

# Samuel MATIA

 **16 March 2004** (21 years old)

## Education

- Oct 2025 – Oct 2027 **MSc., Computer Engineering**, University of Kinshasa, Kinshasa
- Aug 2021 – Sep 2025 **B.Sc., Computer Engineering**, University of Kinshasa, Kinshasa  
Graduated **top of class (79%)**.  
**Bachelor Thesis:** "Enhancing Sentiment-Driven Recommender Systems With LLM-Based Feature Engineering: A Case Study in Drug Review Analysis" ([IEEE Access](#)), graded **20/20**.  
**Relevant Coursework:** Calculus I-II, Differential Geometry, Linear Algebra and Vector Calculus, Probability and Statistics, Applied Mathematics, Algorithms and Programming, Human-Computer Interaction.
- Completed 2020 **Secondary School, Biochemistry**, Institut Cardinal Malula, Kinshasa  
**Valedictorian** (ranked 1st). National Exam: **79%**.

## Publications

### Journal Articles

- 2025 **Samuel Matia Kangoni**, Obed Tshimanga Tshipata, Pierre Sedi Nzakuna, Vincenzo Paciello, Jean Gilbert Mbula Mboma, Jean Robert Makulo, Kyandoghere Kyamakya. *Enhancing Sentiment-driven Recommender Systems with LLM-Based Feature Engineering: A Case Study in Drug Review Analysis*. [IEEE Access](#), 2025. DOI: [10.1109/ACCESS.2025.3590326](https://doi.org/10.1109/ACCESS.2025.3590326).

### Conferences

- 2025 **Samuel Matia Kangoni**, Obed Tshimanga Tshipata, Jean-Gilbert Mbula Mboma, Pierre Sedi Nzakuna, Vincenzo Paciello, Vianney Witesyavvirwa Kambale, Kyandoghere Kyamakya. *Structural Preservation in Efficient Pharmacovigilance Summarization: A Causal Graph-Based Evaluation Framework*. [IEEE AFRICON](#), 2025. [pre-proceedings draft here](#), official IEEE proceedings pending publication.
- 2025 **Samuel Matia Kangoni**, Mahmoud Hamed, Asha Choudhary, Kyandoghere Kyamakya. *Large Language Models in Healthcare: Opportunities, Challenges, and Pathways Toward Trustworthy Clinical AI*. Accepted at the **AUTSYS-2025: 17th International Conference on Autonomous Systems**. To appear in Springer proceedings.
- 2025 Henri Kasongo Shabani, Witesyavvirwa Vianney Kambale, Kasra Mortazavi, **Samuel Matia Kangoni**, Kyandoghere Kyamakya. *A Neuro-Symbolic Edge Stack for Fragile Economies – Binary Cellular Neural Networks and Auto-Mined ASP Rules for Robust Econometrics in the Democratic Republic of Congo*. Presented at **IEEE ELECS 2025**, Athens, Greece. [official proceedings pending publication](#).
- 2025 Mugisha Muire Jean-Pierre, Kyandoghere Kyamakya, Kasra Mortazavi, Christian Kutabuna Kubakisa, Isaac Lukusa Kayembe, Divin Kayeye Kabeya, **Samuel Matia Kangoni**, Witesyavvirwa Vianney Kambale, Hima Deepthi Vankayalapati, Selain Kasereka Kabunga. *Toward Neuro-Symbolic and Reservoir-Inspired Medical Imaging: A BD-CeNN Autoencoder with ASP Rule Mining for Robust and Explainable Interpretation of Grayscale and Color Images*. Presented at **IEEE ELECS 2025**, Athens, Greece. [official proceedings pending publication](#).

### Book Chapters

- 2025 **Samuel Matia Kangoni**. *Machine Learning in Malware Analysis*. Chapter 7 in *Mastering Malware Development and Analysis: A Comprehensive Guide to Hybrid Malware Analysis and Virtual Sandboxing*. Editors: Bishwajeet Pandey, Deepak Bhaskar Acharya, Divya B. Published by **Apple Academic Press** (Publication: December 2026). ([link](#)) [Publisher page](#) (Hard ISBN: 9781779646224; E-Book ISBN: 978-1-77964-623-1).

