Stanford

Ashish Goel

Stanford W. Ascherman, MD Professor in the School of Engineering and Professor, by courtesy, of Computer Science

Management Science and Engineering

Bio

BIO

Ashish Goel is a Professor of Management Science and Engineering, the Fortinet Founders Chair of Management Science and Engineering, and Professor (by courtesy) of Computer Science at Stanford University. He received his PhD in Computer Science from Stanford in 1999, and was an Assistant Professor of Computer Science at the University of Southern California from 1999 to 2002. His research interests lie in the design, analysis, and applications of algorithms.

ACADEMIC APPOINTMENTS

- Professor, Management Science and Engineering
- Professor (By courtesy), Computer Science
- Member, Bio-X
- Faculty Affiliate, Institute for Human-Centered Artificial Intelligence (HAI)
- Member, Institute for Computational and Mathematical Engineering (ICME)

HONORS AND AWARDS

- Sloan Research Fellowship, Alfred P. Sloan Foundation
- Frederick E. Terman Fellow, Stanford University
- CAREER Award, National Science Foundation (2002)

PROFESSIONAL EDUCATION

- PhD, Stanford University , Computer Science (1999)

LINKS

- https://web.stanford.edu/~ashishg/ashishg.html: https://web.stanford.edu/~ashishg/ashishg.html

Teaching

COURSES

2025-26

- Artificial Intelligence and Deliberative Democracy: MS&E 10SC (Sum)
- Networks: MS&E 135 (Spr)

2024-25

- Applied Optimization: MS&E 114, MS&E 214 (Aut)
- Artificial Intelligence and Deliberative Democracy: MS&E 10SC (Sum)
- Networks: MS&E 135 (Win)

2023-24

- Advanced Applied Optimization: MS&E 214 (Spr)
- Artificial Intelligence and Deliberative Democracy: MS&E 10SC (Sum)
- Computational Social Choice: CS 366, MS&E 336 (Win)
- Optimization and Algorithmic Paradigms: CS 261 (Aut)

2022-23

- Algorithms for Decentralized Finance: MS&E 339 (Aut)
- Artificial Intelligence and Deliberative Democracy: MS&E 10SC (Sum)
- Introduction to Optimization: ENGR 62, MS&E 111, MS&E 211 (Win)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Yann Aouidef, Sijing Tu

Doctoral Dissertation Advisor (AC)

Naman Gupta, Sahasrajit Sarmasarkar

Orals Evaluator

Prasanna Ramakrishnan

Master's Program Advisor

Amy Chang, Vedant Garg, Chris Gu, Andrew Hong, Taeuk Kang, Ryan Le, Yusra O, Samrat Sahoo, Adam Shugar, Ryan Suh, Emily Tran, Hiva Zaad, Claire Zhao

Doctoral (Program)

Nishka Arora, Henry Robbins, Chenghan Zhou

Publications

PUBLICATIONS

- **Opinion Change or Differential Turnout: Austin's Budget Feedback Exercise and the Police Department** *EAAMO '22: Equity and Access in Algorithms, Mechanisms, and Optimization*
  Gelauff, L. L., Goel, A.
  2022
- **Fast Incremental and Personalized PageRank.** *To appear in VLDB*
  Bahmani, B., Chowdhury, A., Goel, A.
  2011
- **Liquidity in Credit Networks: A Little Trust Goes a Long Way.** *Preliminary version presented at NetEcon*
  Dandekar, P., Goel, A., Govindan, R., Post, I.
  2010
- **Similarity Search and Locality Sensitive Hashing using TCAMs.** *ACM SIGMOD*
  Shinde, R., Goel, A., Gupta, P., Dutta, D.
  2010

- **An incentive-based architecture for social recommendations.** *RecSys*
  Bhattacharjee, R., Goel, A., Kollias, K.
  2009
- **Hybrid keyword search auctions.**
  Goel, A., Munagala, K.
  2009
- **Reducing Maximum Stretch in Compact Routing.** *IEEE Infocom*
  Enachescu, M., Wang, M., Goel, A.
  2008
- **Towards programmable molecular machines.** *Presented (by Holin) at FNANO*
  Chen, H., De, A., Goel, A.
  2008
- **Advertisement Allocation for Generalized Second Pricing Schemes.** *fourth Workshop on Ad Auctions*
  Goel, A., Mahdian, M., Nazerzadeh, H., Saberi, A.
  2008
- **Toward Minimum Size Self-Assembled Counters.** *and journal of natural compting*
  Goel, A., Moisset de espanes, P.
  2007; 7 (3): 317-334
- **Self-Assembling Tile Systems that Heal from Small Fragments.** *Presented at the thirteenth International meeting on DNA based computers (DNA), (winner of the best student paper award – congratulations, Holin and Chris).*
  Chen, H., Goel, A., Luhrs, C., Winfree, E.
  2007
- **Truthful auctions for pricing search keywords.**
  Aggarwal, G., Goel, A., Motwani, R.
  2006
- **Asking the right questions: Model-driven Optimization using Probes.**
  Goel, A., Guha, S., Munagala, K.
  2006
- **Pricing for fairness: distributed resource allocation for multiple objectives.**
  Cho, S., Goel, A.
  2006
- **Avoiding ballot-stuffing in eBay-like reputation systems.** *Third international workshop on economics of peer-to-peer systems*
  Bhattacharjee, R., Goel, A.
  2005
- **Multi-processor scheduling to minimize flow time with ε-resource augmentation.**
  Chekuri, C., Goel, A., Khanna, S., Kumar, A.
  2004
- **Invadable Self-Assembly: Combining Robustness with Efficiency.**
  Chen, H., Cheng, Q., Goel, A., Huang, M., D., Moisset, P.
  2004
- **Optimal self-assembly of counters at temperature two.**
  Cheng, Q., Goel, A., Moisset, P.
  2004
- **Set K-Cover Algorithms for Energy Efficient Monitoring in Wireless Sensor Networks.**
  Abrams, Z., Goel, A., Plotkin, S.
  2004

