Systems, and the Pacific Institute of Mathematical Sciences.)
- Tutorial on “Performance of Peer-to-Peer Systems” with S. Banerjee, *Joint International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS-Performance)*, 2004.
- One of the main hour-long invited talks, *Second Annual McMaster Optimization Conference: Theory and Applications*, McMaster University, August 2002. (The other invited speakers: J. Betts (Boeing), S. Boyd (Stanford), C. Floudas (Princeton), R. Freund (MIT), R. Tapia (Rice), and Y. Ye (Stanford).)
- Invited speaker, *Workshop on Randomized Algorithms* preceding the Annual Conference on Foundations of Software Technology and Theoretical Computer Science, Kharagpur, India, December 1997.
- Keynote Speaker, Graduate Conference on Computer Science, State University of New York at Buffalo, March 1994.
- Department Colloquia: Duke University, Indian Institute of Technology Madras, Johns Hopkins University, Nanyang Technological University (Singapore), Princeton University, Swarthmore College, Toyota Technological Institute at Chicago, University of Connecticut, and the University of Iowa.
- Talks given at various institutions including Adobe, Inc., Applied Physics Lab (Johns Hopkins University), AT&T Research Labs, Brown University (Institute for Computational and Experimental Research in Mathematics), Carnegie-Mellon University, Celera Genomics, Columbia University, Dartmouth College, Dagstuhl, DIMACS Center, EPFL, Georgia Tech., Google, Hebrew University of Jerusalem, Indian Institute of Science, Indian Institute of Technology (Bombay, Madras), Institute for Advanced Study, Institute for Disease Modeling (Seattle),



Institute of Mathematical Sciences (Chennai), Los Alamos National Laboratory, Max Planck Institute, McGill University, Microsoft Research (Bangalore, Redmond, Silicon Valley), MIT, National Security Agency, New York University, Oxford University, Sandia National Laboratories, Stanford University (seminar converted to a group-discussion due to my flight's delay), Tata Institute of Fundamental Research, Technion, Uber (San Francisco), UC Berkeley (Simons Institute; talk delivered by video), UCLA, University of Chicago, University of Edinburgh, University of Illinois at Urbana-Champaign, University of Massachusetts at Amherst, University of Pennsylvania, University of Southern California, University of Texas at Austin, University of Toronto, University of Washington, and the Virginia Bioinformatics Institute.

### Invited Short Courses (Selected)

- Course on “Randomized Algorithms”, Indian Institute of Technology Madras, 2016. A full Ph.D.-level course offered under the *Global Initiative for Academic Networks* (GIAN) program.
- Mini-course on “Foundations of Machine Learning”, Indian Institute of Technology Madras, 2014.
- Three-week course “Randomized Algorithms”, Indian Institute of Technology Madras, June–July 2010. (Approximately 30 hours; equivalent to a full graduate-level course.)
- Short course on “Randomized rounding”, Institute of Mathematical Sciences, Chennai, India, December 1997.
- Short course on “Approximation algorithms via randomized rounding”, Joint summer school of the Humboldt-University (Berlin) and Adam Mickiewicz University (Poznan, Poland) on *Randomized Algorithms*, Antonin, Poland, September 1997.
- Short course on “Probabilistic Methods in Integer Programming,” University of Melbourne, Australia, June–July 1996.
- Short course on “The Role of Randomness in Computation”, BRICS (Basic Research Institute for Computer Science), University of Aarhus, Denmark, May 1995.

### Courses Taught

Fall 2018	CMSC 451	Design and Analysis of Computer Algorithms
Spring 2018	CMSC 651	Analysis of Algorithms (33 students + 2 audit)
Fall 2017	CMSC 451	Design and Analysis of Computer Algorithms (45 students)
Spring 2017	CMSC 858C	Randomized Algorithms (20 students + 3 audit)
Fall 2016	CMSC 451	Design and Analysis of Computer Algorithms (75 students)
Fall 2015	CMSC 858L	Foundations of Machine Learning (33 students + 1 audit)
Spring 2015	CMSC 858C	Randomized Algorithms (22 students + 5 audit)
Fall 2014	CMSC 451	Design and Analysis of Computer Algorithms (41 students)
Spring 2014	CMSC 287	Network Science and Networked Information: What can

