

Lucy Gachogu

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WORK EXPERIENCE

Tectura International

January 2024 - Present

Climate Data Systems & Sustainability Analyst

South Africa

- Led climate data projects across 60+ healthcare facilities, reducing energy consumption by 15% and supporting climate-aligned infrastructure reporting.
- Installed and calibrated 300+ IoT sensors (temperature, humidity, air quality, vibration, CO₂) to provide real-time, GxP-compliant monitoring data for climate mitigation strategies.
- Automated environmental data pipelines via Azure Digital Twins, reducing manual reporting time by 70% and enabling decision-making dashboards for 5 regional hospital boards.
- Developed 20+ URS, IQ/OQ/PQ validation documents to ensure climate data integrity for carbon audit readiness and WHO/ISO compliance.
- Delivered monthly energy efficiency reports that helped reduce diesel generator runtime by 25% and enhanced hospital sustainability benchmarks.
- Trained 100+ healthcare and facilities staff on interpreting climate dashboards and integrating sustainability insights into operations.
- Integrated smart metering across 18 high-consumption zones to monitor peak usage, resulting in a projected annual utility cost saving of over R1.2M.
- Flagged and mitigated 50+ real-time operational risks through anomaly detection in environmental systems, ensuring uninterrupted patient care.
- Created reusable reporting templates for climate resilience that improved reporting efficiency by 60% across regional sites.

Tectura International

July 2020 – December 2023

Digital Twins & Project Sustainability Coordinator

Kenya, South Africa

- Coordinated digital twin monitoring of 60+ schools and hospitals, improving compliance with green building guidelines by 35%.
- Validated environmental sensor data from 1,500+ monitored spaces, helping identify energy wastage hotspots and contributing to 10% reduction in annual HVAC usage.
- Built 15+ interactive dashboards visualizing acoustic and thermal performance across public institutions, aiding targeted retrofitting.
- Collaborated with 10+ local authorities and consultants to ensure adoption of low-carbon tech—resulting in 3 projects receiving green certification.
- Designed post-occupancy survey methodologies used to assess occupant comfort and reduce complaints by 40% in learning environments.
- Supported field installations and QA for IoT systems across 6 provinces, reducing sensor downtime by 50% through proactive issue tracking.
- Produced 60+ summary and regulatory-ready reports using Power BI and Excel, reducing reporting turnaround from 2 weeks to 3 days per facility.

EDUCATION

University of Pretoria, South Africa

August 2025

Master of Science (MSc) in Architecture – Application of Digital Twins for Climate-Smart Infrastructure

Tech4Dev, USA

April 2024

Certificate in Data Science and Artificial Intelligence

PUBLICATIONS

Gachogu. L. (2024) BIM Community Africa Workshop 04. *Use Of Data Integration And Digital Twins To Reveal Factors Influencing Noise In Architectural Studios: A Design Of Experiments Approach.*

CERTIFICATIONS, SKILLS & INTERESTS

- **Certifications:** IBM Data Science Professional Certificate, Google Data Analytics Professional Certificate, Autodesk Certified Professional, Certified Energy Manager (CEM) – (In Progress), GHG Accounting Certificate – Greenhouse Gas Management Institute (Expected 2025).
- **Skills:** Azure Digital Twin System, IBM Maximo Asset Monitor, EnergyPlus, EC3 Carbon Tools, GHG Protocol frameworks, SDG tracking, GxP protocols, ESG indicators, ISO 14064, Power BI, Python, C++, React, SQL, Hadoop, AWS Data Pipeline, Procore, Microsoft Projects, BIM360, Revit, NavisWorks.
- **Transferable skills, what I bring from my architectural background:** Strategic climate data reporting & visualization, Project and stakeholder coordination, Regulatory alignment and policy analysis, Cross-functional communication, Capacity building and public sector engagement, Strong understanding of climate change and built environment intersection.
- **Memberships:** Green Building Council South Africa (GBCSA), South African Council for The Architectural Profession (SACAPSA), Digital Twin Consortium USA, IoT Council Europe, International Society of Automation (ISA), SAIMC – Society for Automation, Instrumentation, Measurement and Control.
- **Languages:** Proficient English, French DELF B1, Learning isiZulu, Native Swahili.