

# Yogeshwer Sharma

---

4106 Upson Hall, Computer Science, Cornell University, Ithaca, NY 14853  
yogi@cs.cornell.edu • <http://www.cs.cornell.edu/w8/~yogi> • +1-607-255-8758

**RESEARCH INTERESTS** I am interested in the theoretical aspects of Computer Science. Specifically, my research focuses on **computational and online learning**, **game theory**, **mechanism design**, and **approximation algorithms**. I am particularly interested in the questions at the interface of game theory and learning.

**EDUCATION** **Ph. D.** (Computer Science, Cornell University) *August 2004–present*

- Advisors: David Williamson and Robert Kleinberg.
- Thesis: Expressive models for online learning and network design.
- Minor degree: Operations Research and Information Engineering.

**B. Tech.** (Computer Science & Engineering, IIT Kanpur, India) *July 2000–May 2004*

- Advisor: Somenath Biswas.
- Thesis: Density of generalized Carmichael numbers and their use in primality testing.
- GPA: 9.9/10.0.

**PROFESSIONAL EXPERIENCE** **Research intern** *May–August 2008*  
Microsoft Research, Silicon Valley, CA.

**Intern** *May–July 2003*  
Programming Logics group (AG2), MPI, Saarbrücken, Germany.

**AWARDS AND HONORS** **Best Student Paper Award** for the paper “Regret bounds for sleeping experts and bandits”. COLT 2008.

**Certificate of achievement for teaching** for outstanding accomplishments and contributions as a teaching assistant. Cornell University, Fall 2006, Fall 2007, Fall 2008.

John Hopcroft Fellowship, Department of Computer Science, Cornell University, Fall 2005.

**The President’s Gold Medal** for the best academic performance in the graduating class in all disciplines of the undergraduate programmes of study. IIT Kanpur, May 2004.

Various awards for academic performance during college (IIT Kanpur), including The General Proficiency Award (May 2004), The Certificate of Merit for Academic Excellence (2000–2001, 2001–2002, 2002–2003), Dr. V. Rajaraman Scholarship (Jan 2004), Neeraj Kapoor Scholarship (2003–2004), D. R. Bhagat Scholarship (2002–2003).

Indian National Mathematics Olympiad, 1999.

1<sup>st</sup> rank in 10<sup>th</sup> grade in all Navodayas of India (about 450 schools). Invited to visit Indian Space Research Organization Centers, Jan 1999.

36<sup>th</sup> rank in India in the entrance test for Rashtriya Indian Military College, Dehradun. 1996.

**PUBLICATIONS** Moshe Babaioff, Yogeshwer Sharma, and Aleksandrs Slivkins. Characterizing truthful multi-armed bandit mechanisms. In *ACM Conference on Electronic Commerce (EC) 2009*, pages 79–88.

Yogeshwer Sharma and David Williamson. Stackelberg thresholds in network routing games or the value of altruism. *Games and Economic Behavior*, 67(1):174–190, September 2009. Preliminary version appeared in *ACM Conference on Electronic Commerce (EC) 2007*, pages 93–102. **Invited** to Games and Economic Behavior.

Robert Kleinberg, Alex Niculescu-Mizil, and Yogeshwer Sharma. Regret bounds for sleeping experts and bandits. To appear in *Machine Learning Journal*. Preliminary version appeared in *Conference on Learning Theory (COLT) 2008*, pages 425–436. **Best Student Paper Award. Invited** to Machine Learning Journal.

Chandrashekhhar Nagarajan, Yogeshwer Sharma, David Williamson. Approximation algorithms for prize-collecting network design problems with general connectivity requirements. In *Workshop on Approximation and Online Algorithms (WAOA) 2008*, pages 174–187.

Yogeshwer Sharma, Chaitanya Swamy, David Williamson. Approximation algorithms for prize-collecting forest problems with submodular penalty functions. In *ACM-SIAM Symposium on Discrete Algorithms (SODA) 2007*, pages 1275–1284.

UNDER  
SUBMISSION

Lukas Kroc, Yogeshwer Sharma, Mahesh Balakrishnan, Ken Birman. An analytical approach to designing message ferry routes. Available online at <http://www.cs.cornell.edu/~mahesh/pizzas-full.pdf>, 2008.

