M Venkat Rahul | CS18B026
Indian Institute of Technology Madras Placement Number: 11/CS/22/026

EDUCATION

Program	Institution	%/CGPA	Year
B.Tech. CSE	Indian Institute of Technology Madras	8.92	2022
XII	Mount Carmel School, New Delhi	91.6%	2018
X	Mount Carmel School, New Delhi	10/10	2016

WORK EXPERIENCE

American Express
SDE Intern
May '21 - July '21

- Developed **microservices** for **high speed transaction processing** application
- Leveraged technologies such as *Spring*, *Kafka*, *Apache Ignite*, and *Cassandra* database to achieve processing speed of over a million transactions/sec
- Enabled automated end-to-end & regression testing using *XL Release*
- Suggested several optimisations and alternatives to improve latency and sustainability

Ayu Devices
ML Intern
Dec '19 - Jan '20

- Implemented **LSTM** based model to **detect cardiac murmurs** using *Tensorflow*
- Filtered PCG input via pre-processing techniques : Springer algorithm & *HMM*
- Enabled cardiac output *noise reduction* using *Singular Value Decomposition*

PROJECTS

Real Time Sign Language Recognition
(self)
Jun '20 - Jul '20

- Built a **real-time sign language** recognition model with latency << 1 second, based on CNN's using *Keras* and *OpenCV* libraries
- Applied adaptive skin segmentation to filter out different hand-signs from the background
- Performed pre-processing techniques for edge-detection, de-noising and image contrast enhancement

Operating Systems : Scheduling
(course project)
Aug '20 - Nov '20

- Improvised kernel's scheduler by implementing **priority scheduling,** using run-queues
- *Load balancing* of processes based on *heuristics such as avg. sleep time and static priority*
- *Supports lazy memory allocation, and copy-on-write*
- Implemented common Linux commands such as ls, touch, mkdir, and cat for ease of use

Mini C Compiler
(course project)
Aug '20 - Nov '20

- Developed a compiler for a subset of the C language using *Lex and Yacc*
- Implemented lexical analyzer, abstract syntax tree constructor, assembly code generator, and code optimizer

GPU Programming
(course project)
Aug '20 - Nov '20

- Implemented high performance bipartite matching algorithm for GPU, in CUDA C++
- Achieved **20X speed-up** over CPU runtime on large data sets of size more than 10 million

Computer Architecture
(course project)
Aug '20 - Nov '20

- Implemented privilege switching, exception handling, and interrupts for RISC-V computers
- Modified boot-up routine to set up page tables and physical memory protection

Othello Game Bot
(course project)
Aug '20 - Nov '20

- Developed an Othello game bot with over **80% win** probability and latency ~0.5 seconds
- Supports game tree searches upto a depth of 8-10 moves ahead i.e. 100 million possibilities leveraging alpha beta pruning algorithm and other game specific heuristics

SCHOLASTIC ACHIEVEMENTS

- Secured *All India Rank 759* in *JEE Advanced* 2018 and *All India Rank 1403* in *JEE Mains* 2018
- Recipient of the **KVPY** Fellowship award securing *All India Rank 664* in 2017 and *All India Rank 485* in 2016
- Recipient of the **NTSE** scholarship conducted by NCERT securing *State Rank 54* in 2016
- Recipient of the **JSTSE** scholarship conducted by Govt. of Delhi securing *State Rank 11* in 2015

COURSES

Introduction to Databases	Operating Systems	Artificial Intelligence
Computer Networks	Compiler Design	Graph Theory
Secure Systems Engineering	Analysis of Parallel Programs	Programming and Data Structures
Pattern Recognition & Machine Learning	Paradigms of Programming	Computer Organization & Architecture

SKILLS

Programming	:	C/C++, CUDA, Python, Java, OCaml, Prolog
Tech Stack	:	Kafka, Spring, Ignite