Soumik Mitra

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LinkedIn | GitHub | Portfolio

Summary

Frontend Software Engineer with production experience building performance-optimized React/TypeScript applications, measurable Web Vitals improvements, and extensible component systems. Engineered a PWA with Lighthouse-validated rendering performance (CLS: 0, LCP: 3.1s under 4G throttling, TBT: 240ms) and a full-stack finance platform with a JWT-secured REST API backend. Comfortable owning frontend systems end-to-end — from bundle strategy and script loading to secure browser-based communication and API design. M.S. Computer Science, May 2026. U.S. work-authorized (OPT/STEM OPT).

Education

University of South Carolina Aiken — Aiken, SC
Master of Science in Computer Science — *Aug 2024 – May 2026*

University of South Carolina Aiken — Aiken, SC
Bachelor of Science in Computer Science, Cum Laude — GPA 3.67 — *Aug 2022 – May 2024*

- Featured in USCA News for academic excellence and innovation

Technical Skills

Languages: JavaScript, TypeScript, Python, Java, SQL
Frontend: React.js, Next.js, Vite, Service Workers, PWA, Tailwind CSS, HTML5, CSS3, Material UI, Chart.js
Performance & Web Vitals: Bundle optimization, script loading strategies, CLS/LCP/TBT/FCP tuning, Google Lighthouse, react-pdf, Tesseract.js (client-side OCR)
Testing: Vitest, React Testing Library, unit & integration testing
Backend & APIs: Node.js, Express.js, NestJS, REST API design, JWT Authentication, Microservices
GenAI & Data: LangChain, Groq Llama 3.1, Google Gemini Embeddings, Pinecone, RAG Pipelines
DevOps & Cloud: Docker, Docker Compose, CI/CD (GitHub Actions), AWS (Lambda, API Gateway, Amplify, Secrets Manager), Vercel, Render
Tools: Git, Agile/Scrum, JIRA (familiar)

Experience

SysOps Technician — Aiken, SC
University of South Carolina Aiken — *Aug 2024 – May 2025*

- Deployed and configured 50+ workstations campus-wide, handling hardware setup, software imaging via SmartDeploy, and network connectivity
- Streamlined deployment workflows using Transwiz for user profile transfers, reducing average setup time by 30%
- Verified OneDrive cloud backup compliance across university endpoints, auditing Downloads folders for unsynced data
- Provided hands-on user support during rollout phases, minimizing downtime and ensuring smooth faculty/staff transitions

SOC Analyst — Aiken, SC
University of South Carolina Aiken — *May 2024 – Aug 2024*

- Triaged and resolved 200+ security alerts (spam, phishing, malware) using Microsoft Azure Security Center, classifying and escalating threats across university systems
- Monitored inbound network traffic with Palo Alto firewall and investigated suspicious login activity via Graylog SIEM, including a DocuSign-spoofed phishing campaign targeting university staff
- Safely detonated malicious links using isolated virtual browsers and conducted vulnerability audits on university-deployed software such as Brave Browser and Microsoft Copilot
- Participated in weekly CTF-style threat simulations, applying the full security toolset to realistic attack scenarios to sharpen incident response and secure systems thinking

Math and Computer Science Tutor — Aiken, SC
University of South Carolina Aiken — *Aug 2023 – Present*

- Tutored 50+ students in the Math Lab across College Algebra, Pre-Calculus I & II, and Trigonometry, improving student comprehension and exam performance
- Assisted students with Java programming assignments and Data Structures & Algorithms coursework, breaking down complex concepts through practical examples
- Adapted teaching style to individual learning needs, adjusting explanations and pacing to support students across varying skill levels
- Logged and tracked student visits using Navigate, maintaining accurate attendance records for the Math Lab

Projects

Knowledge Hub | React, TypeScript, Vite, PWA, Service Workers Mar 2024 – Nov 2024

- Engineered a Progressive Web Application (PWA) with Vite and service workers, pre-caching up to 7MB of PDF assets and achieving Google Lighthouse scores of 100 in Best Practices and SEO, 89 in Accessibility, and 84 in Performance — validating production-level frontend quality
- Optimized script loading and rendering performance for constrained network conditions: CLS of 0, LCP of 3.1s under simulated slow 4G throttling, and TBT of 240ms during complex client-side navigation — directly matching Affirm's Web Vitals focus
- Architected a deeply nested client-side routing system with React Router DOM, eliminating full-page reloads and minimizing bundle blocking time through careful code splitting and navigation design
- Implemented zero-latency client-side document rendering via react-pdf, offloading server processing entirely to the browser while maintaining a 3.0s Speed Index and First Contentful Paint

FinTrack | React, TypeScript, Node.js, Express, MySQL, LangChain, Docker Sep 2025 – Present

- Built and shipped a production full-stack finance platform with a React/TypeScript frontend (Vercel) and an Express/Node.js backend serving 9 typed REST API endpoints (Render) — designed for extensibility and zero local setup across any device
- Implemented a custom JWT authentication system with per-user vector store isolation in Pinecone and scoped API access, enforcing secure browser-to-server communication with no cross-user data exposure
- Integrated a RAG pipeline (LangChain + Groq Llama 3.1 + Google Gemini embeddings + Pinecone) enabling natural-language querying of financial data, and client-side OCR (Tesseract.js) for zero-upload receipt scanning — all processing in-browser with no external API calls
- Containerized the full application with Docker and deployed via CI/CD pipelines; surfaced spending patterns across 9 category filters with interactive Chart.js visualizations, tested with Vitest and React Testing Library

AWS Cloud Platform (CSCIA614) Jan 2026 – May 2026

- Architected a serverless backend on AWS using Lambda, API Gateway REST endpoints, and Secrets Manager for secure credential storage, applying infrastructure-as-code deployment patterns
- Built a full GitHub Actions CI/CD pipeline automating build, test, and deployment stages on every push to main, reducing manual deployment overhead to zero
- Integrated Gitleaks for automated secrets scanning in the CI/CD pipeline, enforcing security compliance at the code level before any deployment proceeds
- Applied IAM least-privilege role scoping to Lambda execution roles and API Gateway permissions, ensuring a secure and maintainable cloud architecture

Educational Android App | Java, XML, Android Studio May 2023 – Mar 2024

- Built and published a production Android app in Java/XML, maintaining 57+ monthly active users across 4 countries (United States, India, Pakistan, and Kenya) with a near-zero crash rate
- Achieved 90+ installs with an 84.9% install retention rate, demonstrating the ability to ship and maintain reliable production software end-to-end
- Conducted usability testing and implemented feedback-driven UI refinements, improving user retention by approximately 20%
- Featured in USCA News for academic excellence and innovation

Research and Conferences

- Co-presented peer-reviewed research at **IEEE ISDFS 2026** (Endicott College, Boston, MA) — "AI-Enhanced Cybersecurity for Smart Grid Infrastructure Using the NIST Framework" — proposing an ML-driven threat detection framework (Logistic Regression, Random Forest, XGBoost) integrated with NIST CSF 2.0 and SP 800-30 for real-time risk management in smart grid systems. Research conducted under the advisement of Dr. Hala Strohmier Berry.