		(Social) Networks do for us? (60 students)
Fall 2013	CMSC 651	Analysis of Algorithms (30 students)
Fall 2012	CMSC 651	Analysis of Algorithms (35 students + 2 audit)
Fall 2011	CMSC 858C	Randomized Algorithms (17 students)
Fall 2011	CMSC/MATH 456	Cryptology (39 students)
Spring 2011	HONR 219J	The Science Behind Social Networks and the Web (20 students)
Spring 2011	CMSC 858E	Models and Algorithms for Socio-Technical Networks (20 students + 3 audit)
Fall 2009	CMSC 652	Complexity Theory (12 students + 1 audit)
Fall 2009	CMSC/MATH 456	Cryptology (34 students)
Spring 2009	CMSC 858C	The Probabilistic Method (12 students + 3 audit)
Fall 2008	CMSC/MATH 456	Cryptology (29 students)
Spring 2007	CMSC 858S	Randomness and Computation (13 students + 2 audit)
Fall 2006	CMSC/MATH 456	Cryptology (35 students)
Spring 2006	CMSC 451	Design and Analysis of Computer Algorithms (32 students)
Fall 2005	CMSC/MATH 456	Cryptology (46 students + 1 audit)
Spring 2005	CMSC 451	Design and Analysis of Computer Algorithms (42 students)
Fall 2004	CMSC 858S	Algorithms in Networking (24 students + 1 audit)
Spring 2004	CMSC 451	Design and Analysis of Computer Algorithms (31 students)
Fall 2003	CMSC/MATH 456	Cryptology (37 students)
Spring 2003	CMSC 858T	Randomized Algorithms (10 students)
Fall 2002	CMSC 451	Design and Analysis of Computer Algorithms (45 students)
Spring 2002	CMSC 451	Design and Analysis of Computer Algorithms (28 students)
Fall 2001	CMSC 858S	Randomized Algorithms (23 students)

Undergraduate and graduate-level courses at the National University of Singapore, 1995–98.

### New Courses Developed and Teaching Fellowships

1. *Foundations of Machine Learning*, Fall 2015.
2. *Network Science and Networked Information: What can (Social) Networks do for us?*, taught Spring 2014. Selected as an undergraduate *General Education I-Series* class, and as a *Marquee Course in Science and Technology* at the University of Maryland.
3. *The Science Behind Social Networks and the Web* (Honors course), taught Spring 2011.
4. *Models and Algorithms for Socio-Technical Networks*, taught Spring 2011.
5. *Algorithms in Networking*, taught Fall 2004.
6. *Randomized Algorithms*, taught Fall 2001 and later.
7. Named one of the *Sustainability Teaching Fellows* at the University of Maryland, 2018-2019.

