Vijay Venkat J

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Education

Indian Institute of Information Technology Kottayam (IIITK) *May 2027*
B.Tech Computer Science and Engineering CGPA: **8.65**

Technical Skills

- **Languages:** Go, JavaScript, TypeScript, Python, C++
- **Backend / Frameworks:** Next.js, Express.js, REST API
- **Cloud / DevOps:** AWS (ECS, Lambda, S3), GCP, Azure, Docker, CI/CD
- **Databases / Caching:** PostgreSQL, Redis, Prisma
- **Monitoring / Observability:** Prometheus, Grafana, Loki, OpenTelemetry
- **Security / Pen Testing:** JWT, OAuth, BurpSuite, OWASP Zap, Nmap

Work Experience

Granville Tech ***April 2025 — June 2025*** *Backend Developer Intern*

- Architected a **scalable backend infrastructure** for an AI-driven EdTech platform, supporting **up to 50k concurrent live viewers per class** and AI-guided modules.
- Developed a **high-throughput video pipeline** using SRT, HLS, FFmpeg, and AWS ECS, reducing streaming costs by **70%** while delivering multi-bitrate adaptive video with **sub-3 second latency**.
- Optimized **PostgreSQL queries and schema**, added indexes and removed N + 1, achieving **40% lower API response time**.
- Implemented **asynchronous message queues and caching** (Redis) to support **10k+ simultaneous requests**, improving system throughput by **3x**.

Projects

- **LiveTran** (livetran) — *Go, SRT, HLS, FFmpeg, NATS, AWS, OpenTelemetry* ***March 2025 – Present***
  - Engineered a **low-latency Go backend** to ingest SRT live streams and transcode them in real-time into multi-bitrate HLS using **asynchronous FFmpeg pipelines**, achieving **sub-10s end-to-end latency**.
  - Designed a **distributed microservices architecture** leveraging **NATS JetStream** for high-throughput message orchestration between encoder, segmenter, and uploader services.
  - Deployed a **cloud-native stack** with AWS and Cloudflare R2 for scalable object storage, supporting **99.99% uptime** and seamless multi-region failover.
  - Implemented **full observability** with Prometheus, Grafana, Loki, and OpenTelemetry to monitor **latency, throughput, and error metrics**, improving system reliability by **30%**.
  - Built internal **rate-limiting and session management** SDKs to dynamically allocate streaming resources and enforce per-user limits at runtime.
- **ClaimBeaver** (ClaimBeaver) — *LangChain, Next.js, Redis, Prisma, PostgreSQL* ***March 2025***
  - Built an **AI-driven insurance claims processing system** using Next.js, LLM microservices, and RAG-based retrieval, reducing claim resolution time by **40%**.
  - Enhanced backend throughput with **Redis caching**, asynchronous message queues, and optimized SQL queries, achieving **90% faster database access**.
  - Revamped the claim processing system architecture using a **microservices approach**, leading to a 40% reduction in claim resolution time and a 90% improvement in database access speed.

Achievements

- **VulnX CTF 2025 - Runner Up** Placing 2nd out of more than 70 participants in VulnCon's Capture the Flag competition.
- **BITS Goa CTF 2025 – Achieved Global Top 10** Placing ninth worldwide out of 800+ teams in BITS Goa's premier 48-hour Capture the Flag competition.