



SEANA MUTINDA

DATA SCIENTIST | SOCIAL SCIENTIST

Advanced Analytics & AI | Visualization & Reporting |
Research & Policy



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EXECUTIVE SUMMARY

Results-driven Data Scientist and Social Scientist with a MSc in Interdisciplinary Studies (Advanced Data Analytics & AI) and BA in Social Sciences with 4+ years of experience transforming complex datasets into actionable insights. Skilled in Python, SQL, machine learning and data visualization with a strong foundation in socio-economic and policy research committed to using data to support evidence-based decision-making in development and public sector programmes.

LEADERSHIP AND CAREER HIGHLIGHTS

- Developed a Management Information System (MIS) and Power BI dashboards for a World Bank-funded government project, enabling KPI tracking and performance reporting across stakeholder programmes.
- Built an ML fraud detection system achieving 99.80% AUC-ROC score and 100% detection rate across 2,512 bank transactions demonstrating strong analytical rigour and model accuracy.
- Conducted large-scale socio-economic resilience analysis for Kenya integrating World Bank indicators (2010–2024) and UN SDG data, producing evidence-based policy projections using Python and SQL.
- Collected, stored, and managed large-scale datasets using Google Cloud Platform and BigQuery; created impactful dashboards and visualizations using Tableau and Looker Studio.
- Improved system efficiency by 30% at EMA Advocates through operational data analysis, managed performance dashboards, and strategic data-driven recommendations.

SKILLS AND COMPETENCIES

- Machine Learning & AI:** Gradient Boosting, Random Forest, Long-Short Term Memory (LSTM)
- Python:** Pandas, NumPy, Scikit-learn, TensorFlow, data manipulation and automation
- SQL & Database Management:** Google BigQuery, data querying, database optimization
- Data Visualization:** Tableau, Power BI, Looker Studio, Matplotlib and dashboard development
- Statistical Analysis & Econometrics:** AutoRegressive Integrated Moving Average (ARIMA), Seasonal AutoRegressive Integrated Moving Average (SARIMAX), Lasso/Ridge, hypothesis testing
- Digital Marketing Analytics:** Google Analytics, A/B Testing, ROI Optimization
- Cloud Computing:** Google Cloud Platform (GCP) & Cloud Storage
- Web Development:** CMS Integration, Responsive website design, Search Engine Optimization (SEO), User experience
- Business Intelligence Reporting:** KPI tracking, performance dashboards, MIS development, stakeholder reporting
- Research & Policy Analysis:** Socio-economic modeling, SDG analysis, data-driven policy recommendations, SPSS

RESEARCH AND ACADEMIC PROJECTS

KENYA CHILD AND MATERNAL HEALTH SUBNATIONAL ANALYSIS

Personal Portfolio

July 2026

- Analyzed KDHS 2022 data across 47 counties, 32,156 women, and 19,530 children to map subnational maternal and child health disparities
- Built a composite need score combining stunting, wasting, vaccination, and wealth indicators into one replicable metric for prioritizing intervention
- Applied OLS regression identifying facility delivery access as a significant predictor of stunting ($p=0.018$), redirecting focus toward transport barriers
- Traced how wealth quintile shapes antenatal care uptake and delivery outcomes, revealing poverty as a structural filter on access
- Ranked all 47 counties by vulnerability, identifying Mandera, Wajir, and West Pokot as critical intervention zones
- Tools: Python, World Bank data, KDHS 2022, Global Data Lab

