

TamilArasan N

Backend Software Engineer — AI Systems & Distributed Architecture

Trichy, India — +91 9943112938 — tamil.tj.1967@gmail.com

[Portfolio](#) — [LinkedIn](#) — [GitHub](#) — [LeetCode](#)

Professional Experience

Software Engineer

Highbrow Technology

May 2025 – Present

Remote — US, California

- Architected **CleverHire.ai**, an AI-powered interview platform that dynamically generates questions based on JD, resume, and candidate responses; owned full backend including DB design, optimized object storage, and prompt engineering for resume parsing, ranking, and adaptive question flow.
- Built and deployed **critical backend services** (Node.js, PostgreSQL, MongoDB) for a platform with **100k+ users**; Optimized database queries through strategic indexing and Redis caching, resulting in a **10x query performance improvement** for high-traffic endpoints.
- Engineered a **MongoDB AI Agent** (LangChain/LangGraph) enabling natural-language database queries; implemented **intelligent LLM routing** (lightweight models for simple queries) cutting token costs by **40%** in production.
- Engineered a real-time audio processing pipeline **Speech-to-Text** → **LLM** → **Text-to-Speech** for the interview platform using Pipecat with proctoring, response capture, and post-interview analytics; optimized context pre-caching reducing CPU overhead by **30%**.
- Developed **event-driven architecture** using AWS Lambda, SQS, and BullMQ; developed async export pipelines generating interactive spreadsheets with dynamic hyperlink and image embedding.

Personal Works

- Designed a memory-efficient Rust pipeline to process **1.5TB gzipped NDJSON (300M records)** on 8GB RAM hardware; implemented parallel streaming I/O (Rayon), sparse-field pruning (64% null density), and columnar conversion to Parquet achieving **16x storage reduction** and enabling sub-second DuckDB analytics (detailed at [Blog: NDJSON → Parquet](#)).
- Managed production level infrastructure on **Hetzner/OVH VPS** using Docker; handled Linux-based deployments, scaling, monitoring, and CI/CD workflows.

Education

Bachelor of Science in Computer Science

2022 – 2025

St. Joseph's College, Trichy

Relevant Coursework: Data Structures & Algorithms, AI/ML, Database Management, Operating Systems, Computer Networks

Technical Skills

Languages: TypeScript (Advanced), JavaScript, Python, C/C++, Java

Backend & APIs: Node.js, Express, REST, GraphQL, Microservices Architecture, Event-Driven Architecture, BullMQ

Databases: MongoDB, PostgreSQL (drizzle), MySQL, Redis

AI & ML Systems: LangChain, LangGraph, LLM Routing, STT/LLM/TTS Pipelines, Pipecat, NLP Agents, Prompt Engineering

Cloud & DevOps: AWS (Lambda, SQS), Linux, Docker, CI/CD, Linux VPS (Hetzner/OVH), Git, GitHub Actions

Core Computer Science: Data Structures & Algorithms, System Design, Distributed Systems, Concurrency, Data Modeling, Performance Optimization

Selected Projects

High-Performance HTTP Audio Server — C, Socket Programming

Engineered socket-based audio streaming server achieving **1,462 req/s at 0.68ms latency** (50 concurrent connections); hand-optimized Base64/JSON parsing and memory allocation for production-grade throughput.