

# Mohammad Hossein BATENI

Computer Science Department  
35 Olden Street  
Princeton, NJ 08540

Cell Phone: +1 (609) 751-1856  
mbateni@cs.princeton.edu  
<http://www.cs.princeton.edu/~mbateni>

## RESEARCH INTERESTS

- ◇ Algorithms, (Combinatorial) Optimization
- ◇ Approximation Algorithms, Hardness of Approximation
- ◇ Network Design, Mobile Computing, Network Management
- ◇ Fair Allocation, Algorithmic Game Theory
- ◇ Graph Theory, Combinatorics

## EDUCATION

Princeton University, Princeton, New Jersey.

Ph.D. candidate in Computer Science; advisor: Prof. Moses Charikar; since Fall 2006.

*General Exam* with Profs. Moses Charikar, Sanjeev Arora and Robert Tarjan (Spring 2008)

Master of Arts degree in Computer Science, September 2008.

*Courses and other exams (Current GPA, 4.0/4.0):* Advanced Algorithms, Data Structures and Graph Algorithms, Algebraic Methods in Combinatorics, Design of Programming Languages, Artificial Intelligence, Information Security, Approximation Algorithms and Complexity, Computer Networks, Complexity Theory, Network Design and Game Theory.

Sharif University of Technology, Tehran, IRAN. September 2002 - April 2006

B.Sc. in Computer Engineering, **GPA: 18.5/20.**

Thesis: *Plane Embedding of Planar Graph Metrics*, **20/20**

*Relevant Coursework (GPA 19.69/20):* Programming, Discrete Mathematics, Parallel Processing (Grad.), Combinatorial Optimization (Grad.), Data Structures and Algorithms, Theory of Computation, Computer Networks, Operating Systems, Compilers, Computer Architecture, Quantum Computation (Grad.), Modern Information Retrieval.

## HONORS AND AWARDS

- ◇ (Co-coach of) **2<sup>nd</sup> Team** in ACM-ICPC Regional Contest (Greater NY) and advancing to World Finals, 2008, Union, NJ; ranked **13<sup>th</sup>** in the World Finals, Alberta, Canada.
- ◇ **Gordon Wu Fellow**, Fall 2006 to Summer 2010
- ◇ Ranked **2<sup>nd</sup>** in Cumulative GPA among more than 100 students of the department, 2002 beginners, Sharif University of Technology, Sep 2005
- ◇ **1<sup>st</sup> Team** in ACM-ICPC Regional Contest and advancing to World Finals, 2003 and 2004, Tehran, IRAN
- ◇ **3<sup>rd</sup> Team** in ACM-ICPC Regional Contest, 2002, Tehran, IRAN
- ◇ Invited for an all-expense-paid visit to Google Corp., Mountain View, CA, as a **World-class Programmer**, August 2005.
- ◇ **4<sup>th</sup> Place** in ICPC/IBM Parallel Challenge, 2005, Shanghai, China
- ◇ **16<sup>th</sup> Place** in ICPC Java Challenge, 2004, Prague, Czech Rep.
- ◇ **17<sup>th</sup> Team** in ACM-ICPC World Finals, 2005, Shanghai, China
- ◇ **Honorable Mention** in ACM-ICPC World Finals, 2004, Prague, Czech Rep.
- ◇ **Gold Medal** in International Olympiad in Informatics (IOI) 2002, in South Korea
- ◇ **Bronze Medal** in Central European Olympiad in Informatics (CEOI) 2002, in Slovakia
- ◇ **Gold Medal** in Iranian National Olympiad in Informatics, 2001
- ◇ Awarded as **Outstanding Student** by university president, 2002, 2003 and 2005

## RESEARCH EXPERIENCE

- ◇ **Research Collaborator with AT&T Labs. – Research;** since Fall 2008  
Working in Algorithms and Theoretical Computer Science group on Steiner Network problems.

