

M. Shahzeb Raza

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PROFESSIONAL SUMMARY

Senior Full-Stack Software Engineer with 5+ YOE, specializing in React, TypeScript, and frontend architecture (layered CSR applications, strict typing, validation-driven forms) alongside NestJS backend systems, Elasticsearch search, AWS infrastructure, and CI/CD automation. Experienced owning production features from UI architecture through deployment and mentoring engineers.

TECHNICAL SKILLS

- **Frontend:** React, Next.js, TypeScript, React Query, TanStack Query, React Hook Form, Zod, Tailwind CSS, Material UI, shadcn/ui, SCSS, HTML, CSS
- **Backend:** Node.js, NestJS, Express.js, REST APIs, WebSockets, Puppeteer
- **Cloud & DevOps:** AWS, CloudFormation, EC2, S3, Elastic Beanstalk, Docker, GitHub Actions, CI/CD, Bash
- **Databases & Search:** PostgreSQL, MongoDB, Firestore, Elasticsearch, Prisma
- **Testing:** Vitest, React Testing Library, Playwright
- **Tools:** Git, Postman, Figma, VS Code, Jira, Confluence, Slack, WordPress

PROFESSIONAL EXPERIENCE

Scholarbee - Ed-Tech Platform connecting University & Students

Senior Backend Software Engineer | April 2025 - Present

- **Architecture & Team Leadership:** Planned and designed architecture for new business features, ensuring scalability and maintainability of the platform; trained and mentored junior developers through code reviews, fostering knowledge sharing and professional growth.
- **Backend Development:** Maintained and extended a NestJS-based backend application powering portals for Student, University and Super-Admin with following key features:
 - **APIs for Insights and Analytics:** Developed APIs to provide realtime business insights and analytics to admins; assisted sales team with 50% faster onboarding of new universities.
 - **Search & Ranking Engine:** Designed and implemented an Elasticsearch-powered search solution for academic programs and scholarships leveraging analyzers, tokenization, BM25-based relevance scoring, and weighted queries to improve search quality and result ranking; simplified evaluation process for students by 70%.
 - **Realtime Chats & Notifications:** Built secure realtime chat and notification alerts using WebSockets, reducing query response time by 70% for students and driving program conversions with deadline and favorites alerts.
- **Data Entry CMS:** Maintained and extended an admin CMS for data entry using Payload CMS, enabling students to view upcoming programs and scholarships.
- **Frontend Collaboration:** Supported portal UI work across student and admin flows, aligning frontend implementation with backend API contracts and shared domain models.

AiQuery - AI-Powered Security Investigation & Monitoring Product

Senior Software Engineer | December 2023 - Present (Remote)

- **Frontend Architecture & Application Ownership:** Sole owner of the AiQuery client-side application (Vite, React, TypeScript); architected a layered CSR codebase (views, hooks, API clients) with strict TypeScript, entity-based type definitions that propagate across layers when domain models change, and Zod for form validation (React Hook Form resolvers), API response parsing, and type-safe URL state (NUQS)—supporting maintainable evolution of complex security investigation workflows.
 - Owned end-to-end delivery of investigation workflows and reusable view patterns, including specialized interfaces—canvas views, side panels, code editors, and virtualized lists.
 - Managed server and client state with custom hooks and React Query (TanStack Query) for caching, invalidation, and data synchronization across data-heavy screens; applied selective memoization for performance optimization in high-frequency rendering paths.
 - Standardized component styling to shadcn/ui design tokens, replacing ad-hoc inline styles to establish a consistent, maintainable design system foundation.
 - Introduced unit tests for parsers and serializer utilities with Vitest; adopted React Testing Library for select critical UI flows; applied Playwright for end-to-end coverage of key user journeys.
 - Implemented keyboard-operable UI patterns across core workflows, improving usability and laying groundwork for broader accessibility compliance.
- **Architecture & Cloud Infrastructure:** Architected the full product stack and provisioned AWS infrastructure using CloudFormation (IaC), reducing infrastructure deployment time by 90%.
- **CI/CD & DevOps Automation:** Created custom deployment scripts to enable localized testing before triggering CI/CD pipelines; used GitHub Actions to automate staging and production deployments across Client, Server, and Landing-Page repositories.
- **Marketing Website:** Built an SEO-optimized homepage with Next.js, shadcn/ui, and Aceternity UI—custom modern design tailored for brand conversion and user flow.

Early-stage HR Technology Startup

Software Engineer | Dec 2022 - Sep 2023

- **DevOps:** Achieved 100% deployment success rate by automating CI/CD pipelines with containerized deployment using Docker.
- **Frontend Development:** Developed a user-friendly UI using React and TypeScript, improving user engagement by 15%.
- **Backend Development:** Built a scalable auth system with Node.js and Express, handling 10,000+ monthly active users using AWS Cognito.
- **Website:** Designed landing and pricing pages using Material UI, increasing conversions by 25%.

Government of Pakistan – Smart Production & Inventory Tracking

Assistant Manager | July 2020 - April 2024

- **Smart Production & Inventory Tracking System:** Replaced manual inventory and production tracking with a real-time system (React, TypeScript, Material UI, MongoDB), reducing manual documentation processes by 60% and enabling live capacity calculation.

Freelance – Upwork (Top Rated Badge) & Fiverr

Software Engineer | 2020 - 2023

- **Automated Job Aggregation Platform:** Built a web platform aggregating job listings from multiple sources on demand; implemented resilient scraping pipelines with Puppeteer, proxy rotation, and anti-detection strategies with background processing (6+ month client engagement).
- **Backend Development:** Built backend APIs with Express and NestJS to manage job listings and user accounts; architected and automated deployment pipelines with GitHub Actions and Docker.
- **Website Design & Development:** Created modern responsive websites using React, TypeScript, Material UI, Framer, and Webflow.

SELECTED ENGINEERING HIGHLIGHTS

Frontend Application Architecture

- Architected production React applications (Vite CSR) with strict layer separation (views, hooks, API clients), entity-centric TypeScript models, and Zod-driven validation for forms, API response parsing, and type-safe URL state.
- Built reusable component and hook patterns for complex investigation workflows, with React Query server-state management, cross-view state coordination, and performance-conscious rendering across specialized UIs.

Search & Relevance Engineering

- Designed and implemented Elasticsearch-powered search for scholarships and academic programs using analyzers, tokenization, weighted queries, and BM25-based relevance tuning to balance business priorities with user discoverability.

Cloud Infrastructure & CI/CD

- Provisioned and maintained AWS infrastructure using CloudFormation (IaC) and automated deployments with GitHub Actions and Docker-based CI/CD pipelines across multiple repositories and environments.

Real-time & Large-scale Systems

- Implemented WebSocket-based chat and notification systems for timely user interactions across production applications.
- Engineered resilient browser automation and scraping pipelines with Puppeteer, proxy rotation, and asynchronous task execution to aggregate external data at scale.

EDUCATION

- **Bachelors in Engineering** – NUST - National University of Sciences & Technology | 3.5 GPA | 2016 - 2020
- **Web Development Courses:** Introduction to Programming, Complete React Course (Udemy), Responsive HTML and CSS (Udemy), Advanced CSS and Sass (Udemy), Node & Express Boot-camp (Udemy)