Rohan Bavishi

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CONTACT & PROFILES

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| rbavishi

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COURSEWORK (GRADE)

Fundamentals of Computing (A*)
Data Structures & Algorithms (A*)
Discrete Mathematics (A)
Introduction to Electronics (A)
Mathematics - Calculus (A)
Mathematics - Linear Algebra (A)
Logic for Computer Science (Ongoing)
Abstract Algebra (Ongoing)
Computer Organisation (Ongoing)

SKILLS

Proficient:
C • C++ • Python • LaTeX • Bash • HTML
Git • Icarus Verilog
Familiar:
Java • JavaScript • Android
Softwares:
Photoshop • MATLAB

PROGRAMMING ACTIVITIES

SPOJ
SOLVED: 144 | WORLD RANK: 870

PROJECT EULER
SOLVED: 228/502
INDIA RANK : 16 | WORLD : 815

POSITIONS OF RESPONSIBILITY

ACADEMIC MENTOR
COUNSELLING SERVICE

• Helping academically weaker students with coursework by organizing quizzes and doubt-sessions

SECRETARY
QUIZ CLUB, IIT KANPUR

• Organising and participating in quizzes of various genre

EDUCATION

B.TECH | COMPUTER SCIENCE | INDIAN INSITUTE OF TECHNOLOGY, KANPUR
Expected July 2013 – Aug 2017 | GPA : 10.0/10.0 (Overall)

HSC | CLASS 12 | SHIVAJI SCIENCE COLLEGE, NAGPUR
May 2013 | Aggregate : 90.16%

AISSCE | CLASS 10 | MODERN SCHOOL, NAGPUR
May 2011 | Aggregate : 96.4%

ACADEMIC PROJECTS

MEDIAN ALGORITHMS FOR DISK-RESIDENT DATA

Aug 2014 – Nov 2014 | Under Prof. Surender Baswana | Report Link : Project Report
Repository : Github Link

Independently developed a 2-pass deterministic and a 2-pass randomized algorithm to find median of large data-sets (1 Terabyte) with performance tests

Deterministic Algorithm :

- Similar to the original paper by Munro-Paterson(1980)(Link)
- An ϵ-approximate median ($\epsilon = 1/n$) calculated in the first pass, followed by the computation of the exact median in the second

Randomized Algorithm :

- Basic Random-Sampling techniques using Mersenne-Twister PRNG implemented. Theoretical success probability calculated and compared with the practical performance over thousands of program-runs
- Success probability close to 0.6 achieved for medium-sized data-sets (10-50 GB)

PEER-TO-PEER DROPBOX

Aug 2013 – Nov 2013 | Under Prof. Subhajit Roy | Github Link : P2P Dropbox

A Linux application for back-up and syncing of files between two or more peers

- Users have a shared folder across different machines, with local copies, in which any changes made are synced across all devices
- Linux inotify API used to track changes in the shared folder
- rsync used to sync changes in files/folders to ensure efficient transfer
- Multithreading with mutexes used to parallelize syncing operations
- Retry mechanisms and network detection system to ensure syncing even in networks with inter-mittent connectivity
- Command-Line-Interface to add/delete folders and show synchronization status

FRAMA-C PROGRAM VERIFICATION

Jan 2014 - March 2014 | Under Prof. Subhajit Roy

A reading/implementation project to verify program modules using Frama-C

- Verified several common programs using ACSL language specification such as sorting/searching, median-finding, k th order statistic etc
- Proved formal properties of common implementations like bubble-sort using the Jessie plugin for deductive verification

AWARDS & ACHIEVEMENTS

- Secured an All-India-Rank of 202 in JEE Advanced 2013 amongst 150,000 candidates
- Secured an All-India-Rank of 175 in JEE Mains 2013 amongst 20,00,000 candidates
- Secured an All-India-Rank of 33 in AMTI - Mathematics Olympiad 2013
- Best Overall Student (2011-2013) - Shivaji Science College, Nagpur