## Contracts, Grants, and Research Awards

1. *An AI-Based Decision Support Tool for Potential Participants in a Kidney Exchange*, AI in Business and Society Seed Grant, Smith School of Business, University of Maryland, 2018–2019. PIs: John Dickerson, Ilya Ryzhov, and Aravind Srinivasan.
2. *EAGER: Probabilistic Models and Algorithms*, National Science Foundation, 2017 – present. Sole Investigator.
3. *FOCS Conference Student and Postdoc Travel Support*, National Science Foundation, 2017 – 2018. Sole Investigator. (This is not a research grant; it is for student- and postdoc- travel support in my capacity as Vice Chair of the *IEEE Technical Committee on the Mathematical Foundations of Computing*.)
4. Data Science Research Award, Adobe, Inc., 2017. Sole Investigator.
5. *FOCS Conference Student Travel Support*, National Science Foundation, 2016 – 2017. Sole Investigator. (This is not a research grant; it is for student- and postdoc- travel support in my capacity as Vice Chair of the *IEEE Technical Committee on the Mathematical Foundations of Computing*.)
6. *Randomized Algorithms and Stochastic Models*, National Science Foundation, 2014 – present. Sole Investigator.
7. *Matching Advertisements and Content to Customers*, Digital Marketing Research Awards, Adobe, Inc., 2014. Sole Investigator.
8. *EMBERS: Early Model-Based Event Recognition using Surrogates*, IARPA, 2012 – 2016. Multi-institutional collaborative project; Srinivasan was the PI for Maryland.
9. *NetSE: Large: Collaborative Research: Contagion in Large Socio-Communication Networks*, National Science Foundation, 2010 – 2016. Multi-institutional collaborative project; Srinivasan was the PI for Maryland.
10. *Rigorous Probabilistic Trust-Inference with Applications to Social Network Analysis*, U.S. Army Research Office, 2010 – 2011. PI: Jennifer Golbeck, University of Maryland; Srinivasan was coPI.
11. *Collaborative Research: NeTS-NBD: An Integrated Approach to Computing Capacity and Developing Efficient Cross-Layer Protocols for Wireless Networks*, National Science Foundation, 2006 – 2011. Multi-institutional collaborative project; Srinivasan was the PI for Maryland.
12. *Public Health Preparedness for the Vancouver 2010 Winter Olympic Games: Developing Network-based Strategies for Major Public Events*, Canadian Institutes of Health Research, 2006–07. Multi-institutional collaborative project.
13. *Resilient Storage and Querying in Decentralized Networks*, National Science Foundation, ITR for National Priorities, 2004 – 2010. PI: Bobby (Samrat) Bhattacharjee; co-PIs Sudarshan Chawathe, Jonathan Katz, Michael Marsh, and Aravind Srinivasan.

14. *Probabilistic Approaches in Combinatorial Optimization*, National Science Foundation, 2002 – 2006. Sole Investigator.
15. *Algorithms for message routing and job-shop scheduling*, National University of Singapore Academic Research Fund, 1997–1998. Sole Investigator.
16. *Implementation of Approximation Algorithms and Heuristics for Optimisation*, National University of Singapore Academic Research Fund, 1996–1997. Sole Investigator.
17. *Travel Grants for Young Asian Scholars*, University of Melbourne, Australia, 1996. Sole Investigator.
18. *Research in Parallel Computing and Combinatorial Optimisation*, National University of Singapore Academic Research Fund, 1996–1998. Sole Investigator.

## Advising

**Current Doctoral Students:** Brian Brubach (co-advised with Mihai Pop), Leonidas Tsepeneas, Karthik A. Sankararaman, and Pan Xu (co-advised with John Dickerson).

## Graduated Doctoral Students:

- Amit Chavan, *Delta-Based Storage and Querying for Versioned Datasets*, May 2018. First employment: Amazon Web Services.
- Khoa Trinh, *Approximation Algorithms for Facility Location and Clustering Problems*, March 2017. First employment: Google.
- David G. Harris, *Algorithms and Generalizations for the Lovász Local Lemma*, August 2015. First employment: U.S. Federal Government.
- Bo Han, *Wide-Area Mobile Content Delivery*, August 2012. First employment: AT&T Labs Research.
- Thomas DuBois, *Using and Manipulating Probabilistic Connectivity in Social Networks*, April 2011. First employment: Laboratory for Telecommunications Sciences.
- David Levin, *Systems-Compatible Incentives*, September 2010. First employment: HP Labs.
- Srinivasan Parthasarathy, *Resource Allocation in Networked and Distributed Environments*, July 2006. First employment: IBM T. J. Watson Research Center.
- Nan Wang, *Modeling and Analysis of Massive Social Networks*, June 2005. First employment: Citadel Investment Group.

(Chavan co-advised with Amol Deshpande; Han co-advised with Bobby Bhattacharjee; Levin co-advised with Bobby Bhattacharjee and Neil Spring.)

**Master’s Students Advised:** Ioana Bercea, University of Maryland, 2013; Dan-Dan Lin, National University of Singapore, 1998; Thomas Pensyl, University of Maryland, 2016.

## Supervision of Graduate-Student Independent Study:

- Casey Mihaloew (modern randomized algorithms for game-tree search), Summer 2015.
- Neal Gupta (social networks, incentives, and crowdsourced interventions for public health), Spring 2015.
- Bin Han (machine learning), Fall 2013.
- Michael Kobayakov (complex networks), Fall 2005.

