

Vũ Nguyễn Duy Anh

BACKEND DEVELOPER

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CAREER OBJECTIVE

To grow as a professional Backend Engineer capable of designing and building high-performance, scalable, and production-ready distributed systems. I aim to work in a modern technology-driven environment where I can apply and deepen my expertise in backend architecture, real-time systems, and infrastructure optimization.

I am committed to continuously learning emerging technologies, strengthening system design and security practices, and applying advanced software engineering principles to deliver reliable, efficient, and sustainable products at scale.

PROJECT EXPERIENCE

Agent LiveKit – Distributed Real-Time Voice AI Platform

03/2025 - 05/2025

Backend Developer

Project Overview

Designed and implemented a production-grade, multi-service real-time voice AI platform capable of handling multi-participant LiveKit rooms with per-client speech pipelines, distributed processing, and AI-powered meeting summarization.

Key Achievements & Technical Strengths

- **Architected a microservice-based real-time system** (Orchestrator, STT, TTS) with full lifecycle management via LiveKit webhooks.
- **Designed per-client isolated inference pipelines** (dedicated Vosk recognizer + processing thread per participant) — eliminating cross-talk and shared-state concurrency bugs.
- **Achieved <500ms real-time STT latency** while supporting up to 30 concurrent clients per agent instance.
- **Integrated dual-stage transcription pipeline:**
 - Low-latency streaming STT (Vosk)
 - High-accuracy post-processing (Whisper)
- **Implemented event-driven architecture using Redis:**
 - **Redis Pub/Sub** for inter-service signaling (room events, track lifecycle, status updates)
 - **Redis Streams** for reliable transcription job queues (Whisper post-processing with replay capability)
 - **Redis Hash** for real-time pipeline state tracking (client status, chunk counters, failure metrics)
- **Built automated AI meeting summarization workflow:**
 - Aggregated speaker-attributed transcript timeline
 - Generated structured summaries and action items via Gemini AI/Selfhost

SMovie – Scalable Real-time Movie Streaming Platform

2025 - Present

Backend Developer

Project Overview

Designed and developed a production-ready movie streaming backend system serving web and mobile clients, featuring real-time communication, multi-channel authentication, and performance-optimized APIs.

Key Achievements & Technical Strengths

- **Designed scalable RESTful API architecture** using Django REST Framework serving multiple clients (Web & Mobile).
- **Implemented real-time comment system** with WebSocket (Django Channels) and Redis Channel Layer, achieving ~50ms message latency with 100+ concurrent connections.

- **Built custom JWT authentication middleware for WebSocket**, enabling secure real-time communication beyond standard HTTP authentication.
- **Optimized database performance** using `select_related`, `prefetch_related`, and indexing — reduced query count from ~200 to ~15 per page.
- **Implemented multi-channel authentication system** (Email verification, JWT, Facebook OAuth), including edge-case handling for missing social data.
- **Improved user experience** by integrating WebSocket-based email verification notifications (no manual refresh required).
- **Designed normalized relational database schema** with many-to-many junction tables, audit fields, and soft-deletes for maintainability.
- **Achieved average API response time ~150ms** through query optimization and efficient pagination strategy.
- **Implemented SEO video sitemap generation** compliant with Google Video standards.

EDUCATION

07/2022 - Present

Information technology

Electric Power University

Fourth-Year Undergraduate Student (2022 – Present)

SOFT SKILLS

- **Analytical Thinking & System Design Mindset**
- **Problem Solving Under Pressure**
- **Self-Learning & Research-Oriented**
- **Communication & Technical Documentation**
- **Ownership & Accountability**
- **Communication & Technical Documentation**

SKILLS

Programming languages

Python, C/C++, JavaScript, Java, C#

Database

MySQL, PostgreSQL, SQL Server, Redis

Backend

Django, Django Rest Framework, RESTful API, Microservices

Tools & Platforms

Git, Docker, Daphne (ASGI server), Nginx

Frontend

ReactJS (basic knowledge), HTML/CSS/Javascript

OTHER PROJECTS

IT English Hub - AI-Powered English Learning Platform

An intelligent English learning platform that helps IT professionals master workplace communication through personalized AI lessons, interactive exercises, and real-time conversation practice.

Farm Trace Backend - IoT Logistics & Supply Chain Management System

Modern backend system for agricultural supply chain management with IoT tracking, real-time monitoring, and analytics dashboard. Supports ESP32 devices, MQTT protocol, and WebSocket streaming.