Utkarsh Srivastava

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Professional Summary

Frontend Platform Engineer with 5+ years of experience building rendering architectures, SSR runtimes, and performance-critical React applications at scale. Architected and led development of Catalyst, a frontend platform powering 8 business verticals and serving 10M+ monthly users at Tata 1mg. Specialized in React rendering systems, Streaming SSR, Core Web Vitals, V8 memory optimization, frontend infrastructure, observability, and developer platform engineering.

Experience

Tata 1MG — **Gurugram**

Associate Technical Architect (Intern → ATA) — **Oct 2020 – Present**

Worked on frontend platform engineering and rendering infrastructure for one of India's largest digital healthcare.

- Architected and led development of Catalyst, a frontend platform powering rendering, routing, asset orchestration, and runtime infrastructure across 8 business verticals.
- Designed and implemented Streaming SSR + Partial Prerendering architecture using React Suspense and dynamic rendering boundaries, **reducing TTFB by ~35%** across SEO-critical routes.
- Optimized Node.js rendering runtimes and resource-loading pipelines, **reducing production CPU usage by ~46%** and **lowering memory consumption by ~41%** across production pods.
- Re-architected CSS caching infrastructure with shared-file caching, **reducing memory usage by 50–70%** and **eliminating 90–98%** of CSS-related file I/O operations.
- Built observability infrastructure using Grafana dashboards and OpenTelemetry-based request tracing for runtime profiling, latency analysis, and production debugging across rendering systems.
- Led migration of mobile and desktop platforms from Webpack to Vite using custom compatibility loaders, **saving an estimated 5–6 months of migration** effort across teams.
- Profiled and optimized Webpack development infrastructure, **reducing startup time from 160s to 5s** and **hot reload latency to under 1s** while eliminating recurring Node.js OOM crashes.
- Refactored high-traffic homepage and product-detail experiences, improving Lighthouse scores to 80+ while **improving LCP by ~40%** and **reducing CLS to near-zero**.
- Implemented Dynamic Rendering for SEO-critical product and discovery pages, increasing **organic traffic by ~28%**.
- Built reusable frontend abstractions including shared hooks, rendering utilities, and design system foundations adopted across multiple business verticals.
- Developed user-facing healthcare experiences including medicine discovery, product detail flows, cart journeys, and health record modules across mobile and desktop platforms.
- Built observability infrastructure using Grafana and OpenTelemetry for runtime profiling, request tracing, and production debugging.
- Defined frontend rendering and performance standards adopted across teams and mentored 6 engineers on frontend architecture and runtime optimization.

Technical Writing

- Node.js Memory Architecture — Stack, Heap, and V8 Internals
- JavaScript Heap Memory in V8
- Understanding V8 Garbage Collection and Memory Management

Education

JSS Academy of Technical Education — **Noida**
B.Tech. in Computer Science — **2016 - 2020**