Pratik Bhagwat

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WORK EXPERIENCE

- **Teaching Assistant (*Rochester Institute of Technology*)** ***Aug 2020 - Dec 2020***
  A) Assisted professor for evaluating the labs and exams submitted by students.
  B) Conducted weekly office hours to solve questions regarding the assignment and coursework for students.
- **Software Engineer at LTI (*Larsen and Toubro Infotech*)** ***Feb 2018 - June 2019***
  A) Lowered the resource efforts and accelerated the employee allocation process 10x faster than the existing one by designing and implementing an automation pipeline for employee allocation using SAP HANA, SuccessFactors and HANA Cloud Integration.
  B) Accelerated the invoice generation process and reduced the resource efforts involved at the end of every invoice generation cycle for any contract in the company by designing an invoice generation system using SAP ABAP, JavaScript, XML.
  C) Integrated software modules by developing SOAP and REST micro-services achieving data consistency across all the software modules.
  D) Co-developed and debugged contract management system along with development of features like contract generation, contract amendments, and milestone monitoring.

TECHNICAL SKILLS

- Programming Languages: Java, Python, JavaScript, C, C++, SAP ABAP
- Tools and Web Stack: HTML, CSS, Bootstrap, NodeJs, ExpressJs, Form Calc, Git, Gradle, Latex.
- Databases: MySQL, SAP HANA, MongoDB, CockroachDB, PostgreSQL.
- Core Computer Science: Problem Solving, Algorithms, Advanced Data Structures, Computer Networking, Distributed Computing, Machine Learning.

PROJECTS

Intelligent Systems

- **Intelligent Product recommendation system (Python, Keras, Pandas, NumPy, NLTK):**
  Designed a product recommendation system using text and image features of the queried product by the user using NLP and Deep Learning on a dataset of more than 25000 apparels taken from Amazon.com.
- **Intelligent path finder with visualization (Python, PIL, CV2):**
  Implemented an A* algorithm on a topological map consisting of elevations and terrains like water, road, forest, mountains, also accounting for different seasons of the year in the algorithm. Generated a video which visualizes the algorithm in action.
- **Analysis of NYSE stocks (Python, SKLearn, Pandas, NumPy):**
  Predicted the stock prices with 95% accuracy using regression models. Generated association rules based on rising and falling trend of stocks using Apriori algorithm for item-set mining.
- **Language Classifier (Python):**
  Implemented a Decision tree and Ada boost model for classification of sentences into English or Dutch category. Accuracy achieved = 95%.

Database and Distributed Computing

- **Routing and Reliable Data Transfer over UDP (JAVA, Docker, NodeJS):**
  Implemented RIPv2 routing protocol and designed Reliable Data transfer protocol and deploying a VM network of 10 nodes on docker.
- **Relational and NoSQL Database Application Comparison (JAVA , JDBC, MySQL, MongoDB):**
  Developed thread safe applications for a local store using MySQL and MongoDB. The application generated a TPC-C like workload and more than 1000 orders with up to 10 concurrent threads. Compared the performance of both databases with respect to throughput, latency and ACID properties.
- **Cannon's Matrix Multiplication using OPEN-MPI (JAVA):**
  Implemented Cannon's Algorithm for multiplying matrices parallelly by message passing paradigm of parallel computing. Tested the program for multiple Matrix Sizes up to 8192 dimensions for calculating the performance gain.
- **Parallel Optimal Binary search Tree (JAVA):**
  Implemented a parallel algorithm to generate Optimal Binary Search Tree and tested the program for input sizes up to 5000 keys-frequency pairs.
- **System of Linear equations solver (JAVA):**
  Implemented a parallel algorithm to solve a system of linear equations. Tested the algorithm on a multicore cluster with 65536 unknown variables.
- **Network Packet Analyzer (JAVA):**
  Developed a java application to structure a network packet into a JSON format.

IOT and Edge Computing

- **Web UI based Automator for Grocery Shopping (JAVA, C++, Selenium IDE, ARM-Mbed, Load cells)**
  Designed a system to buy the groceries from pre-defined URL by sensing the weights of the same. Used the selenium ide to emulate the human actions required to buy the grocery product. Developed a JAVA application to get the load cell data from the ARM-Mbed development board.
- **Wireless gesture-controlled mouse (Arm-Mbed, C++):**
  Designed a gesture-controlled mouse by calibrating the accelerometer and used it as a driver for the mouse in the computer.
- **Wireless Sensor Network with IoT logging (Arm-Mbed development board, C++)**
  Stored sensor values on IoT Cloud Phant server, received by WSN coordinator from multiple discrete nodes using RF module.

EDUCATION

- **Master of Science, Computer Science** **August 2019 - Present**
  Rochester Institute of Technology, GPA: 3.83/4.00
- **Bachelor of Engineering, Electronics and Telecommunications** **June 2013 - June 2017**
  University of Mumbai

ACADEMIC ACHIEVEMENTS

- Qualified for the ACM'S International Collegiate Programming Contest regionals from Rochester Institute of technology.