Yash Agarwal

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EDUCATION

Graphic Era Hill University   Uttarakhand, India
B.Tech. in Computer Science & Engineering; Honors in ML & AI   *Aug 2023 – July 2027*

EXPERIENCE

Full-Stack / Product Engineer   Aug 2025 – Present
Graphic Era Hill University (Campus Deployment)   *Dehradun, India*
- Deployed a production portal supporting 1,600+ users (scaling to 4,000) using Next.js, React, and Firebase to centralize project submissions, mentorship requests, and panel evaluations.
- Architected Firestore schemas with role-based access control (RBAC), atomic transactions for team creation, and immutable revision history to ensure data integrity and auditability.
- Engineered real-time synchronization using efficient Firestore listeners and implemented conflict detection logic to prevent faculty from evaluating teams they mentor.

Software Engineering Intern (IoT & Full-Stack)   May 2025 – Nov 2025
DataCulture Technologies Pvt. Ltd.   *Remote*
- Engineered an end-to-end IoT irrigation system spanning embedded C++ firmware, cloud synchronization, and a Next.js web dashboard, earning "Exceeded Expectations" ratings.
- Developed a responsive web dashboard for remote device configuration and live telemetry monitoring, implementing secure user authentication and device ownership mapping.
- Designed deterministic state-driven control logic for hardware fault handling and co-authored a patent for the system's novel remote irrigation architecture.

Full Stack Developer Intern (Part-Time)   May 2025 – July 2025
Arterns Technologies Pvt. Ltd.   *Remote*
- Delivered production frontends for multiple client websites including client projects such as Vedichealings and Menticate using Next.js and Tailwind CSS, handling i18n and responsiveness.
- Built a real-time chat system for the Menticate platform using Socket.io and Firebase, integrating client-side state management to improve user engagement.
- Managed end-to-end delivery including frontend implementation, lightweight backend integration, and Vercel deployments, ensuring consistent authentication flows.

PROJECTS

Interactive 3D Portfolio | *React, Three.js, Spring Boot, MongoDB*   Feb 2025 – May 2025
- Engineered an immersive 3D driving experience using Three.js with Ackermann-like steering physics, collision handling, and implemented a drag-and-drop content management system (CMS) for live content editing.
- Designed a Spring Boot REST API backend with JWT-secured CRUD operations to manage resume data and bind it dynamically to 3D surfaces.
- Optimized asset orchestration and startup sequencing to ensure optimized rendering performance.

Real-time Community Finance Tracker | *React PWA, Firestore, Tailwind*   Oct 2025 – Present
- Built an offline-first Progressive Web App (PWA) using service workers and persistent storage, leveraging Firestore onSnapshot listeners for instant cross-client synchronization.
- Designed granular security rules and server-time validations to enforce RBAC, while modeling idempotent ledger entries to support partial payments and historical backfills.
- Implemented an in-browser SheetJS export engine for generating auditable month-wise financial reports and member statements.

TECHNICAL SKILLS

Languages: JavaScript (ES6+), TypeScript, Python, Java, C++ (Embedded), SQL, HTML/CSS
Frontend: React, Next.js (App Router), Tailwind CSS v4, ShadCN UI, Three.js, Vite
Backend & Cloud: Node.js, Express, Firebase (Auth/Firestore), Spring Boot, MongoDB, Docker, Vercel
Tools & Automation: Git, GitHub, Selenium WebDriver, PlatformIO, Gunicorn, Postman