Munongedzi Mabhoko

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PROFESSIONAL SUMMARY

Applied ML practitioner with 6+ years of hands-on experience building, training, evaluating, and validating ML/DL models in applied and research settings.I work across engineering and data teams to embed AI into production systems, improve reliability, and reduce manual work through automation. My work bridges applied research and production engineering. I turn messy, high-uncertainty problems into robust data pipelines, trustworthy analytics, and decision-ready dashboards that teams can depend on.

TECHNICAL SKILLS

Machine Learning & Generative AI

Generative AI, Deep Learning, Computer Vision, Multi-Modal Learning, Foundation Models, Representation Learning, Model Evaluation, Experimental Design, Responsible AI

Model Training & Optimization

Pre-Training Pipelines, Fine-Tuning, Post-Training Optimization, Distillation Concepts, Benchmarking

Frameworks & Programming

Python, PyTorch, NumPy, Pandas, SQL, PySpark, R, OpenAI, Airflow, Kafka, Github, Jira, PowerBI

Data & Experimentation

Large-Scale Datasets, Data Curation, Dataset Validation, Feature Engineering, Error Analysis, Bi solutions

RELEVANT EXPERIENCE

Machine Learning Engineer (remote)
Beyond Engineering | April 2023 –Present

- Designed and evaluated end-to-end ML solutions (training, validation, and error analysis) to improve model robustness and decision-readiness for data-driven applications.
- Conducted structured error analysis and performance benchmarking to surface model risks early, informing targeted refinements before deployment.
- Partnered with engineers and researchers to translate experimental findings into deployable ML solutions, improving reproducibility through clear documentation of training configurations and evaluation result

Graduate Researcher, Machine Learning & Computer Vision
Clarkson University | Aug 2024 – Present

- Developed and evaluated deep learning models in PyTorch (supervised + ordinal learning), producing validated results across multiple training setups and evaluation metrics.

- Investigated model generalization and bias across real-world data distributions, identifying performance trade-offs and improving reliability under shifting dataset conditions.
- Built reproducible training pipelines (preprocessing, augmentation, post-training evaluation) that improved experiment consistency and reduced rework during iteration.

Applied AI Research Assistant
United Nations Educational, Scientific and Cultural Organization | Jan 2022 – Jan 2023

- Supported responsible AI and data-driven research initiatives by developing Python-based analytical workflows for structured dataset processing, validation, and interpretation.
- Contributed to research documentation and policy-aligned reporting, enabling non-technical stakeholders to apply analytical insights to ethical technology decision-making.
- Collaborated with interdisciplinary teams at the intersection of AI, data governance, and public-interest technology.

Junior Software Engineer
ICT Consultants| Nov 2018 - April 2021

- Built and improved customer-support chatbots by implementing intent classification, entity recognition, and response selection, increasing response relevance and reducing failure cases through iterative testing.
- Curated and labeled conversational datasets (cleaning, annotation, train/test splits) to improve training data quality and evaluation reliability.
- Evaluated chatbot performance using accuracy, precision/recall, and qualitative conversation review, translating findings into concrete updates to dialogue flows and intent coverage.

EDUCATION

Clarkson University, NY
Master of Science in Computer Science

National University of Science and Technology
Bachelor of Science (Honors) Computer Science

HONORS & LEADERSHIP

- Merit-Based Scholarship
- Commercialisation Award
- Portfolio
- National Society of Black Engineers (NSBE)
- Racquette River Lions Club