

Aditya Verma

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EDUCATION

INDIAN INSTITUTE OF TECHNOLOGY, DELHI
B.TECH. IN COMPUTER SCIENCE
AND ENGINEERING
June 2022 | 7.074

RAMAKRISHNA VIDHYA MANDIR
CLASS XII, CBSE
June 2018 | 92.4%

DELHI PUBLIC SCHOOL
CLASS X, CBSE
May 2016 | 10.0 CGPA

COURSEWORK

- Data Structures and Algorithms
- Analysis & Design Of Algorithms
- Introduction to Database Management Systems
- Operating System
- Computer Networks
- Design Practices
- Introduction To Parallel and Distributed Programming
- Principles Of Artificial Intelligence
- Computer Architecture

TECHNICAL SKILLS

PROFICIENT

- C • C++ • C# • Java • Python
- Shell • Git • PostgreSQL
- SQL Server • GDB

FAMILIAR

- HTML • CSS • JavaScript
- OCaml • VHDL • \LaTeX

ACHIEVEMENTS

- **2017** Received the **Kishore Vaigyanik Protsahan Yojana (KVPY)** fellowship award organized by IISc Bengaluru.
- **2016** Received the **National Talent Search Examination (NTSE)** scholarship conducted by NCERT, Government of India.

EXTRA CURRICULAR

- **2018-20** Member of **Cadence**, the **Western Music Society** of IIT Delhi.
- **2019** Third position in Inter Hostel **Basketball** Competition organized by Board of Sports Activities, IIT Delhi.
- **2018-19** **Music Club Representative** of Shivalik Hostel, IIT Delhi.

EXPERIENCE

AMAZON : AWS AURORA POSTGRESQL Jul 2022- Sept 2023
SOFTWARE DEVELOPMENT ENGINEER Bengaluru, India

- Contributed to the development of **Babelfish**, an open-source project that enhances PostgreSQL's functionality to interpret and execute queries designed for Microsoft SQL Server applications, enabling easier migration of SQL Server applications to PostgreSQL.
- Independently enhanced **pg_dump/pg_restore** utilities to facilitate moving Babelfish databases between Aurora PostgreSQL DB clusters. **Resolved multiple issues** including datatype discrepancies, permission issues and improved user experience to address this current limitation.
- Improved execution time of multiple built-in SQL Server functions in Babelfish by **upto 6 times**; conducted in-depth analysis to identify **bottlenecks in performance** and redeveloped the functions earlier defined in SQL into C-Language functions.
- Introduced **Database Console Commands (DBCC)** by implementing DBCC Checkident command in Babelfish. The project included parser modifications and a **scalable backend design** to facilitate seamless integration of other DBCC commands. Notably, the Checkident command resolved a **critical customer need**, resolving about **38 distinct use cases**.
- **Technical Skills:** C, C++, PostgreSQL, SQL Server, GDB

I'M BESIDE YOU (JAPAN) Jun 2021 - Jul 2021
APPLICATION ENGINEER INTERN Remote

- Created a **WPF** application that uses **object detection** to **mitigate instances of misconduct** and unfair practices in virtual learning platforms.
- The application uses a pre-trained ONNX model to accurately **identify and flag items** like mobile phones, books, etc. from the webcam of user.
- **Technical Skills:** C#, Visual Studio, ML.Net, EmguCV

AVAKAR May, 2020 - July, 2020
WEB DEVELOPMENT INTERN Remote

- Developed a **Web Survey** that aims to collect data beneficial for the diagnosis of COVID-19 positive patients, using a ML based **voice analysis**.
- Risk percentage is calculated using Deep Learning based **Cough Classifier** model, and other information provided by the user.
- **Technical Skills:** Vue.js, HTML, CSS, JavaScript, Google Firebase, GCP

PROJECTS

PROOFTRAPAR: PROVING CONCURRENT PROGRAMS SAFE

- It **efficiently proves the correctness** of all possible executions (trace) of a concurrent program. Traces from the **Product Automaton** of the program are used to create Alternating Finite Automata (AFAs), to prove correctness of a set of traces with an **equivalent safety property**.
- Devised an algorithm to **efficiently find traces** in the Product Automata that have not been covered by any of the AFAs generated.

PEER TO PEER FILE DOWNLOADER

- Developed a program to download large text files from multiple addresses by receiving chunks of file from various TCP threads.
- Improved efficiency by using multi-threading. Analyzed the results of download time from a single location vs multiple locations.

PROJECT HANDLER

- Designed a **Job Scheduler** that executes jobs associated to a project based on its budget and the runtime of the job.
- Implemented various data structures like **Red-Black tree**, **Trie** and **MaxHeap** from scratch for efficient operations and analyzed the results.