### **Mentorship of Undergraduate Research:**

- Mentor for Naveen Raman’s undergraduate research, Summer 2018–present.
- Mentor for Michael Eleff’s independent study (algorithms in finance), Spring 2015.
- Mentor for Jennifer Roberts’ informal independent study on quantum computing, Spring 2004.
- Mentor for multi-person Gemstone projects at the University of Maryland:
  - on reducing information overload through an improved email-management interface, 2011–2014: project that combines algorithms, psychology, and human-computer interaction;
  - one that combines bio-engineering and computer science for medical devices, 2013–2016;
  - on novel pharmaceutical drug-development processes through improvements in bioinformatics and computational toxicology, 2018–2021.

**Other Undergraduate Projects Supervised:** Various projects on Internet applications, financial and other applications software, and combinatorial optimization, National University of Singapore.

### **Mentorship of High-School Students:**

- Supervisor for Research Project, Steven Qu (student of Montgomery Blair High School), 2017-present. Co-advising with Prof.s Madhav Marathe and Anil Vullikanti.
- Supervisor for Research Project, Naveen Durvasula (rising freshman/student of Montgomery Blair High School), 2015-present. Co-advising with Prof. John Dickerson since Fall 2016.
- Supervisor for Research Project, Antares Chen (student of Montgomery Blair High School; co-advised with David Harris), 2014-2015.
- Supervisor for Senior Research Project, Levon Mkrtchyan (student of Montgomery Blair High School), 2006.

**Ph.D. Thesis-Committee Memberships:** *University of Maryland, College Park:* Jay Ghurye (2018), Sina Dehgani (2017), Soheil Ehsani (2017), Yulu Wang (2017), Kanthi Kiran Sarpatwar (2015), Vahid Liaghat (2015), Kan-Leung Cheng (2014), Rajesh Chitnis (2014), Jeongho Jeon

(ECE, 2013), Shivsubramani Krishnamoorthy (2013), Eunyong Seo (ECE, 2012), Arya Mazumdar (ECE, 2011), Barna Saha (2011), Osman Yagan (ECE, 2011), Moshe Adrian (Mathematics, 2010), Prasanth Anthapadmanabhan (ECE, 2009), Azarakhsh Malekian (2009), Brooke Shrader (ECE, 2008), Tolga Girici (ECE, 2007), Guang Han (ECE, 2007), David Omer Horvitz (2007), Jae-Yoon Jung (2007), Srinivas Kashyap (2007), Nan Liu (ECE, 2007), Abhishek Kashyap (ECE, 2006), Ruggero Morselli (2006), Tamer Nadeem (2006), Yoo-Ah Kim (2005), Andrzej Kochut (2005), Justin Yung-Chun Wan (2005), Rajiv Gandhi (2003). *Other universities:* Guanhong Pei (Virginia Tech., 2012), Deepti Chafekar (Virginia Tech., 2009), Sachin Lodha (Rutgers University, 2001), Stavros Kolliopoulos (Dartmouth College, 1998).

**Other Ph.D.-Proposal Committees:** *University of Maryland, College Park:* Soheil Behnezhad (2018), Tongyang Li (2018), Adam Bender (2009), Saurabh Srivastava (2008), Guilherme Fonseca (2006), Chiu-Yuen Koo (2006), Julian Mestre (2006), Arunchandar Vasani (2006).

**Honors Thesis Committee Memberships:** Jonathan Roberts and Chad Rivera, Department of Government and Politics, University of Maryland, 2003.

**Supervision of Software Project:** Second-year project assigned to Zhang Zhang, PhD student in Applied Mathematics & Statistics, and Scientific Computation (AMSC), Fall 2013 and Spring 2014.

