

# ALLAN KIPKIRUI KOECH

Developer Advocate Engineer | Software Engineer | Nairobi, Kenya

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## PROFESSIONAL SUMMARY

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Software engineer and technical leader with 6+ years across embedded systems, cloud-connected application development, and developer advocacy. Combines low-level hardware expertise (biomedical devices, IoT, custom embedded Linux) with high-level software engineering in C, C++20, Rust, Python, and JavaScript. Currently a Developer Advocate at Autodesk, building plugins, automating workflows via cloud APIs, and enabling developers on Autodesk Platform Services. Former Founder and CTO owning technical strategy and end-to-end delivery. National recipient of the Head of State Commendation and UN Person of the Year 2020 for technology-driven impact.

## TECHNICAL SKILLS

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

**Backend & Systems:** RESTful API design, server-side architecture, JWT authentication, Server-Sent Events (SSE), SQLite, PostgreSQL, embeddable library development

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

**AI & Emerging Tech:** Large Language Models (LLMs), Model Context Protocol (MCP), Agentic workflows, RAG pipelines, AI-assisted development

**UI / Graphics:** Qt Framework (C++/Python), Slint (Rust/C++), 3ds Max SDK, Fusion 360, Inventor, 2D/3D modelling, plugin engineering

**Tools:** Visual Studio, CLion, Qt Creator, Cursor, GitHub Copilot, Claude Code, Git

## PROFESSIONAL EXPERIENCE

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### Developer Advocate Engineer — Autodesk (Media & Entertainment, 3ds Max)

September 2022 – Present

- **Developer Advocacy:** Serve as the technical bridge between Autodesk and the 3ds Max developer community, translating platform capabilities into documentation, code samples, and direct support.
- **Speaking:** Delivered 7+ technical talks at local and international conferences on plugin development, cloud automation, and AI-assisted workflows.
- **Plugin & SDK Engineering:** Design and develop C++ plugins for 3ds Max using the SDK and MAXScript, extending core functionality for professional VFX and 3D production pipelines.
- **AI & MCP:** Designed and built Model Context Protocol (MCP) servers exposing Autodesk and 3ds Max services to LLMs, enabling AI-assisted workflows within the ecosystem.
- **Cloud Automation:** Implemented Design Automation pipelines on Autodesk Platform Services (APS) to run 3ds Max workloads at cloud scale, reducing manual processing overhead.

### Founder & CTO — Koaley Group Ltd

May 2023 – September 2025

- **Technical Leadership:** Defined company tech stack, tooling, and execution strategy; provided strategic technical leadership across client and product engagements.
- **Delivery:** Managed day-to-day delivery for client projects and internal products, meeting timelines and quality standards; built and led the technical team.
- **Innovation:** Evaluated emerging technologies to inform decision-making and drive product innovation.

### Chief Innovations Officer (CIO) — The AF ECS Ltd, Nairobi

August 2020 – August 2022

- Led innovation efforts: identified market gaps, ran feasibility studies, and developed embedded-systems GUIs and custom Linux-based operating systems for embedded devices.
- Aligned innovation roadmap with business strategy and long-term company objectives.

### Head, Electrical & Software Team Lead — TIBAVENT Ventilator Project, Nairobi

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 embedded Linux OS for real-time medical use.
- Coordinated interdisciplinary work across electrical, software, and biomedical teams to meet medical-grade standards.

**Research Assistant / Data Analyst** — Kijenzi & PSRM Consultants (hospital equipment evaluation)

February 2022 – June 2022

- Built data-collection platforms and analysis models to digitise hospital equipment asset registries; led data-collection teams and reported actionable findings.

**Software Developer** — Chebui Agrovot, Kabiyet

January 2019 – June 2019

- Designed and built a Point-of-Sale system (UI/UX and database) and integrated it with existing business infrastructure.

## EDUCATION

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**MSc, Computer Science** — University of East London

September 2023 – October 2025

- Coursework in Advanced Software Engineering, Data Analytics, Cloud Computing, and AI & Machine Vision. Dissertation: MantisBase, an embeddable C++20 Backend-as-a-Service delivering auto-generated REST APIs, SSE streaming, and JWT auth in a single portable binary.

**BSc, Biomedical Engineering — Second Class Honours (Upper Division)** — Kenyatta University

August 2016 – February 2022

- Foundation in electrical circuits, embedded systems, and medical device design. Led TIBAVENT ventilator development; contributed to a 1U CubeSat (Kenya Space Agency) and DLP2 learning tablets.

## PROJECTS

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- **MantisBase:** Open-source C++20 Backend-as-a-Service: auto-generated REST APIs, JWT auth, SSE streaming, file handling, and admin dashboard in a single deployable binary. 22+ releases. [github.com/allankoechke](https://github.com/allankoechke) | [mantisbase.com](https://mantisbase.com)
- **TIBAVENT Ventilator:** Kenya's first locally designed mechanical ventilator (Qt/C++, embedded Linux); built the clinical UI and real-time OS. Nationally recognised.
- **1U CubeSat:** Contributed hardware design and firmware (power budgeting, comms protocols, fault-tolerant embedded software) for a Kenya Space Agency CubeSat.
- **Angaza Tumaini (Solar):** Solar-powered lighting for a 300+ child care home via IEEE SIGHT, cutting electricity bills by over 56%.

## LEADERSHIP & AWARDS

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- Chairperson, IEEE CASS Kenya Chapter (Jan 2024 – Present) — plan and run workshops on circuits, design, and IoT; engage and support chapter members.
- UN Person of the Year 2020 — recognised by the United Nations for leading Kenya's first locally built mechanical ventilator during the COVID-19 pandemic.
- Head of State Commendation (HSC), Civilian Division 2020 — awarded by the President of Kenya for contribution to public health through technology.