

Manoj Gupta

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Education

- Pursuing Ph.D at CSE, IIT Delhi, 2009-
CGPA: 9.579/10
- Masters in Technology in Computer Science and Engineering, IIT Kanpur, June 2009
GPA: 9.67/10
Ranked 2nd among 41 students.
- Bachelors in Engineering in Information Technology, Veermata Jijabai Technology Institute, June 2005

Courses Undertaken

- Graduate Courses
Randomized Algorithms, Data Streaming: Algorithms and Systems, Computational Complexity, Parallel, Semi-Numerical And Non-Numerical Algorithms, Topics in Bio-Computing, Graph Theory.
- Post Graduate Courses
Introduction to Logic and Function Programming, Database Implementation, Advanced Algorithms, Approximation Algorithms, Computational Geometry.

Research Work

- **Fully dynamic maximal matching in $O(\log n)$ update time**, FOCS 2011, with Surender Baswana, Sandeep Sen.
- **The update complexity of selection and related problems**, FSTTCS 2011, with Yogish Sabharwal, Sandeep Sen, .
- **Maintaining Approximate Maximum Weighted Matching in Fully Dynamic Graphs**, FSTTCS 2012, with Abhash Anand, Surender Baswana, Sandeep Sen,
- **Fully Dynamic $(1 + \epsilon)$ -Approximate Matchings**, To Appear, FOCS 2013, with Richard Peng, [arxiv]
- **On Dynamic Optimality for Binary Search Trees**, Manuscript [arxiv], with Navin Goyal.
- **An $O(\log n)$ Fully Dynamic Algorithm for Maximum matching in a tree**, Manuscript [arxiv], with Ankit Sharma.

Work Experience

Internship at Max-Planck-Institut fur Informatik, Saarbrucken, June 2012 to August 2012: Worked on the problem related to Weighted Maximum Matching in a dynamic graph.

Internship at Microsoft Research, Bangalore, April 2012 to June 2012: Worked on the problems related to Randomized k-server problem under the guidance of Navin Goyal.

Internship at Microsoft Research, Bangalore, May 2010 to July 2010: Worked on the problems related to Dynamic Optimality Conjecture of Splay trees under the guidance of Navin Goyal.

Software Engineer, Amdocs, July 2005 to July 2007: Worked on a Software Configuration Management(SCM) tool. I was one of the three developers who maintained the SCM tool. I worked on the backend of the tool which required coding in Perl. I was responsible for design to coding of the new features being added to the tool.

Talks

The update complexity of selection and related problems, *IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science, Mumbai, 2011.*

Fully Dynamic Maximal Matching in $O(\log n)$ Update Time, *Microsoft Research, Bangalore, 2012.*

Fully Dynamic Maximal Matching in $O(\log n)$ Update Time, *21st International Symposium on Mathematical Programming, Berlin, 2012.*

Maintaining Approximate Maximum Weighted Matching in Fully Dynamic Graphs, *IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science, Hyderabad, 2012*

Professional Service

Reviewer : SODA 2012, FSTTCS 2012, FSTTCS 2013, ISAAC 2013

Projects

Network monitoring : A project done under the guidance of Prof. G Sivakumar, Head of Department, IIT Mumbai. The objectives of the project were to map the entire routing and switching devices of IIT on a browser. The project discovered and mapped six routers, hundred switches and nearly 4000 individual hosts in the network of IIT Mumbai. The project was given the TCS Best Project of the Year in year 2005.

Tools/Skills : C, C++, Java, Perl, JavaScript, SQL, SAGE

Additional Information

- Recipient of Microsoft Research India PhD Fellowship.
- Academic Excellence Award for the year 2007-08 in the graduating MTech, CSE batch.
- Won a prize in a Gimmick, a software game contest in Techkriti, IIT Kanpur.
- Organized game events Crystal Maze and Enter the Matrix in the Inter College Festival in VJTI.
- Participated in cricket at the annual sport event in VJTI and IITK.