## Departmental Service

2018-2019	Chair, Professorial Faculty Merit Committee.
2018-2019	Co-chair, Teaching Evaluation Committee.
2018	Committee to select candidates for Google PhD Fellowship nomination.
2018	Chair, Middle States Graduate Committee.
2018	Help with Graduate-Student Applications.
2017-2018	Faculty Search Committee.
2017-2018	Co-chair, Teaching Evaluation Committee.
2017-2018	Professorial Faculty Merit Committee.
2017	Help Middle States Committee evaluate the class CMSC 250, <i>Discrete Structures</i> .
2017	Committee to select candidates for <i>Outstanding Graduate Student University Fellowship</i> .
2016-17	Chair, Faculty Search Committee.
2016-17	Co-chair, Teaching Evaluation Committee.
2016-17	Promotion Committee for Prof. Andrew Childs.
2015	Chair, APT (Appointments, Tenure, and Promotions) Committee for a senior external faculty candidate.
2015	Committee to select candidates for Larry S. Davis Dissertation Award.
2015	Co-chair, Teaching Evaluation Committee.
2015	Middle States Graduate Committee.
2015	Chair, APT (Appointments, Tenure, and Promotions) Committee for an external faculty candidate.
2014-15	Co-chair, Teaching Evaluation Committee.
2014-15	Middle States Graduate Committee.
2014	Committee to select candidates for Larry S. Davis Dissertation Award and

for ACM Distinguished Dissertation Award nomination.

2014 Chair, APT (Appointments, Tenure, and Promotions) Committee for Prof. Andrew Childs.

2014 Committee to evaluate departmental nominations for Google PhD Fellowship.

2013–14 Undergraduate Awards & Scholarship Committee.

2013–14 Teaching Evaluation Committee.

2013 APT (Appointments, Tenure, and Promotions) Committee for a senior external faculty candidate.

2013 Graduate Admissions Committee.

2012–13 Chair, Graduate-student Placement Committee.

2012–13 Chair, *Algorithms and Theory* Field Committee.

2012 Committee to evaluate departmental IBM PhD Fellowship nominations.

2012 Graduate Admissions Committee.

2011–12 Teaching Evaluation Committee.

2011 Promotion Committee for Prof. MohammadTaghi Hajiaghayi.

2010–11 Teaching Evaluation Committee.

2010 Committee to select Gannon Summer Research Assistants.

2010 Promotion Committee for Prof. Mihai Pop.

2010 Graduate Admissions Committee.

2009–10 Teaching Evaluation Committee.

2008–09 Promotion Committee for Prof. Bobby Bhattacharjee.

2007–08 On sabbatical leave: no university service.

2007 Graduate Admissions Committee.

2006–07 Chair, Academic Integrity Committee.

2006–07 Chair, Teaching Evaluation Committee.

2006 Co-organizer, Panel on *The Future of Computer Science*.

2006 Graduate Program Revision Committee.

2005–06 Chair, *Algorithms and Theory* Field Committee.

2005–06 Chair, Academic Integrity Committee.

2005–06 Graduate Admissions Committee.

2005–06 Graduate Course Curriculum Committee.

2005–06 Teaching Evaluation Committee.

2004–05 Academic Integrity Committee.

2004–05 Help with Graduate-Student Applications.

2004–05 Chair, Friday Faculty Lunch Co-ordination.

2004 Coordinator, Graduate Student Orientation.

2004 Coordinator, TA Training Program.

2003–04 Academic Integrity Committee.

2003–04 Committee on Upper-Division Courses.

2003–04 Committee on Graduate Program.

2003–04 Chair, Friday Faculty Lunch Co-ordination.

2002–03 Departmental Self-Review Committee.

2002 Committee on Lower-Division Courses.

1995–98 Several departmental committees, National University of Singapore.

## UMIACS Service

- 2017–2018 Member, UMIACS Steering Committee.  
Oct 2012 Organizer, *Maryland Theory Day*.  
June 2008 Co-organizer, CHIDS-UMIACS workshop on  
*Health Information Management: The Next Wave*.  
2005–06 Search Committee for Faculty, Center for Bioinformatics and  
Computational Biology.  
2004–05 Search Committee for Director/Faculty, Center for Bioinformatics and  
Computational Biology.  
Fall 2003 Co-organizer, UMIACS–Laboratory for Telecommunications Sciences (LTS) Seminar.