INTERDISCIPLINARY ADVANCED DATA SCIENCE AND AI FOR SOCIO-ECONOMIC RESILIENCE IN KENYA

University of North Texas, MSc Capstone ProjectSep 2025 - Dec 2025

- Integrated the Kenya Social Accounting Matrix (2021), World Bank macroeconomic indicators (2010–2024), and UN SDG data to build a comprehensive model evaluating Kenya's economic resilience across sectors
- Applied ensemble ML models (Gradient Boosting, Random Forest, LSTM) and econometric techniques (SARIMAX, Lasso/Ridge regression) to produce GDP, unemployment, and poverty forecasts to 2030
- Conducted structural multiplier analysis identifying ICT (1.18x) and Manufacturing (1.10x) as the highest-impact sectors for inclusive economic growth
- Used SHAP interpretability analysis to identify exports, FDI, and internet penetration as the primary drivers of Kenya's economic outcomes — translating black-box ML outputs into policy-readable insights
- Simulated targeted investment scenarios projecting 62,872 jobs created and 3.97% GDP growth, producing evidence-based policy recommendations for development planners
- Tools: Python (Pandas, NumPy, Scikit-learn, TensorFlow), SQL, Google BigQuery, Tableau

E-GOVERNANCE AND DIGITAL TRANSFORMATION: A CASE STUDY OF E-CITIZEN PLATFORM IN KENYA

Glasgow Caledonian University, DissertationDec 2021 - Feb 2022

- Conducted a mixed-methods research study on Kenya's eCitizen e-governance platform, examining how Silicon Savannah's ICT infrastructure drives digital transformation in public service delivery
- Assessed platform effectiveness in modernising citizen engagement and service accessibility across urban and peri-urban populations using IBM SPSS for quantitative validation
- Generated data-driven insights on digital innovation adoption patterns across public sector ecosystems, contributing to understanding of Industry 4.0 applications in African governance contexts
- Demonstrated ability to translate complex technical and policy concepts into measurable, evidence-based research outcomes for academic and policy audiences
- Tools: IBM SPSS

BANK FRAUD DETECTION SYSTEM USING MACHINE LEARNING

Personal Portfolio ProjectJanuary 2026

- Built a production-ready fraud detection system across 2,512 bank transactions (9.28% fraud rate), comparing Gradient Boosting, Random Forest, and Logistic Regression models
- Achieved 99.80% AUC-ROC score, 100% fraud detection rate (70/70 transactions caught), and 97.22% F1-score with only 5.4% false positive rate
- Applied feature importance analysis identifying transaction amount, account balance, and login attempts as primary fraud indicators — model projected to prevent \$195K–\$260K in annual losses
- Tools: Python (Scikit-learn, Pandas), Statistical Analysis, Data Visualisation

KENYA SOCIAL MEDIA ROI AND PLATFORM PERFORMANCE ANALYSIS

Personal Portfolio Project With Kustawi Digital SolutionsOctober 2025

- Conducted a comprehensive data-driven analysis of social media platform performance across Kenya, examining ROI, engagement rates, audience churn, and urban-rural behavioural differences
- Consolidated platform-level, regional, and county-level metrics into a structured analytics portfolio, building a reusable BI reporting framework for marketing and business intelligence teams
- Applied statistical analysis to identify Instagram as the highest-performing platform by profitability and engagement, and TikTok as the dominant channel in rural Kenya — producing region-specific strategic recommendations
- Revealed Facebook as the lowest ROI platform with highest urban churn, providing evidence-based guidance for platform budget reallocation
- Tools: Python, SQL, Tableau, Power BI, Google Analytics

EDUCATION

2024 - 2025	Masters of Science Interdisciplinary Studies Advanced Data Analytics and AIUniversity of North Texas (UNT)
2019 - 2022	Bachelor of Arts - Social Sciences -Glasgow Caledonian University (GCU)
2018 - 2019	Leadership Program - African Leadership University (ALU)
2018 - 2019	Diploma in Business and Information Technology Strathmore University

ACHIEVEMENTS

- 2025 Data Analyst Job Simulation - Deloitte
- 2019 Straight to the Point Award - ALC StoryFest

