Badal

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Skills

Languages: C/C++, Java, Python, JavaScript, TypeScript, SQL

Technologies & Tools: AWS, EC2, DynamoDB, S3, SQS, Lambda, Spark, Hive, Presto, Unix/Linux, Git, Google Colab, Google Ads API, Cisco Packet Tracer, Graphviz, ReactJS

Work Experience

NIT Kurukshetra Nov 2023 - Mar 2024

Software Development (intern)

- Worked under the guidance of a **Gold Medalist Professor** at NIT Kurukshetra, developing projects addressing complex problems related to **Artificial Intelligence** and **Machine Learning**.
- Implemented and fine-tuned state-of-the-art pretrained models for text summarization: PEGASUS, BART, UNILM.
- Contributed to software design, distributed systems, troubleshooting, **data processing**, software development, research, and testing of software applications using Python and distributed systems.

Education

National Institute of Technology, Kurukshetra May 2026 - Present
B.TECH. in Information Technology ***CGPA: 7.6/10***
Relevant Coursework: Object-Oriented Programming, Databases, Discrete Maths, Data Structures and Algorithms, Operating Systems, Computer Networks, Machine Learning, Data Mining, Advance Data Structures and Algorithms, Information Retrieval

Projects

Game control Using Hand Gestures (Source Code) Mar 2024

- Design a system that **automates** the games like subway surfer using our hand Gestures and can be **extended for the more complex game** .
- Elevating gaming interaction through gesture-controlled in-game character manipulation via **Digital Image Processing**, eliminating the need for traditional keyboard finger swapping.
- Implemented this using **open CV** library using **python.**

Alternative Routes in Road Networks (Source Code) Aug 2023

- Applied Dijkstra's shortest path algorithm to calculate the most efficient route, reducing travel time by up to 30% in a simulated road network with dynamically generated traffic conditions.
- Achieved a **95% reduction in vehicle collisions** through real-time speed adjustments.
- Developed a high-performance simulation using **C++ and OpenGL** for real-time rendering.

Tree Diff Algorithm using DP and A* for Genome Analysis (Source Code) Nov 2023

- Developed a Tree Diff Algorithm using A* algorithm to **optimize search processes** in genome analysis, demonstrating expertise in **heuristic search techniques** and their applications.
- Modeled **phylogenetic trees as graphs**, where nodes represent genes or genomic regions, and edges signify evolutionary relationships, **reducing the time complexity by 30%** compared to existing methods.
- Utilized Dynamic Programming to compute a distance matrix between tree nodes, and then applied A* algorithm to identify the shortest path, thereby reconstructing the most likely evolutionary history between genomic sequences.

Awards and Certificates

- **Winner - MazeUP:** Autonomous maze solver robot at NIT Kurukshetra's Technical Fest.
- Finalist in Coderush 4.0 hackathon.
- **Certifications:** C++, Spell B competition (first place), English Communication.
- Solved 350+ questions on LEETCODE