## Research Experience

- Oct 2025 – Present **Research Mentee – BASIRA (Brain And Signal Analysis Research) Lab – GNNs for Rising Stars, Imperial College London**, Supervisor: [Dr. Islem Rekik](#)  
Selected for a highly competitive international research mentorship. Engaged in advanced research on Graph Neural Networks (GNNs) with focus on architecture design, explainability, and reproducible machine learning. Collaborating with a global cohort on a publication-oriented project exploring GNN-based representation learning for real-world data. [BASIRA Lab web page](#)
- Sep 2025 – Present **Researcher – BASTION Lab, University of Kinshasa**, Supervisor: [Dr. Kyandoghere Kyamakya](#)  
Researching neuro-symbolic AI for robust and explainable systems in challenging contexts. Developing hybrid architectures that integrate neural networks (Binary Cellular Neural Networks, BD-CeNN Autoencoders) with symbolic reasoning (Answer Set Programming) for applications in econometric modeling and medical imaging.

## Professional Experience

- Aug 2025 – Present **Freelance AI Trainer, EAZYTraining / EASYCONSULTING**, Remote (France)  
Designed and delivered online AI/DS courses with hands-on projects and deployment workflows; developed tailored training content on ML, DL, and Generative AI.
- Jul 2024 – Mar 2025 **AI Engineer, CongoExcelTechnologies**, DR Congo,  
Built end-to-end RAG solutions (vector DBs, web scraping) for custom knowledge systems; integrated third-party APIs/databases; benchmarked LLMs, embeddings, and fine-tuning strategies.
- Sep 2024 – Nov 2024 **AI Engineer Intern, PathOr Platforms**, Remote (India)  
Developed task-specific LLM agents (shopping assistance, data analysis, automation); curated large-scale datasets; aligned models to specific intents via embeddings/fine-tuning.
- Dec 2023 – Mar 2024 **AI Consultant, IA Flex Start**, Remote (France)  
Integrated LLMs into production apps via custom APIs; conducted end-to-end data preprocessing.

## Leadership and Community Engagement

- Sep 2024 – Oct 2025 **Country Ambassador (DRC), Zindi Africa**  
Built and led a 200+ member AI community; organized hackathons and technical workshops to promote DataScience and machine learning.
- Jul 2025 – Jul 2026 **Project Coordinator & Informatics Lab Manager, Polytechnic Faculty, University of Kinshasa**  
Managed lab/server infrastructure; mentored student projects in AI/CS.
- Jul 2023 – Jul 2024 **Co-lead, Google Developer Students Club – University of Kinshasa**  
Coordinated technical events/workshops; mentored students in software development and AI.

## Awards and Distinctions

- 2024 **Hackathon TechPoly 2024 – First Prize**. *Mat.IA*: multilingual tutor web app combining computer vision, LLM dialogue, and TTS.
- 2024 **Huawei Seeds for the Future** – Selected as one of 10 students to represent DR Congo in the ICT flagship program.
- 2023 **Orange Summer Challenge 2023 – Second Prize**. Built the “Utulivu” autism screening system (robot + wearable + app); deployed object detection on Raspberry Pi; created a hybrid recommender system.

## Skills

- Concepts Machine Learning, Deep Learning, NLP, Recommender Systems, Graph Neural Networks, Computer Vision, Reinforcement Learning, Web Development
- Frameworks PyTorch, TensorFlow, NumPy, LangChain, LangGraph, HuggingFace, scikit-learn, OpenCV, Pandas, Matplotlib, Streamlit, Django
- Programming Python, JavaScript, MATLAB, Git, Linux, Docker, HTML/CSS
- Research Problem Solving, Experimentation,  $\text{\LaTeX}$
- Cloud AWS, GCP

## Languages

**French, Lingala, Kikongo** – Native proficiency | **English** – Professional working proficiency