Barathkumar Padmanaban

Senior UI Engineer (React, TypeScript, Design Systems) | Coimbatore, Tamil Nadu, India
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Summary

Senior UI Engineer with 5+ years building large-scale React, Next.js (App Router) and TypeScript web applications for a production B2B SaaS platform, turning Figma designs and wireframes into pixel-perfect, responsive, accessible UI. Results: First Load JS 1.5 MB → 200 KB, Lighthouse 70 → 95, CI 27 → 8 min. Owns the design system (design tokens, theming, component library), Core Web Vitals and the REST/GraphQL data layer; partners cross-functionally with UX, product and backend. Applied AI: open-source LLM coding-agent harness, AI-driven E2E testing, AI-assisted prototyping.

Experience

Chain Coimbatore, India
Senior Software Engineer 3 (Frontend) – Lead, UX & Enablement *May 2024 – Present*

- Lifted Lighthouse 70 → 95 and cut First Load JS 1.5 MB → 200 KB leading a Next.js App Router v1 → v2 migration: barrel-file elimination, route-level code splitting, lazy loading, selective rendering; tracked LCP, CLS, INP and enforced a bundle-size performance budget in CI.
- Built the design system used across product teams: design tokens (typography, color, spacing) as a Tailwind theme on CSS custom properties with dark-mode theming, and an accessible component library (Radix UI, WAI-ARIA, keyboard navigation); ship Figma designs as pixel-perfect, responsive UI.
- Cut CI wall-clock ~27 → ~8 min through developer tooling: per-test duration telemetry driving duration-aware Playwright sharding, Turborepo-cached lint/type-check/build, affected-only Jest; own releases, staged rollouts and Sentry-driven incident response.
- Scaled real-time chat to 10,000+ channels via an 8-part reliability epic: shared TypeScript chat package, WebSocket data-streaming and reconnection rewrite, and debugging of the complex bug class behind recurring HTTP 504 failures.
- Integrated GraphQL (Federation) and RESTful APIs through TanStack Query; typed 65 untyped React Query call sites, closing the bug class behind two production crashes; fixed a production authorization gap across API and UI (ADR).
- Automated E2E coverage of the real email-OTP login and shipment-drawer journeys in CI with an AI-driven test suite (Momentic), replacing hand-maintained Playwright selectors.
- Made AI agents reliable contributors to production code: codebase knowledge graph (graphify) auto-consulted by agents, AGENTS.md and Cursor rules, and pre-push AI code review validating AI-generated code for correctness and security.
- Wrote the frontend architecture standards, state management patterns (Zustand, TanStack Query, Context API) and custom React hooks covered by unit and integration tests (Jest, React Testing Library); mentored junior engineers through code and design reviews.
- Partnered cross-functionally with product, UX design and backend to launch Autopilot workflow automation (real-time WebSocket sync, Lexical editor) and two cross-browser integrations: a Chrome extension and an Outlook add-in (Outlook web/desktop; Safari, Chrome, Edge) on Microsoft AppSource.

Assembly Coimbatore, India
Senior Software Engineer (Frontend) *May 2021 – Apr 2024*

- Improved application performance ~30% by virtualizing large, complex datasets in grids and tables (react-window) with lazy-loaded infinite scroll; built the client data layer on React Query with server-state caching strategies.

Projects, Open Source & Applied AI

- **bratcode – open-source LLM coding-agent harness (TypeScript, Ollama LLM API)** – ~600 lines, no framework; an agentic workflow built in 6 git branches with one capability each (constrain, inform, verify, recover); demoed live at React Meetup #108. github.com/iambharathpadhu/bratcode
- **Open source, merged:** kody.video (screen-reader announcement fix for the share sheet), thesysdev/openui (IME-safe Enter-to-submit), Magic UI (Comic Text component).
- **Speaker, React Meetup #72 & #108** (Framer Motion; bratcode); **technical writer**, JavaScript in Plain English.

Skills

Languages: TypeScript (strict, generics), JavaScript (ES6+, async), Semantic HTML5, CSS3 (Flexbox, Grid), Node.js
Frameworks & State Management: React (Hooks, Context API), Next.js (App Router), Zustand, TanStack Query (React Query)
Design Systems & Accessibility: Design Tokens (Tailwind theme, CSS Custom Properties, Dark Mode Theming), Component Libraries, Radix UI, shadcn/ui, Storybook, WAI-ARIA, Keyboard Navigation, Screen Readers (a11y), Figma Design-to-Development
Web Performance: Core Web Vitals (LCP, CLS, INP), Performance Budgets, Lighthouse, Code Splitting, Lazy Loading, Caching Strategies, Rendering Optimization, Bundle Size Minimization
APIs, Data & AI: RESTful APIs, GraphQL (Federation), WebSockets, Real-Time Data Streaming, LLM API Integration (Ollama), Agentic Workflows, AI-Driven E2E Testing (Momentic), AI-Assisted Prototyping & Code Validation, Claude Code, Cursor
Build, Testing & Delivery: Vite, Webpack, Turborepo, ESLint, Jest, React Testing Library, Playwright, Unit / Integration / E2E Testing, Git (PR Workflows), CI/CD, Sentry, Cross-Browser Compatibility, Agile, Code & Design Reviews, ADRs

Education

PSG College of Arts and Science Coimbatore, India
Master of Science in Software Systems (5-year integrated) *Jun 2016 – Jun 2021*