## Service to College of Computer, Mathematical, and Natural Sciences, University of Maryland <sup>1</sup>

- 2008–10 College-level APT (Appointments, Tenure, and Promotions) Committee.  
2004 Computer Science Chairperson Review Committee.

## Service to the Graduate School, University of Maryland

- 2008–11 Graduate Council.

## Service to General Education, University of Maryland

- 2014–15 I-Series Faculty Board for General Education (three semesters).

## Outside Service

### Professional Technical Committees:

1. Chair of the Jury, ACM India’s Annual Doctoral Dissertation Award, 2018-2019, 2019-2020, and 2020-2021.
2. Vice Chair of the *IEEE Technical Committee on the Mathematical Foundations of Computing*, January 2015 – December 2017.

### Editorship:

1. Editor-in-Chief of the *ACM Transactions on Algorithms* (TALG), 2014 – present.
2. Managing Editor, *Theory of Computing* (ToC), 2006 – present (Editor, 2005 – 2006).
3. Associate Editor, *Networks*, 2006 – present.
4. Editor, *Journal of the Indian Institute of Science*, 2018 – present.
5. Associate Editor, *Journal of Computer and System Sciences* (JCSS), 2004 – 2014. (Stepped down in 2014.)

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<sup>1</sup>College previously named the College of Computer, Mathematical, and Physical Sciences



6. Editor, *Journal of Discrete Algorithms* (JDA), 2004 – 2012. (Stepped down in 2012.)
7. Guest editor (along with A. M. Frieze, R. D. Kleinberg, C. Peikert, A. Russell, and L. J. Schulman), special issue of the *SIAM Journal on Computing* (SICOMP), Vol. 42, Issue 3, 2013, devoted to selected papers from the *Forty-Second Annual ACM Symposium on Theory of Computing* (STOC 2010).
8. Guest editor (along with P. Sanders and B. Voeking), special issue of the journal *Theory of Computing Systems* (TOCS, formerly *Mathematical Systems Theory*), Volume 39, Number 6, 2006, devoted to selected papers from the *Sixteenth Annual ACM Symposium on Parallel Algorithms and Architectures* (SPAA 2004).
9. Guest editor (along with S. Khanna), special issue of the *Journal of Computer and System Sciences* (JCSS), Volume 69, Number 3, 2004, devoted to selected papers from the *Thirty-Fifth Annual ACM Symposium on Theory of Computing* (STOC 2003).

### **Program Committee Memberships:**

1. *Ninth International Conference on Fun with Algorithms* (FUN), Sardinia, Italy, 2018.
2. *Thirty-First International Symposium on Distributed Computing* (DISC), Vienna, Austria, 2017.
3. *Twenty-Eighth ACM Symposium on Parallelism in Algorithms and Architectures* (SPAA), Asilomar, USA, 2016.
4. *Seventeenth International Workshop on Approximation Algorithms for Combinatorial Optimization Problems* (APPROX), Barcelona, Spain, 2014.
5. *Thirty-First Annual ACM Symposium on Principles of Distributed Computing* (PODC), Madeira, Portugal, 2012.
6. *Twenty-Third Annual ACM-SIAM Symposium on Discrete Algorithms* (SODA), Kyoto, Japan, 2012.
7. *Thirty-First Annual Conference on Foundations of Software Technology and Theoretical Computer Science* (FST & TCS), Mumbai, India, 2011.
8. *Thirtieth IEEE Conference on Computer Communications* (INFOCOM), Shanghai, China, 2011.
9. *Forty-Second Annual ACM Symposium on Theory of Computing* (STOC), Boston, USA, 2010.
10. *Twenty-Ninth IEEE Conference on Computer Communications* (INFOCOM), San Diego, USA, 2010.
11. *Sixth IEEE International Conference on Distributed Computing in Sensor Systems* (DCOSS), Santa Barbara, USA, 2010.
12. *Twenty-Eighth Annual ACM Symposium on Principles of Distributed Computing* (PODC), Calgary, Canada, 2009.
13. *Genetic and Evolutionary Computation Conference* (GECCO), Montréal, Canada, 2009.
14. *Twenty-Eighth IEEE Conference on Computer Communications* (INFOCOM), Rio de Janeiro, Brazil, 2009.

