Arjun Prasad Adhikari

Backend Engineer | Python & AI

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Summary

Backend engineer with over 5 years of production experience building scalable Python systems with Django, FastAPI, and PostgreSQL. Specializes in resilient, real-time backends with optimized database queries, caching, and message-fanout architectures. Currently expanding into generative AI engineering: RAG pipelines, Model Context Protocol (MCP) servers, and agent orchestration, treating the LLM as another I/O boundary with all the failure modes that implies. A strong foundation in computer-science fundamentals to design correct systems and validate AI-assisted code.

Skills

- **Languages:** Python, JavaScript, SQL, Bash
- **Backend:** Django, FastAPI, Flask, REST APIs, WebSockets, Real-Time Systems, System Architecture, Performance Optimization
- **Databases & Data:** PostgreSQL, MySQL, MongoDB, Redis, Database Design & Optimization, Query Plans, Indexing, Sharding, Time-Series Analysis, Financial Data Modeling
- **AI Engineering:** Generative AI, RAG Pipelines, Model Context Protocol (MCP) Servers, LangChain, LangGraph, Vector Databases, Agent Orchestration, LLM Evaluation (Evals), Token & Cost Optimization, Context Engineering, Prompt Versioning & A/B Testing, Verify-and-Retry Loops, Sandboxed Code Execution, Natural Language Processing
- **Cloud & DevOps:** AWS (EC2, S3, RDS), Docker, GitHub Actions, CI/CD, Linux, Git
- **Observability:** OpenTelemetry, Distributed Tracing, Log Pipelines, Metrics, LLM Observability
- **Automation & Security:** Scrapy, Playwright, Browser Automation, Web Scraping, Networking & Proxies, Burp Suite
- **Engineering Practices:** Data Structures, Object-Oriented Programming, Design Patterns, Test-Driven Development, Code Review, Refactoring

Work Experience

Backend / AI Engineer **Dec 2023 – Dec 2026**
wesionaryTeam *Lalitpur, Nepal*

- Owned the core of an AI data-analysis product end to end: an LLM agent that turns natural-language questions into validated, executed code and streams results back to users.
- Built an automated LLM evaluation framework from scratch, and improved answer accuracy and token cost through verify-and-retry loops, versioned and A/B-tested prompts, and leaner prompt context.
- Hardened authentication, file-upload, payment, and code-execution surfaces with stricter token validation, rate limiting, storage access controls, and a sandbox gate that screens generated code.
- Prevented billing leaks and race conditions by enforcing usage limits up front and fixing concurrency bugs, and resolved data-correctness defects across the analysis library with regression tests.
- Implemented WebSocket transport and LangGraph orchestration for real-time communication and function-calling workflows, improving system responsiveness by 30%.
- Optimized database queries, indexes, and Redis caching, reducing API response times by 40%; reviewed code regularly across the team.

Financial Data Engineer **Nov 2022 – Nov 2023**
Ideapreneur Nepal Pvt. Ltd. *Lalitpur, Nepal*

- Developed backend systems for Money Mitra, a Nepali stock-market application, with high-performance data processing and real-time analytics.
- Built market-data ingestion pipelines and trading-feature APIs with secure authentication and authorization mechanisms.

- Led and mentored junior developers, ensuring successful project delivery.

Systems Engineer **May 2022 – Oct 2022**
RKD Group of Companies *Pokhara, Nepal*

- Developed a portfolio-management system using Django, and Odoo ERP add-ons for attendance management with ZKTeco integration.
- Ensured security and scalability through optimized authentication mechanisms.

Project Freelancer **Sep 2020 – Jan 2022**
Urja Lab Pvt. Ltd. *Pokhara, Nepal*

- Built an inventory-management system and a ride-sharing backend.

Backend Developer Intern **Mar 2020 – May 2020**
Aankhi Jhyal Technologies *Pokhara, Nepal*

- Built IP Info Finder, a tool that resolves user data (location, ISP) from an IP address.
- Built Monitor Server, a fully real-time WebSocket-based remote-client commanding app using React, Flask, and Socket.IO.

Projects

MyFI – AI-Assisted Finance Tracker *Python, MCP, LLM, Voice*

- Voice-controlled personal finance tracker: log and query transactions by speaking, with an LLM in the loop that categorizes and explains spending.
- Exposes a Model Context Protocol (MCP) server so AI assistants can record, update, and summarize income, expense, and transfer transactions across accounts, categories, and tags.

AI-Powered Enterprise Chatbot *Python, RAG, FastAPI, Generative AI*

- Retrieval-augmented chatbot wired into enterprise data sources for intelligent document Q&A.

NEPSE Real-Time Data *FastAPI, WebSockets*

- Live analytics platform for the Nepal Stock Exchange streaming quotes, market depth, and indicators.

pyBlaze – Interactive Python Editor *Python, Education (pyblaze.adhikariarjun.com.np)*

- Online Python editor with step-by-step debugging and real-time execution for teaching.

Education

Bachelor of Engineering in Software Engineering **Nov 2017 – Aug 2022**
Gandaki College of Engineering and Science *Pokhara, Nepal*

- Coursework in Data Structures, Algorithms, Database Design, and Optimization Techniques.
- President, GCES IT Club (Nov 2021 – Aug 2022).

Honors & Awards

- Winner, GCES IT Coding Competition, GCES IT EXPO 2020 – Gandaki College of Engineering and Science (2020).