TALKS

- Approximation algorithms for prize-collecting forest problems
- Symposium on Discrete Algorithms (SODA) 2007, New Orleans, January 2007.
  - Thesis Proposal, Cornell University, May 2007.
- Stackelberg thresholds in network routing games or the value of altruism
- ACM Conference on Electronic Commerce 2007, San Diego. June 2007.
  - Theory Seminar, Department of Computer Science, Cornell University, April 2007.
  - Department of Computer Science & Engineering, IIT Kanpur, January 2008.
- Regret bounds for sleeping experts and bandits
- Microsoft Research, Silicon Valley, June 2008.
  - Conference on Learning Theory, COLT 2008, Helsinki, Finland, July 2008.
  - Artificial Intelligence Seminar, Cornell University, Fall 2008.
  - INFORMS Applied Probability Society Conference, Cornell University, July 2009.
- Characterizing truthful multi-armed bandit mechanisms
- Microsoft Research, Silicon Valley, August 2008.
  - Theory Seminar, Cornell University, February 2009.
  - ACM Conference on Electronic Commerce 2009. Stanford, July 2009.
  - The 2nd Eastern Great Lakes Theory of Computation Workshop, October 2009.

TEACHING

**Teaching for Introduction to Theory of Computation** *Fall 2008*  
Taught quarter of the course Introduction to Theory of Computation for Prof. John Hopcroft.

**Teaching assistant** *2004–2009*  
Responsibilities included holding office hours, review sessions and individual appointments with students; helping design, write solutions for, and grade exams and homeworks; periodically giving lectures; and managing a group of undergraduate TAs.

- Introduction to Theory of Computing (with John Hopcroft, Fall 2007)
- Introduction to Theory of Computing (with John Hopcroft, Fall 2006)
- Introduction to Algorithms (with Tom Wexler, Spring 2006)
- Discrete Structures (with Éva Tardos, Spring 2005)
- Introduction to Java Programming (with Graeme Bailey, Fall 2004)

**Co-Instructor for Data Structures and Algorithms** *Summer 2004, IIT Kanpur*  
Co-taught a course on Data Structures and Algorithms for freshmen and sophomores.

**Guest lectures** *Fall 2006–present*

- Introduction to the Theory of Computing (Fall 2006, Fall 2007)

- Introduction to Analysis of Algorithms (Spring 2006)
- The Design and Analysis of Algorithms, a graduate algorithms course (Fall 2008)
- Mathematical Programming I, a graduate course in Operations Research (Fall 2008)

COURSES

**Algorithms and optimization:** network flows, approximation algorithms, matroid theory, scheduling algorithms, mathematical and linear programming, algorithms on random graphs, advanced algorithms.

**Game theory, electronic markets, and information networks:** information-theoretic aspects of algorithms (network coding, error correcting codes, compressed sensing), computational learning theory, algorithmic game theory, structure of information networks.

**Mathematics and theory:** stochastic processes, probability theory, complexity theory, theory of computation\*, mathematical statistics\*, linear algebra\*, algebra\*, analytic number theory\*, analysis\*, topology\*.

**Courses with programming component:** advanced systems, advanced programming languages, introduction to algorithms\*, operating systems\*, introduction to programming languages\*, programming tools and techniques\*, compilers\*, databases\*, mobile computing\*, computer architecture\*, networking\*.

**Education:** innovative teaching in the sciences, international teaching assistant development workshop (2 weeks).

(\* indicates undergraduate courses)

PROGRAMMING SKILLS

**Languages:** C, C++ (basic), Java, Scheme (basic), Python (basic).

**Operating Systems:** Linux, Windows (basic).

**Other Tools:** Vim and Vim-Script, L<sup>A</sup>T<sub>E</sub>X, Lex, Yacc, Subversion, Shell Programming.

PROFESSIONAL SERVICES

**Referee**

SIAM Journal on Computing (SICOMP), Mathematics of Operations Research, AAAI Conference on Artificial Intelligence 2008, SODA 2009, International Joint Conferences on Artificial Intelligence (IJCAI) 2009, Workshop on Internet and Network Economics (WINE) 2009, ACM Conference on Electronic Commerce (EC) 2009, STOC 2010.

**Organizer, Cornell Theory Discussion Group**

*Fall 2005–Spring 2007*

EXTRA-CURRICULAR

**President, Samadhi Cornell Yoga Club**

*August 2008–December 2009*

**Telluride Hall full room and board scholarship**

*2009–2010*

Accepted at Cornell Branch of Telluride Association for up to five years. (Declined)

**Interests**

Yoga, Triathlon, Juggling, Running, Gymnastics, Volleyball.

REFERENCES

**David Williamson**, OR&IE, Cornell University, [dpw@cs.cornell.edu](mailto:dpw@cs.cornell.edu).

**Robert Kleinberg**, Computer Science, Cornell University, [rdk@cs.cornell.edu](mailto:rdk@cs.cornell.edu).

**John Hopcroft**, Computer Science, Cornell University, [jeh@cs.cornell.edu](mailto:jeh@cs.cornell.edu).

**Alex Slivkins**, Microsoft Research, Silicon Valley, [slivkins@microsoft.com](mailto:slivkins@microsoft.com).