PRATEET TIWARI

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EXPERIENCE

AI Engineer | Drytis Inc. Oct 2026 – Present
Nevada, United States (Remote)

- Provide AI-assisted software development, debugging, and feature implementation using **LLMs** and prompt engineering to support client projects.

Frontend Engineer | TechSnap Mar 2026 – May 2026
Bengaluru, India (Remote)

- Built and optimized **Next.js** dashboards, improving Core Web Vitals and SEO while streamlining client-side data fetching with **TanStack Query** and **Redux Toolkit**.

PROJECTS

Bifrost - Search Engine | *Go, bbolt, BM25, Makefile*

- Engineered a **lexical search engine** with a Unicode-aware analysis pipeline, Porter stemming, and an **inverted index** supporting term frequencies, positional postings, and phrase queries.
- Optimized **BM25** retrieval using **per-query IDF caching** and posting reuse, reducing latency on a synthetic 100K-document corpus from **376s to 60ms** (**6,267× speedup**).
- Implemented **atomic bbolt persistence** with sorted bulk insertion; benchmarked index serialization and storage for 100K documents at **738ms**.

Sentinel - API Gateway | *Go, gRPC, Protocol Buffers, SQLite*

- Built a **high-performance API gateway** in Go with Radix routing, rate limiting, load balancing, health checks, circuit breaking, retries, and reverse proxying.
- Designed a decoupled **Control Plane/Data Plane architecture** using **gRPC** streaming, SQLite persistence, atomic runtime configuration, and automatic control-plane reconnection without database access on the HTTP hot path.
- Implemented **fault-tolerant traffic management** with full-jitter retries, request-body replay safety, and concurrency-safe components; benchmarked at **52K req/s** with 100 concurrent connections.

StreamIt - Video Streaming Platform | *Go, Gin, Asynq, Redis, AWS S3, FFmpeg, Next.js*

- Built a distributed video processing pipeline using **Go**, **Asynq**, and **FFmpeg** workers for asynchronous transcoding and media processing.
- Implemented adaptive bitrate **HLS** streaming with parallel transcoding using **goroutines** and semaphore-based concurrency control.
- Architected a distributed view-counting pipeline using **Redis Streams**, consumer groups, heartbeat validation, deduplication, and **HyperLogLog**, with batched counter synchronization to **MongoDB**.

TECHNICAL SKILLS

- **Languages:** Go, TypeScript, JavaScript, Rust
- **Frameworks & Libraries:** Gin, Node.js, Next.js, TanStack Query, Redux Toolkit, Socket.IO
- **Databases & Storage:** PostgreSQL, MongoDB, Redis, SQLite, Bbolt, AWS S3
- **Infrastructure & DevOps:** Docker, Nginx, Git, GitHub Actions, Vercel, Render

EDUCATION

ABES Engineering College, Ghaziabad, India Expected Aug 2027
Bachelor of Technology in Computer Science and Engineering (CSE)