

# Birhanu Matebe Gerem

## Electrical and Computer Engineer

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### Education

<b>Bachelor of Science in Electrical and Computer Engineering</b> , <i>Addis Ababa Science and Technology University.</i>	2022 – Present
• Relevant Coursework: Database systems, Object-Oriented-Programming (java), Data Structure, Computational Method.	Addis Ababa
<b>Coding Academy, Google Developer Group.</b>   <a href="#">🔗</a>	2024 – 2025
• Relevant Coursework: java script, React.js, Next.js	Addis Ababa
<b>Coursera Machine Learning – Andrew Ng.</b>   <a href="#">🔗</a>	09/2025 – 01/2026
• Relevant Coursework: Supervised MachineLearning: Regression and Classification. Advanced Learning Algorithms. Unsupervised Learning, Recommenders, Reinforcement Learning.	Stanford   Online

### Professional Experience

<b>Electrical Engineering Intern</b> , <i>Addis Ababa Science and Technology University.</i>   <a href="#">🔗</a>	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	
<b>Data Science &amp; Machine Learning Intern</b> , <i>Kifiya AI Mastery (KAIM) Training Program.</i>   <a href="#">🔗</a>	11/2025 – Present
• Completed an intensive, project-based AI/ML internship program, achieving scores above 90/100 across eight advanced industry-style 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

<b>MindSpace</b>   <a href="#">🔗</a> , React.js, django	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.	
<b>Student Mentorship</b>   <a href="#">🔗</a> , React.js, javaScript, Node.js	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.	
<b>Smart Systems (Embedded/IoT Projects)</b>	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%	
<b>Machine Learning, Data Science &amp; Analytics Projects.</b>   <a href="#">🔗</a>	11/2025 – Present
• <b>Advanced Fraud Detection (E-Commerce &amp; Banking):</b> 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.	
• <b>Credit Risk Scoring for BNPL:</b> 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%.	
• <b>Insurance Risk Analytics &amp; Pricing Optimization:</b> 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.	
• <b>Solar Energy Performance Analytics (Cross-Country):</b> 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.	
• <b>Customer Experience Analytics (Fintech Apps):</b> 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