
SIMANGALISO BUTHELEZI

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PROFESSIONAL SUMMARY

Motivated and analytical graduate with a strong foundation in machine learning, deep learning, LLMs, and data analytics, and hands-on experience applying models to real-world datasets. Proficient in Python, with practical experience in data collection, preprocessing, feature engineering, model training, and evaluation. Demonstrated ability to build and fine-tune predictive and deep learning models, interpret results, and communicate insights effectively. Passionate about developing data-driven AI solutions and eager to contribute to high-impact analytics and AI initiatives while continuing to grow professionally.

PROJECTS

COVID-19 Status Prediction | [LINK](#) Mar 2024

- Trained various machine learning models, including Logistic Regression, Decision Tree, and Random Forest, for predicting patients' COVID-19 status. The dataset is composed of patients' health readings.
- Tools: Python, scikit-learn, NumPy, pandas, matplotlib, seaborn.

Image Classification using Deep Learning | [LINK](#) May 2025

- Trained a ResNet50 deep learning model utilizing CXR images to classify images according to their diseases. Images are divided into four categories, namely, COVID-19, Normal, Tuberculosis, and Pneumonia.
- Tools: Python, TensorFlow/Keras, PyTorch, scikit-learn, NumPy, matplotlib.

Machine Translation using LLMs | [LINK](#) Oct 2025

- Built a full machine translation pipeline using HuggingFace Transformers, fine-tuning mBART50 and NLLB-200 pre-trained models for translating text from English to isiZulu/isiXhosa. Utilizing the publicly available Autshumato dataset.
- Tools: Python, Transformers, NumPy, pandas, PyTorch, datasets, Sacrebleu, SentencePiece

EDUCATION AND QUALIFICATION

University of Zululand Feb 2022 – Dec 2024

Bachelor of Science in Computer Science and Hydrology

University of Zululand Feb 2025 – Dec 2025

Bachelor of Science Honours in Computer Science

CERTIFICATIONS

Cisco Introduction to Data Science

Acquired knowledge in Data Science and statistics analysis, from data collection, machine learning and modelling and data visualisation.

SKILLS

Programming Languages: Python, R, Java, SQL

Libraries: Scikit-learn, TensorFlow, pandas, PyTorch, NumPy, Matplotlib, Seaborn, NLTK

Tools: VS Code, Excel, PyCharm, Jupyter Notebook, Google Cloud Platform

Databases: MySQL, SQLite, MongoDB, Firebase

Soft Skills: Analytical thinking, problem solver, clear communication, attention to detail, team collaboration

EXTRACURRICULAR ACTIVITIES

- Peer tutor at the University of Zululand, Department of Computer Science.
- Member of the University of Zululand's computer science society.
- Researcher https://doi.org/10.1007/978-3-032-07175-0_8

REFERENCES

Available upon request.