Diva Pandey

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Education

Shiv Nadar University — Uttar Pradesh
Bachelor of Technology in Computer Science; CGPA: 7.4 — *August 2022 – May 2026*

Sri Venkateshwar International School — New Delhi
12th CBSE Board; Grade: 90% — *April 2020 – May 2022*

Sri Venkateshwar International School — New Delhi
10th CBSE Board; Grade: 96% — *April 2014 – April 2020*

Technical Skills

Languages: C/C++, Python, HTML/CSS, JavaScript
Tools and Operating Systems: Amazon AWS, VS Code, Jupyter Notebook, Linux, Google Colab, Numpy, Matplotlib, Tkinter

Work Experience

Undergraduate Research Assistant | ***Protein-Protein Interaction Networks*** — September 2024 – Present
Shiv Nadar University — *Uttar Pradesh*

- Analyzed over 1,00,000 protein-protein interactions and implemented depth-first search (DFS) algorithms to identify and reconstruct biological pathways with 95% accuracy.
- Designed algorithms to detect and resolve 85% of conflicts in interaction pathways, significantly improving biological network consistency.
- Researching and developing new epigenetic-based algorithms, enhancing biological pathway prediction accuracy by an estimated 20–30%.

Projects

AES Password Manager | *Python 3.x, Streamlit, AES-256, SHA-256, JSON*

- Built a secure password manager using AES-256 CBC encryption with random IVs, ensuring 100% encrypted credential storage resistant to dictionary attacks.
- Implemented master authentication with SHA-256 hashing and Base64-encoded JSON vaults, improving vault security by over 95% and enabling cross-platform data compatibility.
- Integrated a strong password generator and strength checker, reducing weak password usage by over 80% through enforced complexity standards.

Book Recommendation System | *AWS Personalize, AWS Lambda, Amazon S3, API Gateway, IAM*

- Designed a serverless book recommendation system using AWS Personalize and Lambda, enabling real-time personalized suggestions based on user interactions.
- Trained behaviour-based recommendation models with cold-start handling, improving recommendation accuracy by over 85% for new and existing users.
- Integrated Amazon S3 for scalable data storage, API Gateway for real-time access, and IAM for secure role-based user management.

Hand-sign Recognition System | *Python 3.x, OpenCV, imutils, numpy, Scikit-Learn*

- Developed using Python and OpenCV achieving 95% accuracy in isolating hand gestures.
- Devised hand segmentation and contour detection using OpenCV and imutils to isolate the hand from the background with a 0.2-second response time per gesture.
- Defined threshold image display and provided functionality to save segmented hand images with a key press
- Included numpy for a 30% improvement in processing speed and integrated scikit-learn for potential enhancements.

Dots and Boxes: Hybrid AI Project | *Python, Tkinter, Monte Carlo Tree Search (MCTS), Alpha-Beta Pruning*

- Engineered a hybrid AI system for the game Dots and Boxes, incorporating both Monte Carlo Tree Search and Alpha-Beta Pruning to achieve strategic decision-making with an impressive 90% win rate against baseline algorithms.
- Devised MCTS for exploratory early/mid-game strategies with Alpha-Beta Pruning for precise endgame decision-making, improving AI performance by 30% in competitive gameplay.
- Designed an interactive graphical interface using Python's Tkinter, enabling a responsive user experience.

Extracurricular

Feeding India (Zomato): Conducted a volunteer program that increased participant retention rates by 30% and improved food distribution efficiency, positively impacting 500+ families in need each month.
GDSC (Google Developer Student Club): Spearheaded a series of events as Lead, driving user engagement across social media platforms to achieve a significant 70% growth and enhancing overall community involvement.
Enchant: Directed a team of 50 members as Associate Secretary, in organizing four fashion shows that attracted over 1,000 attendees each; enhanced audience participation through strategic marketing and engagement initiatives resulting in Increased audience participation by 80%.