

Krutarth Rao

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Objective

Use Computer Science knowledge to efficiently solve real world problems.

Education

Bachelors of Science in **Computer Science** (Aug 2014 – May 2018)

Minor in Economics

Overall **GPA**: 3.82

Relevant Coursework

Python, Java, C/C++, Discrete structures, Data Structures and Algorithms, Computer Architecture, Systems programming, Scientific writing and Presentation, Calculus 1-3, Micro/Macro Economics, etc.

Experience and Course Projects

◦ Airline tickets

Implemented graph data structure in C++ using adjacency list. Also implemented Dijkstra's, Prim's, Eulerian tour and Binary heap data structure to select airline tickets for shortest path and etc. Also used pointers and templates to create data structures like Single/Double Linked Lists and generic Array Lists in C++ for similar projects.

◦ Qt based flowchart designer in C/C++

Created a full GUI application with the Qt API. Application was an extension to a basic diagram designer for generic flowcharts using 2d shapes. Project required efficient utilization of data structures, understanding a new API and documentation in C++.

◦ Server and Client application, Parallel programming and OOP in JAVA

Developed a multithreaded Server and client application using SocketServer API over LAN and WAN for the backend of the Purdue SafeWalk application. This was a team project requiring good work division and time coordination to efficiently pool together each member's work. Also covered stream IO over networks and utilizing various Java library data structures such as Hash maps, Stacks, Queues etc.

◦ HTTP server in C

Implemented a HTTP server in C to process browser requests and offer directory browsing using a TCP connection.

◦ Unix Shell

A UNIX compatible shell with IO Redirection between commands, Pipes between commands, Background and Zombie process handling, Environment variables, Words and special chars, cd command, Wildcarding, Quotes and escape chars Ctrl-C handling (exit command), Robustness (limiting the no. of crashes), subshell, tilde expansion and Line editor.

◦ Memory allocator in C

Implemented memory allocator in C for systems programming course. Utilized coalescing on free list data structure on heap memory space. Also covered memory allocation by C and C++ of runtime objects to the memory's Heap, Stack or BSS. Used debugging tools like gdb and ddd.

Leadership and Awards

◦ Recipient of Purdue Summer Stay Scholarship & Research position

Received a scholarship for full tuition for summer classes along with a research position in the computer science program at Purdue University. I am currently working in a research team to use cryptography primitives in a non-disclosure communication protocol.

◦ CS180: Java Programming Undergraduate Teaching Assistant at Purdue

Right after I finished taking the Java programming class, I was recruited by the teaching staff to assist in teaching the course for the semesters to follow. I explain features/techniques students can use to solve the given problem. I also help them debug their code. Multiple classes of 25 or more students.

◦ Cambridge International AS and A Level Applied Information and Communication Technology

I set the record for the highest grade attained at my High School for applied ICT at AS level in 2014. I also attained the best overall results in the Cambridge international GCSE exams along with the best results in Math and Applied information and communication technology (ICT) at GCE level in my high school.

◦ Member of National Kenya Under-19 Cricket Team (as of 2013)

I was part of the Under-19 camp in the 2013 season and played under the current Kenyan captain in the East Africa Premier League.