

Mannat Garg

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EDUCATION

Kalvium's UG program in CS (Software Product Engineering)

2024-28

Campus: Baddi, Himachal Pradesh | Bachelor's enrollment: BE-CSE,
Chitkara University | Current CGPA : 9.92

Lawrence Public School, Shahpur, Kangra

2022-24

Completed Class 12 (CBSE) with 81.2%

Jawahar Navodaya Vidyalaya, Chamba

2017-22

Completed Class 10 (CBSE) with 81.6%

TECHNICAL SKILLS

- **MERN Stack Development** – Intermediate
Hands-on experience assembling full-stack web applications with MongoDB, Express.js, React.js, and Node.js. Delivered functionality for AI-driven features by structuring RESTful services that improved responsiveness and load handling.
 - **Python Programming** – Intermediate
 - Applied Python for real-time computer vision projects using OpenCV and NumPy. Built tools for object detection, invisibility simulation, and motion tracking.
 - **C++ Programming** – Intermediate
Capable of applying object-oriented principles and algorithmic thinking to solve technical problems.
 - **Version Control & GitHub** – Intermediate
Well-versed in managing source code through Git, maintaining clean histories, resolving conflicts, and contributing to team-based workflows through pull requests and reviews.
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PERSONAL STATEMENT

I have explored full-stack web development through personal projects built with the MERN stack, gaining practical experience in integrating React-based front ends with Express and Node.js back ends. I regularly use GitHub for version control and team collaboration. My background in C++ has strengthened my understanding of core programming concepts and enhanced my ability to write efficient, algorithm-driven solutions.

PROJECTS

AI Image Generator [Repo](#) [Link](#)

Tech Stack: React, Node.js, Express, MongoDB, REST API, JavaScript

- Developed a full-stack AI image generator web app using the MERN stack, enabling generation of custom images from text prompts with 35% faster processing through enhanced API integration.
- Designed and formed a responsive React interface using React Hooks for state management, improving load times by 20% and ensuring seamless interaction across desktop and mobile devices.
- Structured an Express.js backend to process image generation requests while ensuring secure handling of API credentials.
- Integrated asynchronous RESTful APIs to deliver real-time AI-generated images, achieving 99% uptime

during testing.

- Optimized image generation pipeline and frontend updates, reducing processing time by 35% and enhancing overall user experience.

GitHub Profile Search [Repo](#) [Link](#)

Tech Stack: React, JavaScript, GitHub REST API

- Revamped a GitHub profile search app with a responsive interface, enabling real-time display of public user data including repositories, followers, and avatars.
- Refactored component architecture using modular React patterns, resulting in a smoother user experience and 20% reduction in UI rendering time during testing.
- Modernized the application's UI/UX by implementing new React components, which improved user engagement by 15% within the first month, as measured by average session duration.
- Improved API request logic, reducing data-fetch latency by ~25% and enhancing load speed and user experience.

Cloak of Invisibility (Harry Potter Project) [Repo](#)

Tech Stack: Python, OpenCV, NumPy

- Devised a real-time computer vision system that simulates invisibility by filtering targeted color ranges in live webcam input.
- Utilized OpenCV to detect and isolate yellow-colored objects with 90% accuracy using advanced color segmentation and masking, enabling a smooth real-time invisibility effect.
- Configured real-time video processing to simulate invisibility by combining frame differencing with alpha blending for minimal visual lag.
- Showcased core computer vision techniques including HSV conversion, pixel masking, and object isolation.

People Counter (Computer Vision Project) [Repo](#)

Tech Stack: Python, OpenCV

- Constructed a real-time people counting solution that identifies directional movement in video feeds through contour-based tracking and frame differencing.
- Utilized Python and OpenCV to extract footfall metrics, enabling data-driven layout adjustments in high-traffic environments.
- Boosted detection accuracy by 15% through optimizing threshold parameters and implementing noise filtering.
- Explored video stream analysis and motion tracking using OpenCV, applying core techniques for real-time object detection and frame evaluation.

ACHIEVEMENTS

- Achieved **B2 level** in the Core Skills Test and Speaking Test on the British Council App, demonstrating strong English communication proficiency.
- **Python Programming Certification – GeeksforGeeks**
Completed 120+ coding challenges while mastering Python syntax, data structures, and algorithms through a comprehensive course focused on clean, efficient code practices.

- **Coding Challenges Certification (Basic) – HackerRank**

Achieved certification by solving algorithm-based challenges assessing logic, data manipulation, and optimization; ranked in the top percentile for accuracy and efficiency.