

DAVID BAMGBADE

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PROFESSIONAL SUMMARY

David is a contract-based Software Engineer and Applied AI/Quantitative Systems Developer with deep hands-on experience across machine learning, large language models (LLMs), algorithmic trading, financial data engineering, blockchain systems, and distributed architectures. Builder of the ICAN Nigerian Business Law Chatbot, fine-tuned on authoritative legal material and deployed for professional use. Proven ability to take ideas from research and experimentation through production deployment, including data pipelines, model fine-tuning, automation bots, scripting, and trading infrastructure. Strong background in fintech, market microstructure, and backend engineering, with practical exposure to FIX protocol concepts, Kafka-style streaming, and low-level program analysis. Known for shipping complex systems end-to-end with a strong focus on performance, correctness, and real-world applicability.

TECHNICAL SKILLS

Programming Languages

Python, Java (11+), JavaScript, MQL5, Pine Script, Solidity, SQL, PowerShell, Bash

Backend & Web Frameworks

Spring Boot, Flask, Django, REST APIs, Microservices Architecture

Data, ML & AI

NumPy, Pandas, Matplotlib, TA-Lib, Scikit-learn, NLP, RAG Pipelines, LLM Fine-tuning (LLaMA 3), Gemini API, Hugging Face Hub

Databases & Data Engineering

PostgreSQL, MySQL, MongoDB, SQLAlchemy, Data Modeling, ETL Pipelines

Trading & Financial Systems

MetaTrader 5 (MT5), Algorithmic Trading, Risk Management, Market Microstructure, Yahoo Finance & FRED API Data Pipelines, FIX Protocol Concepts

Blockchain & Web3

Solidity, Smart Contracts, AMMs, Liquidity Pools, TON Blockchain, Web3.js

DevOps, Scripting & Tooling

Docker, Git/GitHub, CI/CD, GCP, Linux, Selenium, Kafka (experimental)

PROFESSIONAL EXPERIENCE

Software Engineer

Semicolon Africa

Feb 2024 – June 2025

- Designed and implemented secure, scalable backend services using Spring Boot, Flask, and Django, supporting fintech and data-driven applications.
- Built APIs with strong authentication, authorization, encryption, and validation standards.
- Applied Agile development, Test-Driven Development (TDD), and CI/CD pipelines, improving deployment reliability and maintainability.
- Contributed to system architecture discussions, focusing on scalability, fault tolerance, and clean service boundaries.

Proprietary Trader & Algo-Trading Specialist

My Forex Funds

2021 – 2024

- Developed, back-tested, and executed systematic trading strategies under strict proprietary risk constraints.
 - Applied quantitative analysis, drawdown control, and risk-adjusted performance metrics.
 - Gained hands-on exposure to low-latency execution, order flow behavior, and real-world trading infrastructure.
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SELECTED PROJECTS

Yellow Pages Legal Data Scraping & Preprocessing (Educational Project)

- Safely scraped structured business-related listings from Yellow Pages using Python and Selenium, strictly for educational and research purposes.
- Normalized, cleaned, and stored scraped data in SQL databases.
- Designed preprocessing pipelines to transform semi-structured listings into ML-ready datasets.
- Practiced ethical web scraping, data validation, and large-scale text preprocessing for downstream AI use cases.

ICAN Business Law Chatbot

- Processed the official ICAN-published *Nigerian Business Law* textbook (PDF) as the primary training corpus.
- Performed extensive text extraction, cleaning, segmentation, and labeling to prepare high-quality legal training data.
- Fine-tuned a LLaMA 3 large language model specifically for Nigerian Business Law.
- Implemented custom token handling, prompt constraints, and response-guarding logic to improve legal-domain accuracy and reduce hallucinations.
- Deployed the model on Hugging Face and integrated it into a chatbot for professional legal research and assistance.

Custom Encoding & Decoding Algorithms (Cryptography Fundamentals)

- Implemented a Caesar Cipher in Python to study encryption fundamentals.
- Explored key rotation, reversibility, brute-force considerations, and data obfuscation.

Python AST Exploration & Code Flow Analysis (Educational)

- Used Python's AST module to analyze code structure and execution flow at a low level.
- Gained understanding of ASTs as core structures behind compilers and interpreters.
- Identified AST-based approaches for static analysis and AI-driven code generation.