- ◇ **Summer Internship in AT&T Labs. – Research** Summer 2008  
Mentor: Dr. MohammadTaghi Hajiaghayi – working on “VPN Network Design,” “Optimizing Cache Server Allocation for Anycast” and “Scheduling Database updates.”
- ◇ **Research Assistantship in Princeton University** since Spring 2007  
Advisor: Professor Moses Charikar – working on “Fair Allocation of Indivisible Goods.”
- ◇ **Joint Research** with Dr. MohammadTaghi Hajiaghayi, Fall 2007  
Working on Network Design Problems with Generalized Cost Functions: Work in Progress.
- ◇ **Undergraduate Research in Institute for Studies in Theoretical Physics and Mathematics (IPM)** Summer and Fall 2005  
Mentor: Dr. MohammadTaghi Hajiaghayi, Computer Science Department  
Worked on Low-distortion Embedding of special graphs.
- ◇ **Undergraduate Research in Parallel Processing Lab, Sharif University of Technology** Spring and Summer 2005  
Worked on Scheduling of parallel jobs with probabilistic failures.
- ◇ **Research Developer, Sharif OnlineJudge Project**, Winter and Spring 2006  
The goal is to design and develop a computer system, similar to other OnlineJudges in the world, to promote ACM-ICPC trainings and to develop the programming talents of High School students, accessible from here.
- ◇ **Undergraduate Research in Information Retrieval Lab. Sharif University of Technology** Winter and Spring 2005  
Worked on Spam Detection mechanisms.
- ◇ **Reviewer** for CSICC 2006, IWPEC 2008, SODA 2008-9, FOCS 2008, Discrete Mathematics Journal, Algorithmica, The ACM Transactions on Algorithms and SIAM Journal of Computing.
- ◇ **Teaching Assistant, Princeton University**, Fall 2007 and Spring 2008  
T.A. for the courses “Reasoning About Computation” (Moses Charikar, Bernard Chazelle) and “Theory of Algorithms” (Bob Tarjan)  
Responsibilities included: holding precept sessions and office hours; help designing problem sets and providing solutions thereto; grading problem sets and exams.
- ◇ **Co-coach of Princeton ACM-ICPC team**, Fall 2006 onwards; designing problems and holding contests to select the university teams for the regional contest.
- ◇ **Scientific Chairman and System Manager**, for holding the 1<sup>st</sup> Norouz Contest, Spring 2006; the contest was meant to select the Iranian National IOI team members.
- ◇ **Coordinator of Sharif UT ACM-ICPC Training sessions**, Fall 2005 and Winter 2006.
- ◇ **Scientific Chairman and System Manager**, for holding Iran’s 2<sup>nd</sup> and 3<sup>rd</sup> Nationwide Programming Contests, 2004 and 2005.
- ◇ **Member of Scientific Committee, ACM-ICPC Regional Contest**, Fall 2005  
*Having participated in two World Finals, I am no more eligible to compete in the contest*
- ◇ **Deputy Leader of Iranian Team in IOI**, Summer 2005, Poland
- ◇ **Member of the Scientific Committee at Young Scholars’ Club**, July 2002 - Sep 2006  
Teaching algorithmics, mathematics and programming; Designing and grading problems for training camps; Discussing different training methods; Building an environment for automated testing of students’ programs; Holding mathematics workshops around the country.
- ◇ **Member of the National Committee at Young Scholars’ Club**, Oct 2003 - Oct 2005  
Designing and holding nationwide high school contests; Discussing long-term strategies; Devising new plans for the training camps.
- ◇ **Head of Summer Camp at Young Scholars’ Club**, Summer 2004  
Coordinating trainers and teaching material, giving weekly reports, short-term planning and holding exams.  
*The camp included more than 30 high school students, and a group of more than 10 trainers taught them algorithm basics and programming.*
- ◇ **Teaching Assistant, Sharif University of Technology**, 2002 - 2005  
T.A. for the courses Discrete Mathematics (Spring 2003), Data Structure and Algorithmics (Fall 2002, 2003), Design and Analysis of Algorithms (Spring 2004), Introduction to the Theory of Computation (Fall 2003,

WORK AND  
TEACHING  
EXPERIENCE

Spring 2004)

Responsibilities included: holding discussion and problem solving classes; designing problems for quizzes (and exams); grading exercises and exam problems; holding and organizing student seminars; grading programming projects and maintaining course web site.

◇ **Teaching, Sharif University of Technology**, Fall 2004

Teaching the “Computer Workshop” course to about 20 students: Holding regular lectures, assigning exercises and projects. Design and Grading of exams.

Teaching Material included: Introduction to Linux, MS Windows, Network, Web, PHP, HTML, Scripting (Bourne Shell, AWK, sed), T<sub>E</sub>X, L<sup>A</sup>T<sub>E</sub>X, FarsiT<sub>E</sub>X, . . .

SKILLS

◇ Proficient in C, Pascal, Java, C++, ASM and L<sup>A</sup>T<sub>E</sub>X.

◇ Familiar with CGI, HTML, PHP, SQL, J2EE.

TEST SCORES

**SPEAK** (Sep 2006): 50/60.

**TOEFL** (Sep 2005): Computer-Based Test **280/300**

*Listening* (28/30), *Structure* (28/30), *Reading* (28/30), *Writing* (5.5/6.0).

**GRE General** (Sep 2005): *Analytical* (5.0/6.0), *Verbal* (470/800), *Quantitative* (800/800).

**GRE Subject in Computer Science** (Nov 2005): 880/900, percentile: 98%

PUBLICATIONS  
AND WORKING  
PAPERS

◇ M. Bateni, E. Demaine, M. Hajiaghayi, M. Moharrami, *Plane Embedding of Planar Graph Metrics*, SOCG 2006 and Journal of Discrete and Computational Geometry 38(3): 615-637 (2007).

◇ M. Bateni, M. Hajiaghayi, *Assignment problem in content distribution networks: unsplittable hard-capacitated facility location*, SODA 2009.

◇ M. Bateni, A. Gerber, M. Hajiaghayi, S. Sen, *Multi-VPN Optimization for Scalable Routing via Relaying*, to appear in INFOCOM 2009.

◇ M. Bateni, M. Charikar, V. Guruswami, *MaxMin allocation via degree lower-bounded arborescences*, to appear in STOC 2009.

◇ M. Bateni, L. Golab, M. Hajiaghayi, H. Karloff, *Minimizing Staleness and Stretch in Real-Time Data Warehouses*, submitted.

◇ A. Archer, M. Bateni, M. Hajiaghayi, H. Karloff, *A Technique for Improving Approximation Algorithms for Prize-Collecting Problems*, to be submitted.

PATENTS

◇ System and Method for Assigning Requests in a Content Distribution Network, with M. Hajiaghayi, U.S. Patent filed Dec. 2008.

◇ Optimizing Multi-VPN Relaying, with A. Gerber, M. Hajiaghayi, S. Sen, under preparation.

◇ Algorithms for Scheduling DB Updates, with L. Golab, M. Hajiaghayi, H. Karloff, under preparation.

◇ Optimizing Network Design via Prize-collecting Steiner Tree Problem, with A. Archer, M. Hajiaghayi, H. Karloff, under preparation.