Ansh Kumar

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Education

Vellore Institute Of Technology 2022 – 2026
Bachelor of Technology in Computer Science *Cumulative Grade Point Average: 8.42 / 10.0*

Relevant Coursework: Data Structures and Algorithms, Object-Oriented Programming, Database Management Systems, Computer Networks, Operating Systems.

Skills

Programming Languages: C, C++, Rust, TypeScript, SQL, HTML/CSS, JavaScript.
Frameworks: React, Node, Express, Tailwind.
Databases: MySQL, PostgreSQL, MongoDB, Redis.
Developer Tools: Git, GitHub, Postman.

Projects

Grid Story | *React, JavaScript, Express, Web Sockets, PostgreSQL* [Live Demo]

- Constructed a full-stack collaborative application using Express and Web Sockets, engineered to handle over 1,000 concurrent users and broadcast pixel updates with an average end-to-end latency of less than 150 ms.
- Architected a backend system capable of validating, and broadcasting over 100 pixel-placement events per second.
- Developed a highly efficient system where a 160,000 pixel grid (400 x 400) was rendered on the frontend while the backend efficiently served the initial state and subsequent updates.
- Established a robust data persistence strategy using PostgreSQL to capture a history of 1,000+ pixel modifications.

Bird ai | *React, JavaScript, Tailwind* [Live Demo]

- Engineered and launched a multi-modal AI SaaS platform, acquiring over 20 registered users in the first three months and successfully processing more than 1,000 unique content generation requests.
- Managed complex asynchronous application state using Redux Toolkit, resulting in a 99% success rate for API data handling and a 35% increase in average user session duration.
- Designed and built a fully responsive user interface, ensuring a consistent and accessible experience across all devices. Accomplished a 98% score in Lighthouse accessibility audits.
- Enhanced the user experience by implementing optimistic UI updates and detailed loading states for AI generation tasks, reducing perceived wait time by an estimated 60%.

Ferris Guesses | *Rust, Information Theory, Performance Tests* [Live Demo]

- Formulated a high-performance solver in Rust by implementing an information theory-based algorithm, reducing the average guess count to 3.
- Accelerated mid-game word filtering by 80% per turn by replacing string comparisons with bit-wise operations.
- Boosted computational performance by over 40% through strategic parallelization of word-list analysis and entropy calculations using Rust's concurrency primitives, significantly reducing the average solve time.
- Built a robust data processing pipeline to filter, and structure a large-scale word frequency dataset from Google Books, creating a refined and optimized dictionary of over 10,000 common words.

Key Achievements

- Qualified for ICPC Regional Programming Contest, by competing against other participants.
- Ranked 364th globally in CodeChef Starters 136, demonstrating competitive programming and problem-solving skills.
- Achieved 1824 LeetCode rating, reflecting high proficiency in data structures and algorithms. and coding efficiency.
- Secured top rank among 1,500+ participants in the Data Structures and Algorithms challenge at VIT Bhopal, showcasing excellence in algorithmic challenges.
- Placed in the top 50 out of 500+ participants in the Constellation hackathon, showcasing exceptional teamwork and innovative coding skills in a highly competitive environment.
- Recognized for high potential in innovation and teamwork by being chosen for the internal selection round of the highly-regarded Smart India Hackathon.
- Demonstrated a high level of mastery in Cloud Computing, receiving the Silver Medal for exceptional performance in the top 5% of NPTEL course participants.