Sanjay P Lal

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EDUCATION

| **Computer Science and Engineering** | 2017 – 2023 |
| Indian Institute of Technology Delhi | Hauz Khas, New Delhi |

| **Class XII** | 2015 – 2016 |
| Saint Soldier Public School | Jaipur, Rajasthan |

| **Class X** | 2014– 2015 |
| Saint Soldier Public School | Jaipur, Rajasthan |

WORK EXPERIENCE AND INTERNSHIPS

iOS Developer   July, 2023 - May, 2024
TimesPro   Mumbai

- Involved in Scrum and Agile Methodology for Mobile app Development
- Used Swift, UIKit, MVVM Architecture and third party libraries in Xcode for development
- Used libraries from Cocoapods, Provided POC for new features and implemented it e.g. Shimmer Loading
- Involved in building to sanity of application to production and deploying it on TestFlight for testing.

Software Developer   May, 2021 - July, 2021
Arth Rural   Bangalore(Remote)

- - Established a pipeline for automation testing through eclipse IDE, Appium Server and AVD manager in Android Studio.
- Using TestNG, Maven, CommonLangs, Selenium, Appium Libraries and frameworks written testing scripts for devices
- Identifed Bugs and errors in Android Application while testing and optimized the script for diferent Android Devices.

Subject Matter Expert   May,2019 - July, 2019
Youscore Solutions Pvt. Ltd.   New Delhi

- Verified and created JEE, NEET and AIIMS entrance exams Physics content in a structured, simplified and accurate way
- Created video lectures and exam papers for students preparing for entrance exams
- Designed test papers and solutions for physics subject

Social Internship   May, 2019 - June, 2019
BloodConnect   New Delhi

- Attended 3 blood donation camps collecting 100+ units of blood
- Participated in 2 mega awareness session at CP and DLF promenade impacting 5000+ people
- Handled emergency blood request by connecting patient to voluntary donor and ensuring proper coordination

PROJECTS

MisInformation Classifcation (Prof. Abhijnan Chakraborty) | *Python*   January, 2022 - March, 2022

Special Topics in Computer Applications
- Created dataset with Vectorization and padding to study which gives better accuracy on diferent models
- Used diferent models such as KNN, ANN, Random Forest, Linear regression, Logistic regression, SVMs, Naive Bayes.
- Using the LSTM model and some hybrid models classifed fake tweets and analyzed which model has high accuracy.

Parallelized RWR Algorithm (Prof. Subodh Kumar) | *C++*   (February, 2022 - February, 2022)

Parallel Algorithm
- Using OpenMPI Interface parallelized Random Walk with Restart algorithm to increase the performance.
- output was written in binary fle with indexing of space to increase the perfomance otherwise messages had to wait
- in queue to get written in output fle which increased perfomance of algorithm signifcantly on diferent cores.

M.Tech Project(Prof. Kolin Paul) | *Java*   September, 2022 - Present

- Using Android Studio Development made an application to Capture a Video and Store it in Disk
- Using OpenCV integration in Android Application designed a process for Finding Viscocity of Blood
- Using 3d printing designed a attachment to hold the container to hold the blood sample and with help of phone vibrations for its coagualation.

Web Scrapping (Prof. Smruti Ranjan Sarangi) | *Python*   September, 2021 - December, 2021

Minor Project
- Using Python and Beautiful Soup Library Designed web scrapping Scripts
- To collect Name, Designation, Web Page, Mail of all the Computer Architecture Professors
- Extracted over 400 Universities Data and Compiled a CSV file of all the Data

Traffic Density Estimation (Prof. Rijurekha Sen) | *C++*   March, 2021 - April, 2021

Design Practices
- Using Opencv library estimated the dynamic and queue density.
- from Background subtraction and image processing calculated the density for Moving Vehicle and Stationary Vehicle
- Using Multi Threading classified different methods to get the benchmark and trade off analysis for utility run time for different methods

Stock Management (SRIKANTA BEDATHUR JAGANNATH) | *Java*   Februrary, 2020- February, 2020

