

Aarush Dubey

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Education

SRM University, AP

2024 – 2028

B.Tech in Computer Science and Engineering

CGPA: 8.9

- **Relevant Coursework:** Data Structures and Algorithms, Object-Oriented Programming, Machine Learning, Database Management Systems, Operating Systems, Computer Networks, Software Engineering, Cryptography, Linear Algebra, Statistics and Probability.

Delhi Public School, Agra

2021 – 2023

CBSE – Class XII (Senior Secondary)

Completed: 2023

Certifications

- **MongoDB Associate Developer** – Verified on Credly. MongoDB, Node.js, CRUD, Aggregation, Indexing.
- **Data Science and Machine Learning** (Udemy) – Scikit-Learn, Pandas, NumPy, supervised/unsupervised learning, model evaluation.
- **Generative AI Fundamentals** (Udemy) – LLMs, prompt engineering, RAG, LangChain.

Technical Skills

Programming Languages: Python, C/C++, Java, JavaScript (ES6+), TypeScript, C#, SQL, HTML5, CSS3

Frontend: React.js, React Hooks, Context API, Next.js (SSR/SSG), Tailwind CSS, Bootstrap, Responsive Design

Backend: Node.js, Express.js, FastAPI, Flask, .NET / WinForms, REST APIs, JWT Authentication

AI/ML: Scikit-Learn, XGBoost, Random Forest, Logistic Regression, Feature Engineering, Hyperparameter Tuning, Ensemble Methods, SHAP

Deep Learning and NLP: PyTorch, YOLOv8, OpenCV, RAG Pipelines, LangChain, Text Classification, Word Embeddings, Prompt Engineering

Databases: MySQL, SQLite, SQL Server, MongoDB, ChromaDB (Vector DB), Supabase

Cloud and DevOps: AWS (EC2, S3), Azure Databricks, Docker, CI/CD Pipelines, Render Cloud

Data Visualization: Plotly, Matplotlib, Streamlit Dashboards

Practices: Agile/Scrum, Unit Testing, Integration Testing, Code Reviews, System Design, Git/GitHub, Jupyter Notebooks

Professional Experience

Research Intern – Quantum-Resistant Cryptography

Jun 2026 – Present

Research Project on Secure Cloud Storage

Remote

- Researched and implemented a quantum-resistant Remote Data Integrity Auditing (RDIA) system using Lattice-Based Cryptography in C and Python, securing cloud storage against quantum threats.
- Designed attribute-based secret key extraction over Z_q and generated homomorphic integrity tags utilizing matrix operations, Gaussian sampling, and SIS-based trapdoors.
- Developed a fine-grained access control policy mechanism allowing authorized verifiers to perform data integrity checks without compromising attribute privacy or relying on identity-based systems.
- Benchmarked cryptographic operations including tag generation time, proof size, and verification time, successfully demonstrating correctness, soundness, and collision resistance against malicious cloud servers.

Full-Stack Software Engineer

Nov 2025 – May 2026

Quint Beauty – Production E-Commerce Platform (quintbeauty.com)

Remote

- Designed and developed a **full-stack production e-commerce platform** serving 500+ monthly active users, building the customer-facing storefront (React.js, TypeScript) and backend (Node.js, Express.js, MongoDB) with 20+ reusable components and RESTful API architecture.
- Built a dedicated **Admin Portal** with role-based access control for business operators to manage orders, inventory (150+ SKUs), and customer data; integrated Razorpay payment gateway processing 200+ transactions/month with webhook-based order status tracking.
- Optimized end-to-end application performance through lazy loading, code splitting, database query optimization, and image compression, achieving sub-2s page load times, improving Lighthouse score from 62 to 95+, and reducing bounce rate by 25 percent.

Research Intern – Computational Linguistics, NLP, and Data Engineering

Jan 2025 – May 2025

SRM University-AP

Mentor: Ms. Soni Wadhwa

- Built a **full-stack analytical tool** (Python/Streamlit + React) with automated data pipelines to extract, process, and visualize punctuation patterns across 50+ literary corpora comprising 2M+ data points, reducing manual research time by 40 percent.

- Designed interactive data visualization dashboards (Plotly, Matplotlib) with SQL-backed storage, adopted by 3 research groups for real-time statistical trend analysis and data-driven decision making.
- Applied NLP and text mining techniques (tokenization, frequency analysis, pattern extraction) to unstructured text corpora, supporting research publication efforts.
- Collaborated in a 5-member research team following Agile/Scrum methodology with sprint planning, daily stand-ups, code reviews, and iterative delivery across 6 sprint cycles.