15. *Twenty-Seventh Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FST & TCS)*, Delhi, India, 2007.
16. *Eleventh International Workshop on Randomization and Computation (RANDOM)*, Princeton, USA, 2007.
17. *Joint Workshop on Foundations of Mobile Computing (DIAL-M-POMC)*, co-located with ACM MOBICOM, Cologne, Germany, 2005.
18. *Sixteenth ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)*, Barcelona, Spain, 2004.
19. *Thirty-Fifth Annual ACM Symposium on Theory of Computing (STOC)*, San Diego, USA, 2003.
20. *Sixth International Workshop on Discrete Algorithms and Methods for Mobile Computing and Communications (DIAL M for Mobility)*, Atlanta, USA, 2002.
21. *Twenty-First Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FST & TCS)*, Bangalore, India, 2001.
22. *Fourth International Workshop on Discrete Algorithms and Methods for Mobile Computing and Communications (DIAL M for Mobility)*, Boston, USA, 2000.
23. *Fourth International Workshop on Randomization and Approximation Techniques in Computer Science (RANDOM)*, Geneva, Switzerland, 2000.
24. *Asian Computing Science Conference (ASIAN)*, Phuket, Thailand, 1999.
25. *Tenth Annual International Symposium on Algorithms and Computation (ISAAC)*, Chennai, India, 1999.
26. *Ninth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, San Francisco, USA, 1998.
27. *Sixth Scandinavian Workshop on Algorithm Theory (SWAT)*, Stockholm, Sweden, 1998.
28. *Eighteenth Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FST & TCS)*, Chennai, India, 1998.
29. *Seventh Annual International Symposium on Algorithms and Computation (ISAAC)*, Osaka, Japan, 1996.

#### Conference Organization:

- Co-organizer, *Random Roads*, a conference in honor of Prof. Joel Spencer’s 70th birthday, New York University, USA, 2016.
- Co-organizer, Workshop on “Recent Advances on the Lovász Local Lemma” associated with the *ACM Symposium on Theory of Computing*, 2014.
- Organizer, *Maryland Theory Day*, University of Maryland, 2012.
- Organizer and Chair, Session on Wireless Networking, *Twentieth International Symposium on Mathematical Programming (ISMP)*, Chicago, USA, 2009.
- Chair, Local Organizing Committee, *Annual ACM Symposium on Theory of Computing (STOC)*, Bethesda, MD, USA, 2009.

- Co-organizer, CHIDS-UMIACS workshop on *Health Information Management: The Next Wave*, June 2008.
- Co-organizer, *Workshop on Wireless and Sensor Networking*, Bertinoro, Italy, August 2007.
- Co-organizer, Conference on *Probabilistic Combinatorics & Algorithms* in honor of Prof. Joel Spencer's 60th birthday. DIMACS Center, Piscataway, USA, April 2006.
- Co-organizer, Workshop on *Algorithms in Networking*, co-located with the *Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FST & TCS)*, Hyderabad, India, December 2005.
- Member, Local Organizing Committee, *Annual ACM Symposium on Theory of Computing (STOC)*, Baltimore, USA, May 2005.
- Co-organizer, *Workshop on Random Graphs and Randomized Algorithms*, Bertinoro, Italy, May 2002.
- Co-organizer, *DIMACS Mini-Workshop on Quality of Service Issues in the Internet*, DIMACS Center, Piscataway, USA, February 2001.
- Chair, Session on *Data Network Routing and Modeling*, Fifth INFORMS Telecommunications Conference (BOCA 2000), Boca Raton, USA, March 2000.
- Organizer and one of the speakers, *Symposium on Parallel & Distributed Computing and Networks*, National University of Singapore, July 1998. (Speakers from Telcordia Technologies—formerly Bellcore, Carnegie-Mellon University, Harvard University, MIT, National University of Singapore, Rice University, University of Illinois at Urbana-Champaign, and the University of Texas at Austin.)

