

Bongo Kosa

AI and data systems engineer

Debrecen, Hungary
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[LinkedIn](#)
[GitHub](#)

I build governed AI systems and data pipelines that make decisions traceable, testable and accountable to people.

02 Professional profile

I work at the intersection of data engineering, governed AI and statistically validated decision systems. At MetaPOS, I build retail data workflows and MetaPOS Mind, a permission-aware context system for people and AI assistants.

My independent work includes OmniMind, a local AI-work control plane, and FXPM, a regime-aware trading research and execution system. I separate implemented controls from measured results, and keep human approval explicit where decisions carry risk.

03 Technical skills

Core engineering	Python · SQL · BigQuery / GCP · Data modelling and quality · Permission-aware AI context · Statistical validation	Regular delivery tools	Git / GitHub · MCP · JSON Schema · YAML · Docker · Pandas / NumPy · Looker / Power BI
Additional experience	R · AWS · Scikit-learn · TensorFlow · Streamlit · Flask · Tableau		

04 Experience

Data Engineering Scientist Sept 2023 to Present
MetaPOS Remote · Cape Town, South Africa

Builds retail data and governed AI-context systems that improve reliability, operational understanding and decision support within a point-of-sale environment.

- Works with Python, SQL and data modelling to support data pipelines and analytics workflows.
 - Improves accuracy and efficiency in transaction, inventory and sales-related data processes.
 - Primary developer of MetaPOS Mind, a custom MCP-compatible context and governance layer for authorized employees and AI assistants.
- Python · SQL · Google Cloud Platform · Data modelling · MCP · JSON Schema · YAML · AI-assistant integration

Learning Specialist Oct 2023 to Jun 2025
2U / edX Remote · Cape Town, South Africa

Supported learners across FinTech, AI and Data Visualization bootcamps delivered through multiple university partners under the 2U / edX umbrella.

- Tutored learners across FinTech, AI and Data Visualization programmes, including Git, GitHub, Python and machine-learning topics.
 - Answered learner questions on the AskBCS platform and graded work against structured rubrics.
 - Helped sustain a supportive learning environment built on clarity, encouragement and technical precision.
- Git · GitHub · Python · Machine learning · AI bootcamp support · Data visualization · Assessment

01 Experience continued

Superagent Mentor

Blossom Academy

Nov 2024 to Jun 2025

Remote · Greater Accra Region, Ghana

Mentored emerging talent pursuing paid freelance work and stronger market readiness.

- Guided mentees in freelance readiness, client communication and professional positioning.
- Supported confidence, practical next steps and consistent progress toward paid opportunities.

Mentoring · Career guidance · Technical communication

Data Analyst Consultant

1Eight

Dec 2022 to Apr 2023

Remote · New South Wales, Australia

Delivered analytical insight and recommendations from complex datasets for client-facing business contexts.

- Used SQL, GCP, Streamlit, visualisation and statistical analysis to interpret business data.
- Turned technical outputs into actionable recommendations for stakeholders.

SQL · Google Cloud Platform · Streamlit · Statistical analysis

Freelance Data Scientist

Turing.com

May 2022 to Sept 2023

Remote

Delivered freelance analytics and data science work across varied remote projects and client needs.

- Worked across Python, SQL, visualisation and statistical analysis.
- Contributed independently to data-driven solutions across multiple project contexts.

Python · SQL · Visualisation · Statistical analysis

Freelance Internet Analyst

Appen

Earlier experience; dates not recorded

Remote

Evaluated online information and supported data-quality assurance through research and analytical review.

- Applied research techniques and data-quality checks to internet analysis tasks.

Internet research · Data quality assurance

02 Research and publications

Simulation and Historical Evaluation of Validation-Gate Design in a Regime-Adaptive Decision System

Co-author. Accepted for ISM 2026. Examines how validation gates shape a regime-adaptive decision system, separating simulation from historical evaluation and keeping the limits of both explicit.

Accepted paper. Proceedings details, publication date and DOI are not yet recorded.

03 Academic coursework

Data Science Foundations: Statistical Inference Specialization

University of Colorado Boulder via Coursera

Completed specialization

Data Mining Methods

University of Colorado Boulder via Coursera

Completed course

Data Mining Pipeline

University of Colorado Boulder via Coursera

Completed course

01 Selected projects

01 **MetaPOS Mind**

AI context and governance system

A Python and MCP-compatible context system that turns permission-scoped company knowledge into reliable working context for employees and AI assistants.

Completed as a working internal AI context and control layer after a multi-month primary-development build.

Python · MCP · JSON Schema · YAML · PyYAML · GitHub Projects · AI-assistant integration

02 **OmniMind**

Governed AI systems

A local AI-work control plane that compiles bounded, task-specific context and coordinates evidence, provider handoffs and human-approved capabilities without duplicating project data.

A 28 August 2026 local calibration selected 3,600 estimated tokens from an 8,502-token project estimate in 2.199 seconds, reporting a 57.66% context-size reduction.

Python · MCP · Context engineering · Evidence gates · Capability routing

03 **FXPM: validation and execution**

Decision-system engineering

A production-focused trading research system combining regime-aware strategy selection, stateful optimisation, statistical validation and broker-aware execution controls.

An integrated development and research system that makes validation and execution constraints explicit. Current work focuses on the strength of selection evidence and reliable live behaviour.

Python · Numba · Optuna · MetaTrader 5 · Statistical validation

02 Education

BSc in Engineering Management

University of Debrecen

Sept 2025 to Present

Debrecen, Hungary

Undergraduate study combining engineering fundamentals with management principles and systems thinking.

Data Science Certificate

Explore AI Academy

Jan 2022 to Dec 2022

Cape Town, South Africa

Completed immersive data science training.

Result: 85 percent

01 Professional credentials

Google Project Management Professional Certificate

Google, via Coursera

Completed August 2026

Cloud Digital Leader Certification

Google Cloud

Active through 12 January 2027

Professional Data Scientist

DataCamp

Professional credential

Applied Data Science Lab

WorldQuant University

Completed program

Applied Data Science I: Scientific Computing and Python

WorldQuant University

Completed with honors, 6 December 2021

Google Data Analytics Professional Certificate

Google via Coursera

Professional certificate

Introduction to Data Science Specialization

IBM via Coursera

Completed specialization

Security Analyst Fundamentals Specialization

IBM via Coursera

Completed specialization

Associate Cloud Engineer Certification

Google Cloud

Active through 1 March 2027

AWS Educate Machine Learning Foundations

Amazon Web Services Training and Certification

Completed training badge

Advanced Data Science Specialization

IBM via Coursera

Completed specialization

Applied Data Science II: Machine Learning and Statistical Analysis

WorldQuant University

Completed with honors, 28 March 2022

IBM Data Science Professional Certificate

IBM via Coursera

Professional certificate

IBM Cybersecurity Analyst Professional Certificate

IBM via Coursera

Foundational cybersecurity credential

IT Fundamentals for Cybersecurity Specialization

IBM via Coursera

Completed specialization

02 Additional learning

Visualizing Filters of a CNN using TensorFlow

Coursera

Completed course

Create Your First Python Program From UST

Coursera

Completed course

Google Data Analytics Capstone: Complete a Case Study

Google via Coursera

Completed course

Data Analysis with R Programming

Google via Coursera

Completed course

03 Credential history

AWS Certified Cloud Practitioner

Amazon Web Services

Historical credential valid through 7 November 2024