Tamirat Fereja

Full-Stack Developer

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Summary

Highly skilled Full-Stack Developer with a Bachelor of Science in Computer Science, specializing in scalable, high-performance web and AI-powered applications. Experienced in building secure, user-centric platforms using modern technologies such as JavaScript frameworks, Python automation, microservices, and cloud-native solutions. Proven track record optimizing workflows, reducing costs, and enhancing user engagement through robust backend systems and complex integrations. Recognized for delivering innovative, efficient solutions that drive business value and improve user experience.

Work Experience

Backend Developer, *Oneness eLearning Platform (OnePlanet International School)* 02/2025 – Present

- Developed a scalable AI-Powered Media Transcription & Analysis microservice using Python, FastAPI, Whisper AI, Gemini AI, and Docker, achieving 95%+ transcription accuracy with summarization, translation, and engagement analytics. Improved processing time by 60% compared to commercial APIs via local model execution and resource-adaptive pipelines.
- Built a high-performance video streaming microservice using Node.js and NestJS that supports HTTP byte-range requests and adaptive chunking, reducing video load times by 78%, buffering by 63%, and CDN costs by 2%. Delivered sub-500ms chunk delivery with robust error handling and multi-viewer support.
- Engineered a scalable course tree structure managing 10,000+ learning objects with sub-50ms query times via NestJS, TypeORM, microservices, and materialized path pattern. Reduced database load by 75% through optimized path queries and transactional atomicity.
- Created an automated Python PostgreSQL multi-database backup tool with dynamic discovery, transaction-safe backups, schema awareness, and seamless restore capabilities.
- Developed a cloud-native RESTful file storage microservice integrating NestJS, TypeScript, MinIO, and Multer, achieving 60% cost savings and enabling efficient large file handling with strong error management.

Full-Stack Developer, *BETE Platform* 2024 – Present

- Built a MERN-based real estate platform for rentals and sales with multilingual support (Amharic, Afaan Oromo, Tigrinya).
- Secured authentication using JWT and Google OAuth; optimized image handling with Cloudinary.
- Implemented location-based filtering and role-based admin dashboards, improving user engagement and management efficiency.
- Integrated map features for enhanced property visualization.

Full-Stack Developer, *Digital Café Menu System* 2024 – Present

- Developed a digital menu system with cart, order tracking, and income/expense analytics.
- Enabled multi-language support and integrated Chart.js for sales insights.
- Added QR code functionality to enhance customer convenience.

Education

Bachelor of Science in Computer Science(MIcrolink information technology college) 2021 – 2024

- Data Structures & Algorithms, Database Systems, Web Development, Software Engineering, Artificial Intelligence, Cybersecurity, Mobile App Development

Skills

Programming & Frameworks

- Frontend: React.js, React Native, Tailwind CSS, Chart.js
- Backend: Node.js, Express.js, TypeScript, Python, FastAPI, NestJS, MinIO
- Databases: MongoDB, Firebase Realtime Database, PostgreSQL (psycopg2, TypeORM)

Tools & Technologies

- Cloudinary, Git, Multer, Pillow, TQDM, Concurrent Futures

Expertise

- API Integration & RESTful Web Services
- Microservices Architecture
- AI Integration (Whisper AI, Gemini AI)
- Web Scraping & Automation (Python)
- Real-time Communication (Socket.io)
- Docker Containerization
- Agile Methodology & Project Management
- Secure Authentication (JWT, Google OAuth)
- Payment Integration & OTP Solutions
- Data Visualization & Analytics
- Cloud-Native Storage (MinIO, S3-compatible)
- Performance Optimization (Range Requests, Chunked Encoding, Backpressure)

Recognition

Certificate of Recognition, *Adika Taxi*
for contributions as a Mobile App Tester.

Projects (Selected Highlights)

AI-Powered Media Transcription & Analysis Engine

- Designed and deployed a high-performance media processing system with Python, FastAPI, Whisper AI, Gemini AI, and Docker.
- Achieved 95%+ transcription accuracy, AI-powered summaries, and translations.
- Engineered scalable microservice handling parallel file processing with automatic CPU/GPU resource optimization.
- Reduced processing time by 60% vs commercial APIs; implemented interval segmentation, confidence scoring, and engagement analytics.
- Ensured 99.5% uptime with Docker containerization, CORS security, retry logic, and streaming progress reporting.

High-Performance Video Streaming Microservice

- Built a Node.js/NestJS service with byte-range requests and adaptive chunking, reducing initial load times by 78%, buffering by 63%, and CDN costs.
- Delivered sub-500ms chunk delivery with multi-viewer support and robust error handling, reducing playback errors by 91%.

Course Tree Structure System

- Developed a scalable course hierarchy managing 10,000+ nodes with sub-50ms queries using a hybrid materialized path pattern.
- Reduced database load by 75% and ensured transactional atomicity for tree updates.

Automated PostgreSQL Multi-Database Backup Tool

- Created a Python utility using psycopg2 for transaction-safe, schema-aware backups of all PostgreSQL databases on a server.
- Enabled dynamic database discovery, efficient data serialization, and error-resilient backups with seamless restoration.

Cloud-Native File Storage Service

- Developed RESTful file management microservice with NestJS and MinIO for S3- compatible storage.
- Achieved 60% cost savings and optimized large file uploads/downloads with Multer and Express streaming.

Automated Batch Image Compression & PDF Generation Tool

- Built a Python utility using Pillow, TQDM, and concurrent futures for compressing images and creating batched PDFs.
- Reduced processing time from 3 hours to 25 minutes on 5,000-image datasets and decreased storage by 0%.