Anugya Anantapur

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Experience

Core Committee, IISc ACM-W Student Chapter *Aug 2024 – Present*
Volunteer, Workshop on systems for Machine learning, IISc ACM student chapter
Volunteer, Robonautica (Rhapsody'23), Pravega Innovation Summit (Pravega'23)
Graphic Designer – Designed posters, social media creatives, and merchandise for college events.
Coordinator – Handled logistics and website for UG sports fest *Eclipse*; Lasya and Alekhya competitions in Pravega'24.

Education

B.Tech in Mathematics and Computing, Indian Institute of Science (IISc), Bangalore CGPA: 6.7 / 10.0 *2023 – Present*
Class 11 *2021 – 2023*
12, Narayana Junior College
Grade: 97%
Class 10, St. Joseph's High School *2020 – 2021*
Grade: 97.8%

Skills

- Python
- Bash
- SQL
- Problem Solving
- Recursive Trees
- Algorithms
- Dynamic Programming
- OpenAI API
- C
- NumPy
- Git
- Jupyter Notebook
- ADT
- Hypothesis library
- TRIE

Languages

English, Telugu, Hindi, Kannada, Tamil

Core Courses Completed

Algorithms and Programming
Computer Systems and Architecture
Discrete Mathematics

Linear Algebra and Multivariable Calculus
Numerical Methods, Data Structures and Algorithms
Probability and Statistics
Introduction to AI/ML (incl. Deep Learning)
Automata Theory and Computability
Numerical Analysis
Algebraic Structures

Projects

Trie-Based Dictionary Reimplementation (C)
Rebuilt an array-based dictionary into a Trie-based data structure, preserving the abstract data type's interface. Eliminated hardcoded size constraints and improved lookup/set speed via recursive node operations. Maintained strict memory safety and clean pointer logic throughout.

Interactive Bellman-Ford Path Visualizer (Python)
Designed an interactive game-like simulation of the Bellman-Ford algorithm, styled as a treasure hunt. Built a fixed graph using island images for nodes and ocean paths for edges, with dynamic glowing of user-selected paths. Highlighted the optimal path and displayed a final success message to complete the animated gameplay.

Performance Analysis of Splay Trees (Java)
Simulated splay trees under skewed query patterns to demonstrate their near-constant amortized access time. Benchmarked against naive BSTs and presented results using comparative trend plots. Conveyed empirical insights clearly without relying on formal theory.

HyperLogLog Neighbor Optimizer (Python)
Optimized the `get_nearest_neighbors()` routine in a probabilistic HyperLogLog structure. Rewrote logic using vectorization and smarter iteration to handle large-scale queries efficiently. Preserved functional correctness while significantly improving runtime performance.

Ultra-Large Integer Optimization (Python + C)
Rewrote performance-critical sections of a Python-based large integer processing app in C. Implemented a custom big-integer ADT, integrated via ctypes, and managed builds with Makefile. Achieved significant speedup on large-scale integer datasets.

Extracurricular Activities

Diploma in Carnatic Music.
Kuchipudi dancer
Active member of MFDC (dance club)
Cultural Coordinator of IISc TSS Committee
Carrom Player