#### **Reviewing and Related Panels/Workshops:**

- Invited participant, *Adobe Data Science Symposium*, Adobe, San Jose, California (2017, 2016, 2015, and 2014). Also, one of the speakers in 2015.
- Invited participant, National Science Foundation Workshop on *Future Directions in Wireless Networking*, November 2013.
- Invited participant, National Science Foundation Workshop on *The Science of Power Management*, April 2009.
- Invited speaker and participant, National Science Foundation Workshop on *Bridging the Gap between Wireless Networking Technologies and Advances at the Physical Layer*, August 2007.
- Invited participant for External Partners discussion, Scientific Review of the Virginia Bioinformatics Institute, June 2007.
- National Science Foundation Award Panels: thirteen panels.
- Proposal reviews: National Science Foundation *ad hoc* reviews, U.S. Army Research Office, NSERC (Canada), European Research Council, Israel Science Foundation, US-Israel Binational Science Foundation, Indo-U.S. Science & Technology Forum, John Simon Guggenheim Memorial Foundation, Indo-Swiss Joint Research Programme, Qatar National Research Fund, and research proposal submitted to the National University of Singapore.

- External evaluation of Ph.D. theses submitted to other institutions: two.
- External reviewer for a senior researcher, HP Labs (formerly *DEC Systems Research Center*), Palo Alto, USA, 1998.
- Refereed submissions for various journals including *ACM Transactions on Algorithms*, *ACM Transactions on Computer Systems*, *Algorithmica*, *Combinatorica*, *Discrete Applied Mathematics*, *Distributed Computing*, *Electronic Journal of Combinatorics*, *European Journal of Combinatorics*, *IEEE Journal on Selected Areas in Communications*, *IEEE Transactions on Computers*, *IEEE Transactions on Parallel and Distributed Systems*, *Information and Computation*, *Information Processing Letters*, *Journal of the ACM*, *Journal of Algorithms*, *Journal of Computer and System Sciences*, *Journal of Parallel and Distributed Computing*, *Journal of the Royal Society Interface*, *Mathematical Methods of Operations Research*, *Mathematical Programming*, *Mathematics of Operations Research*, *Operations Research*, *PLOS ONE*, *Proc. National Academy of Sciences*, *Probability Theory and Related Fields*, *Random Structures & Algorithms*, *Science*, *SIAM Journal on Computing*, *SIAM Journal on Discrete Mathematics*, *Statistics & Probability Letters*, *Theoretical Computer Science*, *Theory of Computing*, and *Theory of Computing Systems*.

### Community and Outreach Activities:

- Gave approximately six hours of lectures on the Lovász Local Lemma at the *Program in Algorithmic and Combinatorial Thinking* (PACT) at Princeton University, July 2017. This high-quality program is run for selected high-school- and college- students by Prof. Rajiv Gandhi of Rutgers University.
- Gave approximately seven hours of lectures (primarily on the Lovász Local Lemma and on Balls-and-Bins Processes) at the NSF-supported *Program in Algorithmic and Combinatorial Thinking* (PACT) at Princeton University, July 2014. This high-quality program is run for selected high-school- and college- students by Prof. Rajiv Gandhi of Rutgers University.
- Prepared/bought and served dinner approximately once a month at a homeless-women's shelter in Rockville, Maryland, 2005–present.
- Volunteer mentor for an undergraduate student, *Achieving College Excellence* (ACE) Program ([http://www.omse.umd.edu/achieving-college-excellence-\(ace\).html](http://www.omse.umd.edu/achieving-college-excellence-(ace).html)) at the University of Maryland, 2009–2010.
- Lectured on *Mathematics for the Information Age* at the Minnesota State Community and Technical College, August 2009.
- Volunteer for free Medical Camp in inner-city Baltimore, 2008.
- Lectured on algorithmic ideas underlying information security and web-search, *Passport* summer program for high-school students, University of Maryland, 2005.
- Co-ordinator for DOOR, a program supported by ACM, IEEE and SIAM to contribute selected conference proceedings to academic institutions in developing countries, 1993–94.

**Recent Consulting:** Research labs and technology companies including Atomic Mole, EnvIO Networks, Los Alamos National Laboratory, Microsoft Research (Redmond), Navigation Technologies, nference, and Veveo, Inc. On the Board of Advisors for ZeroFOX, Inc., 2013–2016.