Data Structures and Algorithm
- with the help of generic linked list created a data structure to handle Stocks in a warehouse
- Warehouse contains Different Categories of Products, those products contains Different Companies and in that Different products
- Than applied Merge Sort on the linked List

Handling Election Query (SRIKANTA BEDATHUR JAGANNATH) | *Java*   August, 2019 - August, 2019

Data Structures and Algorithm
- Implemented Binary Search Tree and Heap Data Structures
- By using BST and Heap, Handled Queries of a election
- A Vidhan Sabha Election held at multiple States in India in which we need to handle 6 data members and keep a track all the data members

Multiplayer Game | *C#*   November, 2021 - November, 2021

Unity Game Engine
- Using the Unity Game Engine written C# scripts for game avatars and spawning position.
- Using Photon Networking established a client server connection between two instances of a game.
- 20 Players could play the game at a time with the option of 5 avatars int he game and controls were given and players could join a lobby or create a new game instance for different teams

Decision Making for Teams (Prof. Rohan Paul) | *Python*   December, 2020 - December, 2020
Artificial Intelligence
- Design and Implemented Monte Carlo Tree Search Simulation for the decision for two agents
- The AI agent must reason about trading off trying to capture resources versus trying to defend its own resources and effectively functioning both as a ghost and a Pacman in a team setting.
- We had to decide an algorithm for the decision making for limited computational time which is to be according to any kind of machine in one second.

Adversarial Search (Prof. Rohan Paul) | *Python*   December, 2020 - December, 2020
Artificial Intelligence
- Designed and implemented Evaluation function which choose the best decision based on the current state of game for eating food avoiding Ghost in the Game Pacman
- Implemented Minimax, Alpha-Beta Pruning, Expectimax algorithms for the search of optimal decision for AI in the game pacman for Agent
- Got 23.91/25 when the class average was 21.52 and relative grading was done based on the rank on perfomance of new Evaluation Function for Expectimax

First Order Logic Tableau (Prof. S. Arun Kumar))| *SML*   October, 2021 - October, 2021
Logic for Computer Science
- Using Standard ML we had to write a program for list of closed formulas by constructing tableau to check if it is a logical consequence of it
- constructed the first order tableau using unification from creating Lexer and Parser to evaluating Abstract Syntax Tree than constructing the Table Tableau
- From the table used unification to find the closed path in tree

Merge Sort in Assembly Language (Prof. Anshul Kumar)| *ARM RISC*   January, 2022 - January, 2022
Computer Architecture
- Usig ARM Simulator written code in assembly language using 16 registers
- Using stack pointer used caller callee conventions so that the callee cant destroy caller registers with the help of push and pop on stack pointer.
- After that allocated memory on stack and calculated size of whole array byte by byte and written from stack pointer to the new memory address and than dis allocated it.

Boolean Algebra Language (Prof. S. Arun Kumar) | *Standard ML*   March, 2021 - April, 2021
Programming Languages
- Written a lexer for creating the tokens from the stream of characters
- Written a parser and defined grammer and associativity rules and created a abstract syntax tree
- After getting a abstract syntax tree from parser done evaluations for getting the output from the given language.

Build a Clock and implement on basys3 (Prof. Anshul Kumar)   August, 2019 - August, 2019
Digital Logic and System Design
- Using VHDL and Vivado Designed a seconds counter from 1Mhz clock
- Afer adding counters reduced the speed of clock and Designed a Logic from Counters to make a clock
- After the schematic implemented on basys board written a VHDL code for the interaction and output shown using the seven segment LED Display

EXTRA CURRICULAR ACTIVITIES

Sports
Sports Activities
- Participated in Inter-hostel: Volleyball, Weightlifting,High Jump
- Helped hostel secured second in General Championship, 2018
- Part of hostel Contingent finishing third in General Championship, 2019

SKILLS

Languages: English , Hindi
Programming: Python (NumPy, SciPy), C, C++(OpenCV, SDL), C, Java, Standard ML, VHDL, ARM Assembly Language
Document Creation: Microsoft Office Suite, LaTex, Adobe PhotoShop, Adobe LightRoom (CC and Classic), Vivado, Autocad, Unity Game Engine, Photon Networking,ARM Simulator