

DONALD MADANGURE

Fullstack Engineer | AI Integration Specialist (Vapi, OpenAI) |

Next.js | React • Convex • Clerk | MERN

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Portfolio website: <https://madangure-portfolio.vercel.app>

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GitHub: <https://github.com/donald-madangure>

TECHNICAL SKILLS

- **Languages:** JavaScript (ES6+), TypeScript, SQL.
 - **Frontend:** Next.js (App Router), React, Tailwind CSS, State Management.
 - **Backend & DB:** Convex (Real-time DB), Node.js, PostgreSQL, Clerk (Auth).
 - **AI & Tools:** Groq (Llama 3.3), Vapi (Voice AI), Vector Databases, Git, Ngrok.
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TECHNICAL PROJECTS

AI Agentic Nutrition & Fitness Coach | *Full-Stack Developer* | [<https://nutrifit-ai-jade.vercel.app>]

- Developed a real-time, voice-activated AI health coach using **Vapi** and **Groq (Llama 3.3)** that converts unstructured speech into validated workout and diet plans.
 - **Optimized Latency:** Reduced AI response times by **50%** by implementing concurrent execution patterns for parallel generation of diet and fitness schemas.
 - **Engineered Robust Data Pipeline:** Built a **Validation & Sanitization Layer** to handle LLM hallucinations, ensuring AI-generated JSON adheres to strict database schemas with 100% reliability.
 - **Solved Identity Race Conditions:** Architected an **Idempotent Sync Mutation** using Convex indexes to ensure seamless user onboarding and prevent data-fetching errors during account creation.
 - **Ensured Infrastructure Security:** Integrated **Svix webhook verification** for Clerk and custom secret-header validation to secure Vapi endpoints against unauthorized requests.
 - **Real-time UX:** Leveraged **Convex reactive subscriptions** to sync the user dashboard instantly as background AI processes finished generating personalized content.
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PROFESSIONAL EXPERIENCE

Title: Freelance Fullstack Developer – Security & Identity

<https://adadvanced-authentication-system.onrender.com>

Designed and implemented a custom **JWT (JSON Web Token) Authentication** system with secure **HttpOnly cookie storage** to mitigate XSS and CSRF vulnerabilities.

- Developed a robust **Token Refresh** logic to maintain seamless user sessions while ensuring high security standards.
- Integrated **Bcrypt.js** for salt-based password hashing and implemented custom middleware for role-based access control (RBAC).

The Chat Application (MERN + WebSockets)

Title: Freelance Fullstack Developer – Real-time Systems

Architected a real-time messaging engine using **Socket.io** and Node.js, enabling sub-100ms message delivery between concurrent users.

- Managed complex **WebSocket state** and "typing" indicators, ensuring data consistency between the MongoDB database and the frontend UI.
- Optimized database queries for message history retrieval using **indexing**, significantly reducing load times for high-volume conversation threads.

EDUCATION

Bachelor of science Hons. degree in Information Technology | Chinhoyi University of Technology
