

Pakang Senosha

📍 Roodepoort, South Africa

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Professional Summary

HPCSA-registered Medical Laboratory Scientist and data science practitioner with extensive clinical diagnostic experience across major South African pathology networks (Lancet, Ampath, NHLS). Currently pursuing an MSc in Epidemiology and Biostatistics, specializing in predictive modeling and large-scale health data analysis. Proven track record in bridging clinical diagnostics and digital innovation, engineering software ecosystems, and designing automated surveillance systems to empower African healthcare infrastructure on a global scale.

Technical Skills & Competencies

- **Data Science & Analytics:** Epidemiological Modeling, Gravity Models, Algorithmic Surveillance Design, Stochastic Processes, Anomaly Detection, Machine Learning.
- **Programming & Tools:** Python (Pandas, NumPy, FastAPI, Docker, PyTorch, TensorFlow), R (Tidyverse, Geospatial Analysis), SQL, Stata, React.js.
- **Clinical & Regulatory:** Clinical Trial Oversight, Biomarker Evaluation, Quality Control & Assurance, Good Laboratory Practice (GLP), ICH-GCP Awareness.

Professional Experience

Lancet Flora

Medical Laboratory Scientist | Constantia Kloof, South Africa | June 2024 – Present

- Conduct high-throughput clinical diagnostic testing with strict adherence to laboratory protocols, quality standards, and patient confidentiality guidelines.
- Monitor and validate diagnostic datasets, actively identifying inconsistencies and biochemical anomalies to ensure absolute clinical data integrity.
- Conceptualized and proposed a secure cloud-collaboration architecture with strict 2FA and IP restrictions to replace unreliable legacy systems.

Ampath Trust

Medical Technologist | South Africa | June 2024

- Conducted comprehensive diagnostic testing and analysis within a high-volume clinical laboratory environment.
- Interacted with and managed data via Ampath patient result portals, ensuring accuracy and rapid turnaround of critical health data.

National Health Laboratory Service (NHLS)

Intern Medical Technologist | East London, South Africa | March 2022 – March 2023

- Executed routine diagnostic testing on clinical specimens while reporting and communicating critical analytical findings directly to physicians.
- Oversaw internal QA/QC programs and tracked critical result turnaround times, establishing a foundation in clinical trial data monitoring.

Academic & Research Experience

University of Pretoria

MSc Researcher – Epidemiology & Biostatistics | South Africa | 2025 – Present

- **Malaria Migration Dashboard:** Architected an advanced epidemiological forecasting platform utilizing gravity models in Python and R to predict disease transmission dynamics.
- **National Kidney Function Surveillance Dashboard:** Designing an algorithmic blueprint to transition the NHLS Corporate Data Warehouse (CDW) into an automated surveillance system.

Entrepreneurship, Leadership & Core Projects

The Bantuity Ecosystem

Founder & Architect

Leading the design, full-cycle development, and strategic direction of a comprehensive suite of digital platforms:

- **Bantuity (Bantuity.com):** The central hub and foundational platform of the ecosystem.
- **Bantuity Studio Light:** A lightweight AI workspace for Stata that helps researchers generate code, execute analyses, organize outputs, and interact with statistical workflows from a single interface. The foundational step toward the broader Bantuity Studio ecosystem.
- **Plotex (Plotex.bantuity.com):** A dedicated utility within the Bantuity network.
- **Copilot (Copilot.bantuity):** An advanced tool designed to enhance productivity and automate complex workflows.
- **Bantuity Research (Research.Bantuity.com):** A hub for exploring technical methodologies and publishing innovative findings.

Senosha Diagnostics

Founder & Lead Developer

- Conceptualizing a mobile diagnostic laboratory network integrated with real-time epidemiological data systems to bridge field diagnostics with immediate digital data capture.

Pax Old Boys NPO

Project Lead & Founder

- Founded and manage a non-profit alumni organization, driving community engagement and leading the technical web development (paxoldboys.co.za).

Education

- **Master of Science (MSc) in Epidemiology and Biostatistics**
University of Pretoria, South Africa | 2025 – Present
- **Bachelor of Health Sciences (BHSc) in Medical Laboratory Science**
Nelson Mandela University, South Africa | 2019 – 2022

Certifications

- HPCSA Registered Medical Laboratory Scientist
- Mathematics for Machine Learning Specialization – Imperial College London (Coursera)
- IBM Data Science Professional Certificate – IBM Skills Network
- IBM AI Engineering Professional Certificate – IBM Skills Network
- AI for Medicine Specialization – DeepLearning.AI