

Birhanu Matebe Gerem

Electrical and Computer Engineer

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Education

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

Professional Experience

Electrical Engineering Intern , <i>Addis Ababa Science and Technology University.</i> 🔗	06/2025 – 09/2025
• 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.	Addis Ababa
• 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	
Data Science & Machine Learning Intern , <i>Kifiya AI Mastery (KAIM) Training Program.</i> 🔗	11/2025 – Present
• 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.	Addis Ababa
• Developed end-to-end machine learning solutions using Python, Pandas, Scikit-learn, XGBoost, SHAP, FastAPI, MLflow, Docker, and PostgreSQL	

Project

MindSpace , <i>React.js, django</i> 🔗	04/2025 – 06/2025
• 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.	
Student Mentorship , <i>React.js, javaScript, Node.js</i> 🔗	06/2025 – 09/2025
• 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.	
Smart Systems (Embedded/IoT Projects)	06/2025 – 06/2025
• 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%	
Machine Learning, Data Science & Analytics Projects. 🔗	11/2025 – Present
• 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.	

Skill

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