

# Liben Adugna

Software Engineer | Machine Learning | Code Evaluation & AI Systems Reviewer

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## PROFESSIONAL SUMMARY

Software Engineer with expertise in machine learning systems, code evaluation, and full-stack development. Experienced in validating AI-generated outputs, reviewing system implementations, and building scalable web and mobile applications. Strong in debugging, performance optimization, and designing reliable, maintainable software systems.

## EDUCATION

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| <b>Algorithms &amp; Data Structures Training Program</b> , <i>Africa to silicon valley</i> <a href="#">🔗</a> <ul style="list-style-type: none"><li>Solved 400+ problems (DP, graphs, optimization)</li></ul> <a href="https://leetcode.com/libenadugna">https://leetcode.com/libenadugna</a> <a href="https://codeforces.com/profile/Hehehc">🔗 https://codeforces.com/profile/Hehehc</a> <a href="#">🔗</a> | 06/2024 – 06/2025<br>Adama, Ethiopia |
| <b>B.Sc. in Software Engineering</b> , <i>Adama Science and Technology University</i> <a href="#">🔗</a> <p>Completed a comprehensive program covering software development, data structures and algorithms, system design, and database systems, with a strong focus on practical problem-solving and scalable application development.</p>                                                                | 09/2018 – 06/2022<br>Adama, Ethiopia |

## EXPERIENCE

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| <b>Freelance Machine Learning Engineer</b> , <i>Remote</i> <ul style="list-style-type: none"><li>Built NLP and analytics models (TF-IDF, clustering, ensemble) on <b>50,000+ records</b>, improving prediction accuracy by ~18%</li><li>Developed Django REST APIs serving <b>5,000+ requests/month</b> for scalable ML integration in web and mobile apps</li><li>Deployed full-stack web applications, reducing client data-processing time by ~40% through automation and optimized workflows</li></ul>                       | 07/2022 – Present                          |
| <b>AI Systems Evaluator &amp; Data Architecture Contributor</b> , <i>Revelo</i> <ul style="list-style-type: none"><li>Evaluated AI outputs on <b>8 ML models</b> for correctness, consistency, and reliability using structured validation metrics</li><li>Designed behavioral data schemas supporting <b>training and evaluation of 4 AI systems</b></li><li>Reviewed pull requests and refined evaluation guidelines, improving system code quality and reproducibility</li></ul>                                              | 03/2025 – 03/2026<br>Adama, Ethiopia       |
| <b>Full-Stack Software Engineer</b> , <i>Faris Technology Private Limited</i> <a href="#">🔗</a> <ul style="list-style-type: none"><li>Developed full-stack web and Flutter mobile apps for <b>5+ clients</b>, delivering real-time data updates and responsive interfaces</li><li>Designed and implemented REST APIs for user authentication, database integration, and dynamic workflows</li><li>Conducted debugging, code reviews, and edge-case testing, reducing platform errors by ~25% and improving reliability</li></ul> | 08/2023 – 02/2025<br>Addis Ababa, Ethiopia |
| <b>Senior Technical Mentor – Machine Learning</b> , <i>CSEC-ASTU</i> <ul style="list-style-type: none"><li>Mentored 40+ students in ML system design, evaluation, and deployment</li><li>Supervised 8+ ML projects (NLP, anomaly detection)</li></ul>                                                                                                                                                                                                                                                                            | 09/2022 – 06/2023<br>Adama, Ethiopia       |

## TECHNICAL SKILLS

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### Programming & Software Engineering

- Python, Java, Typescript, React, Node.js, Flutter
- Data Structures & Algorithms
- Code Review & Debugging, Edge Case Testing, Algorithm Optimization

### MLOps & Automation

- Automated ML Pipelines
- Model Versioning & Experiment Tracking
- RESTful ML Services
- Workflow Automation

### Tools & Platforms

- Git / GitHub
- Docker
- Django (REST APIs)
- SQL Databases
- Linux Environment

### Machine Learning & AI

- Supervised, Unsupervised & Semi-Supervised Learning
- Ensemble Models (Random Forest, Gradient Boosting)
- Anomaly Detection & Time-Series Modeling
- Feature Engineering & Dimensionality Reduction
- Model Evaluation, Validation & Bias Analysis

### Data Science & Analytics

- Exploratory & Inferential Statistics
- Causal Analysis & Hypothesis Testing
- Advanced Data Visualization & Storytelling

## TOP PROJECTS

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### Behavioral User Segmentation System

- Processed ~450k user interaction records to extract actionable behavioral features
- Engineered session- and frequency-based features from raw log data for model input
- Applied K-Means clustering with PCA for dimensionality reduction to achieve stable user segments
- **Tech:** Python, Pandas, Scikit-learn

### Transaction Anomaly Detection Pipeline

- Built anomaly detection models on ~110k transactional records to identify irregular patterns
- Implemented Isolation Forest and Random Forest classifiers for robust anomaly detection
- Enhanced precision and recall by tuning decision thresholds and refining feature sets
- **Tech:** Python, Scikit-learn, Statistical Modeling

### NLP-Based Resume-Job Matching Engine

- Designed a text preprocessing and TF-IDF vectorization pipeline.
- Computed semantic similarity using cosine similarity ranking.
- Automated candidate scoring and ranking logic.
- Evaluated ranking quality using precision@k metrics.
- **Tech:** Python, NLP, Scikit-learn

### Smart Gebere – AI-Powered Agricultural Assistant (Flutter App)

- Developed a cross-platform Flutter app delivering AI-driven crop recommendations and advisory insights
- Integrated ML models for disease detection and personalized farming guidance
- Designed scalable Firebase backend for real-time data storage and synchronization
- Implemented intuitive UI/UX for low-resource environments with offline/low-connectivity support
- Optimized app performance and reliability for seamless real-world usage

**Tech:** Flutter, Firebase, Machine Learning APIs, Cloud Integration