

MUSA MHLABA

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PROFESSIONAL SUMMARY

Artificial Intelligence and Machine learning Engineer Enthusiast with an Honours in computer Science and current pursuing a MSc in Computer Science with studies focused on AI/ML. Experience in developing and deploying end-to-end AI/ML algorithms. I'm a dynamic thinker, collaborative and I portray leadership qualities.

EDUCATION

Master of Science in Computer Science	University of Limpopo	2026 - Current
BSc Honours in Computer Science	University of Limpopo	2025
BSc in Mathematical Science	University of Limpopo	2024

SKILLS

AI and Applied Machine learning	Programming Languages	Mathematical Foundations:	Cloud Platforms
<ul style="list-style-type: none">Natural language ProcessingFraud detectionAgentic AICredit Risk modellingDeep learningSupervised, Unsupervised and Reinforcement learning	<ul style="list-style-type: none">Python (Scikit-learn, Matplotlib, Pandas, NumPy)SQL	<ul style="list-style-type: none">Linear algebraProbabilityStatisticsOptimization (gradient descent)	<ul style="list-style-type: none">Microsoft Azure

PROJECT

FEATURE ENGINEERING IMPACT IN FINANCIAL FRAUD DETECTION

[LINK](#)

(HONOURS RESEARCH)

- Investigated the effect of dimensionality reduction (PCA) versus information theoretic feature selection (Mutual Information) on fraud detection performance in highly imbalanced financial transaction data.
- Using Machine Learning models: Isolation Forest & Random Forest using Python
- Results demonstrated that Mutual Information selected features improved minority-class detection and balanced performance, while Isolation Forest showed strong discriminatory power as a general anomaly detector.
- Provides financial institutions with guidelines to predictive modeling in financial fraud detection.

Keywords: Python, Isolation Forest, Random Forest, Principal component Analysis, Mutual Information

REFERENCES

Supervisor	Mr T Mulaudzi	Email: thiko.mulaudzi@ul.ac.za
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