

Asford Mwangi

Backend Engineer | Cultural-Tech Innovator

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Professional Summary

Creative and technically sharp software engineering student focusing on **backend development**, **real-time systems**, and **culturally expressive tech tools**. I specialize in applications that preserve linguistic heritage and foster interactive learning — from **lyric synchronization apps** to **AI-driven climate tools**. Passionate about clean architecture, intelligent systems, and integrating African narratives into digital experiences.

Technical Skills

Area	Tools & Technologies
Backend	Node.js, Express.js, MongoDB, REST APIs
Frontend	React.js, Vite, Tailwind CSS
Real-Time Tech	Web Speech API, Lyric Syncing, Socket.IO
Dev Tools	Git, Docker, Postman, VS Code, SQL
Programming	JavaScript, Python, Java
Creative Tech	Kikuyu localization, tone parsing, JSON lyric formatting

Education & Certifications

**Bachelor of Science in Computer Science**(Ongoing)  
Focus: Backend engineering, real-time systems, AI integration

**Certificate in Plant Operations**— 2018  
Trained in safe and efficient heavy machinery handling

**Certificate in First Aid & Fire Safety**— 2018  
Completed certified emergency response and fire safety training

**Certificate in Microsoft Office Packages**— 2024  
Proficient in Word, Excel, PowerPoint, Access for data management and reporting

**Certificate of Participation: Introduction to Cybersecurity**— 2024  
Covered digital safety, authentication, and network threat awareness

## Projects

### Vocal Sync

Real-time Kikuyu lyric synchronization tool

- **Stack:** React, Web Speech API, Tailwind, Node, MongoDB
- **Features:** Pronunciation scoring, live feedback, tone-sensitive parsing

### Accuracy Scorer API

Microservice evaluating lyrical pronunciation against the original text

- **Stack:** Express, MongoDB
- **Output:** JSON score report with word-level analysis

### Kikuyu Lyric Formatter

CLI/web tool converting lyrics into structured tone-aware JSON

- Built for integration into Vocal Sync and other cultural apps

### Cultural Speech Visualizer (Prototype)

Real-time tone and vowel intensity visualizer

- **Stack:** React, Web Audio API, Canvas

## Hackathons & Events (2025)

### Open Source Sprint — May 2025

- Merged my first portfolio
- Debugged audio sync issues in open lyric tools

### PLP Hackathon — June 2025 (Finalist)

- Co-built ML-based climate forecast API
- Tools: Flask, TensorFlow, Scikit-Learn

### AI Tools Challenge — July 2025

- Developed crypto sentiment chatbot with Python NLP
- Presented at PLP AI Showcase

## Recognition & Leadership

- **Top Backend Developer – 2024**
- **Peer Mentor**– Led sessions on full-stack deployment
- **GitHub Contributor**– Improved real-time UI & accessibility
- **FlutterFest (2023)**– Demoed Vocal Sync cultural app

## Languages

- **English**– Fluent
- **Swahili**– Fluent
- **Kikuyu**– Conversational / Cultural-technical