- **Sharp thresholds for monotone properties in random geometric graphs.**
  Goel, A., Rai, S., Krishnamachari, B.
  2004
- **The Design of a Distributed Rating Scheme for Peer-to-peer Systems.** *Workshop on Economic Issues in Peer-to-Peer Systems*
  Dutta, D., Goel, A., Govindan, R., Zhang, H.
  2003
- **Oblivious AQM and Nash Equilibria.** *IEEE Infocom*
  Dutta, D., Goel, A., Heidemann, J.
  2003
- **Incrementally Improving Lookup Latency in Distributed Hash Table Systems.** *ACM Sigmetrics, A more complete version with proofs is available as USC Computer Science technical report 03-786.*
  Zhang, H., Goel, A., Govindan, R.
  2003
- **Simultaneous Optimization for Concave Costs: Single Sink Aggregation or Single Source Buy-at-Bulk.**
  Goel, A., Estrin, D.
  2003
- **Energy-efficient Broadcast in Wireless Ad-hoc Networks: Lower bounds and Algorithms.** *Journal of Interconnection Networks*
  Bian, F., Goel, A., Raghavendra, C., Li, X.
  2002; 3-4 (3): 149-166
- **SCADDAR: An Efficient Randomized Technique to Reorganize Continuous Media Blocks.**
  Goel, A., Shahabi, C., Yao, S., Y., Zimmerman, R.
  2002
- **Combinatorial optimization problems in self-assembly.**
  Adleman, L., Cheng, Q., Goel, A., Huang, M., D., Kempe, D., Moisset de espanes, P.
  2002
- **Using the Small-World Model to Improve Freenet Performance.** *IEEE Infocom*
  Zhang, H., Goel, A., Govindan, R.
  2002
- **Exact Sampling of TCP Window States.** *IEEE Infocom*
  Goel, A., Mitzenmacher, M.
  2002
- **Running time and program size for self-assembled squares.**
  Adleman, L., Cheng, Q., Huang, M., D.
  2001
- **Linear self-assemblies: Equilibria, entropy, and convergence rates.**
  Adleman, L., Cheng, Q., Huang, M., D., Wasserman, H.
  edited by Elaydi, Ladas, Aulbach
  2001
- **Efficient computation of delay-sensitive routes from one source to all destinations.** *IEEE Infocom*
  Goel, A., Ramakrishnan, K., G., Kataria, D., Logothetis, D.
  2001
- **Using approximate majorization to characterize protocol fairness.** *This is the full version of a poster paper in ACM SIGMETRICS, and does not actually appear in print anywhere.*
  Bhargava, R., Goel, A., Meyerson, A.
  2001
- **Exact sampling in machine scheduling problems.** *RANDOM*

Goel, A., Cho, S.
2001

- **Source routing and scheduling in packet networks.** *IEEE Foundations of Computer Science*
  Andrews, M.
  2001
- **Reductions Among High Dimensional Proximity Problems.**
  Goel, A., Indyk, P., Varadarajan, K.
  2001
- **Combining Fairness with Throughput: Online Routing with Multiple Objectives.**
  Goel, A., Meyerson, A., Plotkin, S.
  2000
- **Extending Greedy Multicast Routing to Delay Sensitive Applications.**
  Goel, A., Munagala, K.
  2000
- **Algorithms for Network Routing, Multicasting, Switching, and Design.** *Computer Science Department*
  Geol, A.
  1999
- **Scheduling Data Transfers in a Network and the Set Scheduling Problem.**
  Goel, A., Henzinger, M., R., Plotkin, S., Tardos, E.
  1999
- **Stochastic Analysis of Stable Marriages in Combined Input Output Queued Switches.**
  Goel, A., Prabhakar, B.
  1999
- **Stochastic Load Balancing and Related Problems.** *In IEEE Foundations of Computer Science*
  Goel, A., Indyk, P.
  1999
- **Approximating arbitrary metrics by O(n log n) trees.** *IEEE Foundations of Computer Science*
  Geol, A., Charikar, M., Chekuri, C., Guha, S., Plotkin, S.
  1998
- **Online Throughput-Competitive Algorithm for Multicast Routing and Admission Control.**
  Goel, A., Henzinger, M., Plotkin, S.
  1998
- **Rounding via trees: deterministic approximation algorithms for group Steiner trees and k-median.**
  Goel, A., Charikar, M., Chekuri, C., Guha, S.
  1998
- **Approximation Algorithms for Directed Steiner Problems.**
  Goel, A., Charikar, M., Chekuri, C., Cheung, T., Dai, Z., Guha, S.
  1998