Naman Jain

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EDUCATION

IIT KANPUR
B.Tech (Computer Science)
July 2016 - May 2020
GPA: 9.43 / 10.0

DSPS, KARNAL
Score: 97.6% in Class XII
CGPA: 10.0/10.0 in Class X

COURSEWORK

ALGORITHMS
Data Structures and Algorithms
Advanced Algorithms
Functional Programming
Introduction to Computing

SYSTEMS
Operating Systems
Database Systems
Parallel Computing
Compiler Design
Computer Organization
System Security

ML AND PROBABILITY
Machine Learning Techniques
Visual Recognition
Probability and Statistics

THEORY
Theory of Computation
Discrete Mathematics

SKILLS

PROGRAMMING
Proficient:
Go • C • C++ • Python • Dgraph
Familiar:
Haskell • C# •NodeJS • Assembly •
GraphQL • SQL

UTILITIES
Git • Docker • Vim • MPICH • GDB

POSITIONS

TEACHING ASSISTANT
Introduction to Computing
Aug 2019 - May 2020 | Dept. of CSE
Helped 40 freshmen students with
problem solving, setting exam papers,
and smooth conduction of the course.

SCHOLASTIC ACHIEVEMENTS

- All India Rank 220 in JEE(Advanced)-2016 among 150,000 candidates
- All India Rank 36 in JEE(Mains)-2016 among 1,300,000 candidates
- Received Academic Excellence Award thrice for outstanding academic performance

WORK EXPERIENCE

DGRAPH LABS | Distributed Systems Engineer
Mentor: Manish R. Jain | June 2020 - Present

- Maintainer of **Badger** (Persistent KV Store)
  - Improved the **disk usage** by separating Write-Ahead Log and Value Log.
  - Improved the performance of **badger stream tool** by **3x** with low CPU usage on the sender.
  - Worked on **manual memory management via jemalloc** that solves OOM issues.
- Implemented **Multi-Tenancy**: a logical partitioning of the database
  - Implemented the core logic for key based logical partitioning of Dgraph.
  - Made import/export, backup/restore, various admin operations namespace-aware.
  - It brought huge customer traction and helped reduce the cloud cost significantly.
- Implemented features like **incremental restore** and **hot-tablet move**, etc that reduce downtime.
- Implemented **serialized B-Tree** that helped preventing memory issues under high load.
- Improved performance of the snapshot transfer by **3x** and a particular kind of queries by **10x**.
- Identified and fixed critical bugs, and worked on various memory and performance optimizations.
- Developed **#DevJoke**, a react app that was selected the best in the internal hackathon.
- Got **promoted to L4 Engineer**, within a year based on the performance evaluation.

MICROSOFT IDC | Software Engineer Intern
Mentor: Dr. Vasundhara Puttagunta | May 2019 – July 2019

- Worked on **Distributed Tracing** and its relevance in context of existing logging pipeline.
- Developed a C# library that supports asynchronous calls following OpenTracing Standard.
- E2E integration in Microsoft's internal module, pipe-lined the logs and visualized through UI.
- Reciprocated with **returning job offer** for noteworthy contribution to the team.

GOOGLE SUMMER OF CODE | Developer - NetBSD
Mentor: Mr. Brett Lymn | May 2020 – August 2020

- Extended the grammar of test-framework to add support for wide-character in **libcurses**.
- Wrote a robust test suite that brought up several bugs in libcurses.

TATA INSTITUTE OF FUNDAMENTAL RESEARCH | Visiting Research Scholar
Mentor: Prof. Rahul Vaze | May 2018 - July 2018

- Worked on problem of **Content Placement in Distributed Network**.
- Proposed a 2-approximation greedy solution, and the solution was made distributed and adaptive.

PROJECTS

LOAD AND NETWORK-AWARE NODE ALLOCATOR
Mentor: Prof. Preeti Malakar | July 2019 – Nov 2019

- Proposed and implemented node allocation algorithm for parallel jobs in shared cluster.
- Implemented a low intrusion monitoring system which gives current state of the system.
- Performance gain of **more than 40% on average** compared to the MPICH default on miniMD.
- Paper was accepted at **International Conference on Parallel Processing** (ICPP 2020).

COMPILER FOR GOLANG
Mentor: Prof. Amey Karkare | Jan 2019 – April 2019

- Implemented a compiler for a fully functional subset of Go programming language in python.
- Implemented Lexical Analyzer, Parser, Intermediate Code and Assembly Generator.
- Incorporated advanced features like function overloading, static type checking, etc.

OTHER PROJECTS

- Secure Dropbox   (Prof. Pramod Subhramanyan)
- Extending functionalities of GemOS operating system   (Prof. Debadatta Mishra)
- Go-Bikes: Platform for rental bikes   (Prof. Arnab Bhattacharya)