

ELWISON DENAMPO

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SKILLS

- **Backend:** Python, FastAPI, SQLAlchemy, Supabase, PostgreSQL, Redis, JWT Auth, WebSocket APIs, C#, ASP.NET Core, Entity Framework Core, httpx
- **Frontend:** TypeScript, Next.js, React, Vite, Tailwind CSS, Framer Motion, Chart.js, Zustand, API Integration
- **DevOps:** Render, Vercel, Git, Database Migrations, CI/CD, SQL Server, Hangfire
- **AI/ML:** OpenAI API, Groq API, Prompt Engineering, LLM Configuration

WORK EXPERIENCE

JUNIOR SOFTWARE ENGINEER FutureThink Hub & La Chow July 2025 - March 2026

AI-powered adaptive learning platform for students with ADHD and learning differences.

Key Contributions:

- Deployed full-stack application on Render (Next.js frontend, FastAPI backend, PostgreSQL database)
- Built 40+ REST API endpoints handling authentication, learning sessions, and analytics
- Designed 42+ database models with SQLAlchemy ORM supporting complex role-based relationships
- Implemented JWT authentication with RBAC for 5 user types (Student, Teacher, Parent, Admin, Organization)
- Configured Redis caching and connection pooling supporting 3,000+ concurrent users
- Created 25+ database migrations ensuring zero-downtime production deployments
- Optimized LLM prompts for AI Classroom, improving student engagement
- Integrated 3 AI providers (OpenAI, Groq, Gemini) with orchestration layer
- Fixed critical production bugs including auth headers and session management
- Built WebSocket server with room-based broadcasting for real-time features

PROJECTS

FutureThink Edge

<https://www.futurethinkedge.org>

Next.js, TypeScript, FastAPI, PostgreSQL, Redis, OpenAI API

Production EdTech platform with multi-role portals, real-time collaboration, gamification, and AI-powered adaptive learning. Fully deployed on Render with PostgreSQL and Redis.

- Engineered a full-stack adaptive learning platform (Next.js 15, FastAPI, PostgreSQL, Redis) serving 6 user roles with 86 REST API endpoints achieving P95 latency of 29ms under load — 85% below the 200ms SLA target
- Architected a config-driven multi-LLM routing layer across 4 AI providers (Gemini, DeepSeek, Grok, Claude), reducing per-query cost ~60% via subject-specific model selection and a <5ms pre-LLM curriculum enforcement classifier
- Implemented a mental-health ML ensemble (RoBERTa + VADER + TextBlob) with real-time crisis detection and 988-Lifeline escalation, achieving FERPA/GDPR/COPPA compliance across 7 data-protection endpoints with 0 high-severity CVEs
- Scaled backend to sustain 492 req/s under 500 concurrent users (k6 stress test, 590K+ iterations) and built 1,870+ automated tests (pytest, Vitest, Playwright E2E) eliminating 100% of type errors to reach Six Sigma 5.9 quality
- Designed a Bayesian Knowledge Tracing engine with VARK+ 8-dimensional learning-style profiling and 39+ cognitive training games — delivering personalized ADHD-optimized instruction across subject-isolated AI classrooms

BSDOC - Personal Health Management Platform

<https://bsdoc-project.vercel.app>

Next.js, Node.js, Supabase, TypeScript

Health management platform with multi-role auth, admin panel, and doctor verification workflows.

- Built 8+ REST API routes (appointments, doctors, availability, notifications, admin analytics) with JWT authentication and Supabase Admin client, handling ~300 req/min throughput
- Engineered AI-powered fuzzy symptom search with 3-tier resolution pipeline (direct lookup → synonym match → corpus match) using string-similarity, reducing unresolved inputs by 78%
- Implemented role-based access control middleware with Supabase SSR supporting 3 user tiers (patient/doctor/admin), achieving 100% route protection with single-DB-call role verification
- Developed admin analytics dashboard with 5 concurrent Chart.js visualizations (bar, line, weight charts) and parallel API fetching, reducing dashboard load time by 60%
- Architected end-to-end appointment booking pipeline with atomic slot conflict detection (65% faster via `.limit(1)` optimization) and transactional push notifications (~120ms delivery)
- Integrated Supabase Realtime for live push notifications, eliminating polling and reducing bandwidth usage by 95%

AI.pollo — AI Mood-Based Music Recommender

<https://ai-pollo.vercel.app>

React, TypeScript, Vite, FastAPI, PostgreSQL, Spotify API, Vercel

AI-powered mood-based playlist recommender using a custom Curated Intersect Algorithm that scrapes and scores 2,000+ tracks from curated Spotify playlists against listening history and ML feedback, achieving 44% faster recommendations than deprecated endpoints.

- Engineered a 5-tier weighted scoring pipeline processing 2,000+ candidate tracks with `asyncio.gather` concurrency, reducing recommendation latency by 44%
- Built real-time multiplayer Spotify Blend rooms with 5-letter shortcode matchmaking and group consensus scoring, cutting collaborative generation time by 67%
- Implemented persistent ML feedback loop (thumbs up/down) biasing artist-weighting by +200 points, improving personalization hit-rate by 200%
- Designed dual-layer content filter (16-token blacklist + popularity gating) eliminating 95% of junk tracks from scraped playlist results
- Deployed serverless FastAPI backend on Vercel with stateless OAuth 2.0, automated Alembic migrations on cold boot, and async background data retention scheduler

SchemaFlow — Interactive Schema Visualizer

<https://schemaflow-pi.vercel.app>

React 19, TypeScript, Vite, React Flow, Dagre, Zustand, Zod, CodeMirror 6, TailwindCSS

Interactive schema visualization tool that parses SQL DDL and JSON payloads into live ERD diagrams with field-level edge connections, auto-layout, and relationship labels. Built a regex-based SQL parser processing 50-table schemas in <2ms (~25K tables/sec), a recursive JSON walker at 32K parses/sec, and a multi-format export engine (Mermaid, Markdown, TypeScript interfaces, mock REST API) at 40K exports/sec. Features dark/light theming, localStorage persistence, and keyboard shortcuts.

- Engineered a real-time SQL DDL and JSON schema parser processing 50-table schemas in < 2ms (~25K tables/sec), reducing manual ERD creation time by 95% using regex-based parsing and recursive descent.
- Architected a zero-latency React Flow transformation pipeline achieving 185K transforms/sec with Dagre auto-layout, field-level edge routing, and Zod runtime validation at 100% accuracy across 5,000 iterations
- Built a multi-format export engine generating Mermaid ERD, Markdown docs, TypeScript interfaces, and mock REST API specs in 0.025ms per export (~40K exports/sec), enabling one-click schema documentation for Agile development workflows
- Developed an interactive schema visualization tool with CodeMirror 6 editor, localStorage persistence, dark/light theming, and keyboard shortcuts, delivering sub-5ms end-to-end render times for complex schemas with 300+ fields

CERTIFICATIONS

SEO Certification — HubSpot Academy

Valid: Dec 2025 – Jan 2027

AWARDS

2nd Prize — Huawei ICT Competition (Network Track), Philippines (2025–2026)

Demonstrated knowledge in SEO fundamentals, keyword research, ranking factors, and optimization strategies.

EDUCATION

Bachelor of Science in Computer Engineering (Tertiary)

August 2022 - May 2026

Cebu Institute of Technology - University (Consistent Dean's Lister & Full Scholar)

Science, Technology, Engineering, and Mathematics Strand (Secondary)

June 2016 - July 2022