LANGUAGES

- English Native Speaker
- Swahili Native Speaker
- Kamba Mother Tongue

TECH TOOLS

- **Programming & Data Science** Python (Pandas, NumPy, Scikit-learn, TensorFlow), SQL, R
- **Cloud & Analytics** Google Cloud Platform, BigQuery, Google Analytics, SPSS, Tableau, Power BI
- **Machine Learning** Scikit-learn, TensorFlow, Gradient Boosting, Random Forest, LSTM, SHAP analysis
- **Social Science Research Methods** Quantitative/qualitative research, ARIMA/SARIMAX, Econometric modeling, SDG analysis, Policy evaluation, Case study design
- **Data Visualization** Tableau, Power BI, Looker Studio, Matplotlib, Dashboard development

WORK EXPERIENCE

APRIL 2025 - PRESENT

Kenya Water Security and Climate Resilience Project (World Bank & Government of Kenya) | Nairobi

Data Systems & Intelligence Consultant (MIS & Web Development)

- Architected and deployed a Management Information System (MIS) with Power BI dashboards to monitor KPIs and programme performance across a multi-stakeholder World Bank-funded government infrastructure project
- Designed an end-to-end data analytics framework integrating field data collection, SQL-based pipeline management, and real-time visualisation for government decision-makers
- Translated complex operational datasets into executive-level reports and data stories for government stakeholders and donor reporting requirements
- Applied data governance best practices to ensure data quality, accessibility, and reproducibility across programme monitoring systems
- Conducted geospatial and performance data analysis across the Lower Nzoia Irrigation and Mwache Dam project sites, identifying implementation bottlenecks and producing evidence-based progress reports to support World Bank compliance and milestone tracking

FEBRUARY 2026

Future Interns | Remote

Machine Learning Intern

- Sales & Demand Forecasting System: Developed a machine learning model to predict future sales trends and product demand. This involved data preprocessing, time-series analysis, feature engineering, and training predictive models to help businesses make data-driven inventory and supply chain decisions.
- Ticket Classification System: Built an automated NLP-based ticket classification system to categorize and route support tickets efficiently. This included text preprocessing, model training using classification algorithms, and improving response time and customer support workflows.
- HR Candidate Screening System: Designed an intelligent candidate screening system to assist HR teams in filtering and ranking applicants based on job requirements. Leveraged machine learning techniques to analyze resumes and candidate profiles, reducing manual screening effort and improving hiring efficiency.
- Tools: Python | Scikit-learn | NLP | Time-Series Forecasting | Data Preprocessing | Classification Algorithms | Feature Engineering | Machine Learning | Artificial Intelligence

MAY 2024 - DECEMBER 2025

EMA Advocates Law Firm | Nairobi, Kenya

Web Developer & IT Administrator — Data Analysis & Business Intelligence

- Conducted operational data analysis across firm-wide systems, identifying inefficiencies and delivering strategic recommendations that improved system performance by 30%
- Built and managed performance analytics dashboards providing real-time actionable insights on operational reliability and resource utilisation
- Integrated Google Analytics to track and model user behaviour patterns, translating traffic data into evidence-based operational strategies
- Led technology adoption initiatives including staff training, reducing operational downtime and increasing team productivity through data-informed process improvements

JANUARY 2024 - APRIL 2024

Preeminent Technology | Nairobi, Kenya

Digital Marketing Executive — Campaign Analytics & Performance Data

- Analysed multi-platform PPC campaign data across Google, YouTube, and social media to optimise traffic performance and ROI, increasing social media engagement by 75%
- Applied A/B testing methodologies and Google Analytics data to design and validate data-driven growth strategies aligned with measurable business objectives
- Developed automated reporting frameworks to track content performance metrics, surfacing optimisation opportunities and reducing manual analysis time

JUNE 2019 - AUGUST 2019

International Marketplace Consultants | Nairobi, Kenya

Data and Administrative Intern

- Developed and maintained a structured client and partner database supporting institutional strengthening under the Aga Khan Foundation Yetu Initiative Programme Kenya
- Managed data collection, filing, and information systems ensuring accurate records for partnership and resource mobilisation activities
- Assisted in developing data-informed partner and resource mobilisation strategies aligned with Aga Khan Foundation programme objectives and donor reporting requirements

REFERENCES

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