Projects

Guardian PDF – Cloud-Deployed RAG Document Intelligence Engine (Live Demo) 2026

- Architected a 3-tier RAG pipeline (React + FastAPI + ChromaDB) for intelligent multi-document querying with NVIDIA AI Foundry and Ollama, serving 300+ users and processing 5,000+ document queries.
- Engineered a custom C++ parsing module achieving 7.5x performance improvement over standard Python parsers, reducing average document ingestion time from 12s to 1.6s.
- Deployed on cloud infrastructure with Docker containerization, CI/CD pipelines, structured logging, and error monitoring for production reliability. 85 percent test coverage.

VisionOps – Real-Time Computer Vision Analytics Platform (GitHub) 2026

- Built a production-grade platform integrating YOLOv8 (PyTorch) object detection and Optical Flow motion analysis with a FastAPI backend, processing 30 frames/second for real-time inference.
- Developed a Streamlit analytics dashboard with SQLite event logging capturing 10,000+ detection events for real-time monitoring, historical trend analysis, and performance metrics tracking.

ET-Concierge – AI-Powered Financial Intelligence Twin (Live Demo) 2026

- Built an AI guide leveraging NVIDIA Llama 3.1 (70B) and Groq for ultra-fast, hyper-personalized financial insights with 150+ registered users and 98 percent uptime.
- Developed a full-stack application using Next.js (SSR/SSG) with TypeScript, integrating Supabase for authentication and data persistence with sub-1s page transitions and optimized SEO.

TransactAI – Explainable ML Pipeline for Financial Intelligence (GHCI 2025 Hackathon) 2025

- Engineered an end-to-end ML pipeline for automated financial transaction categorization achieving macro F1-score of 1.00 using ensemble methods (Random Forest, XGBoost) with extensive feature engineering and hyperparameter tuning (GridSearchCV).
- Implemented Explainable AI (SHAP) feedback loops for transparent, auditable model predictions with feature importance analysis and bias detection.

ConvoShield-AI – Real-Time Cybersecurity Threat Detection Platform (GitHub) 2026

- Developed a cybersecurity browser extension with NLP-based threat detection to identify phishing, social engineering, and malicious content in real-time achieving 94 percent detection accuracy.
- Built a companion security analytics web dashboard for monitoring threat logs (1,000+ events), incident metrics, and user safety KPIs. Competed nationally at GDG Code4Her Hackathon (Top-15 finalist among 500+ teams).

JARVIS – Autonomous AI Agent with Long-Term Memory (Live Demo) 2025

- Developed a sophisticated AI Personal Assistant with persistent memory using JSON-based memory systems to maintain context across user sessions.
- Integrated Google Gemini API for real-time task automation, dynamic planning, and conversational AI. Built with Python, Flask, and deployed on cloud.

Task and Time Tracking System – Full-Stack CRUD Application (GitHub) 2026

- Built a production-grade React.js frontend with React Hooks and Context API for state management, featuring responsive dashboards, analytics, and real-time data updates across devices.
- Implemented RESTful API integration with Node.js/Express.js backend, JWT authentication, Axios interceptors, and cross-browser compatibility with CSS Grid, Flexbox, and media queries.

Quint Beauty – Full-Stack E-Commerce Platform (Live) 2026

- Designed a complete e-commerce site with Razorpay payment gateway, MongoDB-backed inventory, Admin Portal for order/inventory management, and sub-2s mobile load times.

Leadership and Achievements

- **Vice President, Smart Tech Club:** Leading 200+ members; organized 10+ university-level tech events, workshops, CTF competitions, and hackathons promoting collaborative learning and inclusion across 4 engineering departments.
- **GDG Code4Her Hackathon:** Built ConvoShield-AI, a real-time cybersecurity threat detection platform; competed among 500+ teams nationally, recognized as top-15 finalist.
- **GHCI 2025 Hackathon (Round 2):** Developed TransactAI – XAI-driven software solutions for social accessibility challenges using design thinking and Agile methodology; advanced to Round 2 among 1,200+ teams nationally.
- **Open-Source Portfolio:** Maintaining 5+ production-deployed projects on GitHub with live demos, comprehensive documentation, CI/CD pipelines, and 15+ GitHub stars across repositories.
- **Storytelling and Executive Presence:** Regularly present technical findings, risk assessments, and improvement proposals to faculty panels and industry mentors.