

Birhanu Matebe Gerem

Electrical and Computer Engineer

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Education

Bachelor of Science in Electrical and Computer Engineering , Addis Ababa Science and Technology University. • Relevant Coursework: Database systems, Object-Oriented-Programming (java), Data Structure, Computational Method.	2022 – Present Addis Ababa
Coding Academy, Google Developer Group. 🔗 • Relevant Coursework: java script, React.js, Next.js	2024 – 2025 Addis Ababa
Coursera Advanced Learning Algorithms – Andrew Ng. 🔗 • Relevant Coursework: Neural Networks, Backpropagation, Gradient Descent, Bias-Variance Tradeoff, Model Evaluation.	09/2025 – Present Online

Professional Experience

Electrical Engineering Intern , Addis Ababa Science and Technology University. 🔗 • Pioneered the integration of 20+ new UI components into the mentorship platform, ensuring strict adherence to established design standards that were presented to senior engineers. • Developed a responsive, user-friendly mentorship platform optimized for seamless user experience. • Implemented a role-based user management system for efficient access control and security. • Tech Stack: React.js, JavaScript, Node.js, Tailwind CSS	06/2025 – 09/2025 Addis Ababa
Data Science & Machine Learning Intern , Kifiya AI Mastery (KAIM) Training Program. 🔗 • Completed an intensive, project-based AI/ML internship program, achieving scores above 90/100 across five advanced capstone projects in fraud detection, credit risk modeling, insurance analytics, renewable energy forecasting, and customer experience analytics. • Developed end-to-end machine learning solutions using Python, Pandas, Scikit-learn, XGBoost, SHAP, FastAPI, MLflow, Docker, and PostgreSQL	11/2025 – Present Addis Ababa

Project

MindSpace , React.js, django 🔗 • Designed and built a responsive web application with intuitive flows for authentication, wellness tracking, and community forums. • Engineered 12 pixel-perfect and WCAG-compliant UI components from wireframes, streamlining cross-device experiences while working as the most junior member on the team and improving accessibility scores by 12 points. • Increased user satisfaction by 37% through improved accessibility to mental health resources and enhanced community interaction.	04/2025 – 06/2025
Student Mentorship , React.js, javascript, Node.js 🔗 • Engineered a secure full-stack platform leveraging JWT authentication and RBAC, enabling AASTU students to connect with verified mentors; platform currently supports over 3,000 mentorship connections. • Implemented mentor-mentee matching, real-time chat, and admin dashboards. • Reduced freshman adjustment challenges by 30% through digitized academic and career guidance.	06/2025 – 09/2025
Smart Systems (Embedded/IoT Projects) • Developed automated irrigation system reducing water usage by 20–30% via soil moisture monitoring • Built dual-factor smart door lock with encrypted credentials and anti-brute-force protection, improving security by ~20%	06/2025 – 06/2025
Machine Learning, Data Science & Analytics Projects. 🔗 • Advanced Fraud Detection (E-Commerce & Banking): Developed high-precision ensemble models (Random Forest, XGBoost) achieving AUC-PR up to 0.9995; integrated geolocation mapping, SMOTE balancing, and SHAP explainability for regulatory-compliant fraud mitigation. • Credit Risk Scoring for BNPL: Spearheaded the implementation of a credit risk scoring system for BNPL, deploying with FastAPI and MLflow, processing 600+ transactions per second, and slashing false positives by 12%. • Insurance Risk Analytics & Pricing Optimization: Analyzed 1M+ records to validate risk drivers via hypothesis testing; built two-part XGBoost models (R^2 0.45 severity, ROC-AUC 0.835 probability) with SHAP-driven pricing recommendations. • Solar Energy Performance Analytics (Cross-Country): Pioneered comparative EDA of solar energy performance across four West African countries, pinpointing key environmental factors impacting energy output of solar panel installations and influencing future projects. • Customer Experience Analytics (Fintech Apps): Analyzed 1,200 Google Play reviews using DistilBERT sentiment analysis and thematic clustering; delivered bank-specific recommendations to improve UX stability and retention.	11/2025 – Present

Skill

JavaScript, Python, C++, NodeJS, ExpressJs, Java,mysql, mongodb, REST API, Git, React,Pandas, NumPy, Matplotlib, Seaborn, PostgreSQL, DVC