

## Prateek J. Bhakta

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### EDUCATION

Georgia Institute of Technology

Ph.D. Algorithms, Combinatorics, Optimization

Advisor: Dana Randall

Expected Graduation: Spring 2016

University of California Berkeley(2007)

B.S. Electrical Engineering and Computer Science

B.A. Mathematics

G.P.A. 3.79/4.0 (High Honors)

### FIELDS OF INTEREST

Theoretical Computer Science, Randomized Algorithms, Probability, Stochastic Processes, Markov Chains, Simulation, Statistical Physics, Recommendation Algorithms

### RESEARCH PUBLICATIONS AND DRAFTS

“Mixing Times of Markov Chains for Self-Organizing Lists and Biased Permutations”

Prateek Bhakta, Sarah Miracle, Dana Randall, Amanda Pascoe Strieb, *Symposium on Discrete Algorithms 2013*.

“Clustering and Mixing Times for Segregation Models on  $\mathbb{Z}^2$ ”

Prateek Bhakta, Sarah Miracle, Dana Randall, *Symposium on Discrete Algorithms 2014*.

“Sampling Weighted Perfect Matchings on the Square-Octagon Lattice”

Prateek Bhakta, Dana Randall, *Analytic Algorithmics and Combinatorics 2016*.

“Sampling Integer Partitions with Biased Markov Chains”

Prateek Bhakta, Ben Cousins, Matthew Fahrbach, Dana Randall, *submitted: ACM Symposium on the Theory of Computing 2016*.

“Counting and Sampling Biased 3-D Monotonic Surfaces”

Prateek Bhakta, Sarah Miracle, Dana Randall, *unpublished*

### WORK EXPERIENCE

**Graduate Research Assistant** Georgia Institute of Technology Aug 2009-Present

Developed new theoretical tools and solved open problems in analysis of Markov chain mixing rates with academic advisor Dana Randall. Wrote results with collaborators as academic papers.

**Dir. Research And Development** Redux Inc. Aug 2007-May 2009

Developed and implemented new recommendation algorithms in C and Python. Worked on back-end development in Python and some front-end development in Javascript/HTML/CSS

**Software Engineer Intern** Tellme Networks (Now Microsoft) May 2007-Aug 2007

Worked on a large-scale voice-enabled application platform for cell phones in the J2ME environment. Ported the platform to the BlackBerry 8100 and 8800 phones and interfaced with the built-in GPS device to create a map application using Tellme’s interface.

### TEACHING EXPERIENCE

**Teaching Assistant** Georgia Institute of Technology Various

Held regular office hours, wrote and graded assignments and exams, and occasionally lectured to students. Helped design syllabus and lectured more often for courses marked with a (\*).

Advanced Algorithms: CS4540	Dana Randall	Fall 2012
Design and Analysis of Algorithms: CS3510 (*)	Sarah Miracle	Summer 2014
Graduate Markov Chain Monte Carlo: CS7535	Dana Randall	Fall 2014
Design and Analysis of Algorithms: CS3510 (*)	Sarah Miracle	Spring 2015

**Camp Tutor** Jeju Global Initiatives Summer 2013

Taught advanced math topics to advanced middle school students in Korea during a four week math camp. Topics included probability, calculus, programming, set theory.

**Senior Study Group Instructor** UC Berkeley Student Learning Center Aug 2004-May 2009  
Lead students in a recitation-style study group by lecturing biweekly and preparing worksheets for courses in Junior-Level Probability and Sophomore-Level Linear Algebra. Managed and trained 15-20 tutors during open tutoring hours, assisted other tutors when needed, and tutored advanced subjects. Continued to tutor in a lesser capacity while working full-time at Redux. Inc.

**Math Tutor** UC Berkeley Academic Center Aug 2004-Dec 2006  
Tutored incoming freshmen and transfer students in Mathematics.

#### **RECENT ACADEMIC HONORS AND FELLOWSHIPS**

Georgia Tech Algorithms Research Center Fellowship, Fall 2012  
Georgia Tech Algorithms Research Center Fellowship, Fall 2011  
Algorithms, Combinatorics, and Optimization Fellowship, Fall 2009

#### **OTHER ACTIVITIES, HONORS AND AWARDS**

**Tau Beta Pi:** Engineering Honor Society. Served as Information Technology Chair responsible for maintaining and upgrading chapter website [tbp.berkeley.edu](http://tbp.berkeley.edu)

**Eta Kappa Nu:** Electrical Engineering/Computer Science Honor Society. Served as tutor for computer science classes as part of their tutoring program.

**Putnam Mathematics Competition Team Member** for UC Berkeley - received a score of 39 in Fall 2005 for a national rank of 149/3545.

**Project Euler Enthusiast** - Completed 198 problems to date on CS puzzle website Project Euler.

**Teacher** of informal tutorial on Python Programming to a small group of graduate students.

**Student** of Japanese-style Karate (Shizuka-do) Brown Belt.