FX Trade Copier Systems (Telegram, MT5 & MetaAPI)

- Built a Telegram-to-MT5 trade copier using Python, Telegram API, and MQL5, parsing semi-structured signals and executing trades in real time.
- Implemented safeguards: duplicate prevention, error handling, symbol normalization, latency minimization.
- Developed a JavaScript-based FX trade copier using MetaAPI for scalable cloud-based replication.

Gold Market Data Pipeline & Trading Strategy Automation

- Engineered an automated pipeline to retrieve gold market data from Yahoo Finance.
- Cleaned and engineered features using NumPy and Pandas, applied TA-Lib for technical indicators.
- Visualized market behavior with Matplotlib and converted insights into a TradingView bot (Pine Script).

Macroeconomic Data Analytics (FRED API)

- Built a data ingestion pipeline using the FRED API to retrieve U.S. macroeconomic indicators.
- Performed exploratory analysis and correlation studies between macro variables and financial markets.
- Supported market regime analysis and macro-driven trading hypotheses.

Market Maker & Financial Infrastructure Research

- Implemented a basic market-making price engine in Python to simulate bid/ask spreads and inventory risk.
- Experimented with Kafka-style event streaming and studied FIX protocol fundamentals.

Decentralized Exchange AMM (Educational Project)

- Designed and implemented an Automated Market Maker (AMM) in Solidity, modeling liquidity pools and constant-product pricing.
- Explored liquidity incentives, impermanent loss, and smart contract security.

AI-Powered Email Summarizer

- Built an email summarization system using Gemini LLM APIs, focusing on context-aware abstraction.
- Integrated Google Sign-In authentication for secure enterprise-style usage.

Tax Calculator – Nigerian Tax Act (2025)

- Implemented a tax calculation engine based on the Nigerian Tax Act (2025).
- Encoded tax brackets, deductions, and compliance logic into a deterministic backend service.
- Designed for easy updates as regulations evolve.

ADDITIONAL SYSTEMS & APPLICATIONS

Secure Digital Wallet Platform

- Designed and implemented a secure digital wallet backend using Spring Boot and MySQL, supporting user registration, multi-currency wallet creation, and real-time balance management.
- Integrated robust security features including email verification flows, BCrypt password hashing, and secure session handling to protect user accounts.
- Emphasized transactional integrity, implemented basic fraud detection logic, and enforced a clean architectural separation between authentication, wallet, and transaction services to ensure maintainability and auditability.

Scalable School Management System

- Built a modular, service-oriented backend capable of supporting high user concurrency across diverse user roles.
- Implemented role-based access control (RBAC) for administrators, teachers, students, and parents, ensuring appropriate data visibility and action permissions.
- Core features included attendance tracking, grading workflows, student academic records, and reporting APIs.
- The system was engineered with scalability, long-term maintainability, and normalized data models at its core, enabling seamless future expansion.

On-Demand Laundry Platform

- Engineered a full-stack on-demand service platform using Spring Boot (backend), React.js (frontend), and a relational SQL database.
- Implemented secure JWT-based authentication, dynamic pricing logic, order placement workflows, and real-time order status tracking (pending → pickup → washing → delivery).
- Designed end-to-end logistics workflows to simulate real-world operational flows, including scheduling, route optimization hints, and user notifications—delivering a production-ready service blueprint.

Content-Based Movie Recommendation Engine

- Built a content-based recommendation system in Python using structured feature vectors derived from movie metadata (genres, plot descriptions, cast, and release year).
- Leveraged cosine similarity to generate personalized suggestions, effectively addressing cold-start scenarios where user interaction history is unavailable.
- Processed and vectorized data using Pandas and scikit-learn's TfidfVectorizer, enabling scalable, context-aware recommendations without reliance on collaborative filtering.

EDUCATION

Software Engineering Diploma
Semicolon Africa

Business Management Certificate
Henley Business School

B.Sc. International Relations
Southwestern University, Nigeria

PROFESSIONAL INTERESTS

Fintech Infrastructure • AI/ML for Quantitative Finance • Algorithmic & Systematic Trading • Distributed Systems • Blockchain & DeFi • Backend & Data Engineering • Fine-Tuning Models • Data Analytics • Data Science • Scripting