

ALLAN KIPKIRUI KOECH

Senior C++ Software Engineer | Nairobi, Kenya

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PROFESSIONAL SUMMARY

Software engineer with 6+ years building cross-platform C++ applications, embedded systems, and cloud-connected services. Deep expertise in modern C++, Qt desktop UI, RESTful HTTP APIs, and delivery in Python, JavaScript, and Rust. Currently a Developer Advocate at Autodesk building C++ plugins, cloud automation, and AI-assisted tooling.

TECHNICAL SKILLS

Languages: C/C++, Python, JavaScript, Rust, Bash, MAXScript

C++ / UI / Cross-Platform: Qt Framework (Widgets/QML), Slint UI, CMake, cross-platform development (Windows / Linux / macOS), desktop application & plugin engineering

APIs & Backend: RESTful API design, HTTP, JWT authentication, Server-Sent Events (SSE), SQLite, PostgreSQL

Hardware & Embedded: Embedded Linux (custom OS), IoT, firmware, real-time medical devices, biomedical & electronics design

AI Tools & Agents: Building AI agents, RAG pipelines, Model Context Protocol (MCP)

Cloud & DevOps: Autodesk Platform Services (APS), Design Automation, Docker, CI/CD, GitHub Actions, Linux server administration

PROFESSIONAL EXPERIENCE

Developer Advocate Engineer — C++ Platform & SDK Engineering | Autodesk, Inc.

September 2022 – Present

- **C++ Plugin & SDK Engineering:** Design and build cross-platform C++ plugins for 3ds Max using the SDK and MAXScript, extending core functionality for professional VFX and 3D production pipelines.
- **AI & MCP:** Built MCP servers exposing Autodesk services to LLMs, enabling AI-assisted and agentic workflows.
- **Cloud & APIs:** Implemented Automation pipelines on Autodesk Platform Services (APS) to run desktop workloads at cloud scale; delivered 7+ technical talks.

Chief Innovations Officer — Software & Embedded Systems Engineering | AF ECS Ltd, Nairobi

August 2020 – August 2022

- **Software Development:** Developed across embedded systems, desktop applications, and cloud services using C++, Python, JavaScript, and Qt.
- **Embedded & Systems:** Built embedded-systems GUIs and custom Linux-based operating systems for embedded devices; aligned the innovation roadmap to business strategy.

Software Team Lead — TIBAVENT Ventilator Project | Kenyatta University, Nairobi

Concurrent national project | March 2020 – October 2021

- Led electrical and software design for Kenya's first locally built mechanical ventilator; built the Qt/C++ clinical UI and optimised a custom real-time embedded Linux OS.

EDUCATION

MSc, Computer Science — University of East London (*Sep 2023 – Oct 2025*)

Dissertation: MantisBase, a C++20 BaaS with auto-generated REST APIs, real-time database, file server, and Auth built-in.

BSc, Biomedical Engineering (GPA:3.6/4.0) — Kenyatta University (*Aug 2016 – Feb 2022*)

CERTIFICATIONS

C++ Programming Professional Certificate — OpenEDG C++ Institute (2026)

Docker Foundations Professional Certificate — Docker, Inc (2025)

Project Management Professional Certification — Institute of Management, Technology and Finance (2026)

PROJECTS

- **MantisBase:** Open-source C++20 Backend-as-a-Service; auto-generated REST APIs, JWT auth, real-time database over SSE and WebSockets, file server, and an admin dashboard in a single cross-platform binary. 22+ releases.
- **TIBAVENT Ventilator:** Locally built mechanical ventilator utilising Qt/C++ clinical GUI on a custom real-time embedded Linux OS. Nationally recognised.
- **1U Nano-satellite (Embedded Systems, Hardware Design, Firmware):** Design and development of a 1U CubeSat sponsored by the Kenya Space Agency (KSA).

LEADERSHIP & AWARDS

United Nations in Kenya Person of the Year, 2020 | Head of State Commendation (HSC), Civilian Division 2020.