OBED KORSHIE DZIKUNU
LinkedIn | GitHub | Email | Google Scholar | Website

EDUCATION

University of British Columbia
- Doctor of Philosophy: Electrical and Computer Engineering (Expected 2029)
- Master of Applied Science: Biomedical Engineering (2024)

HIGHLIGHTS
- **Developed a novel loss function** that improved detectability of small, diffuse lesions in whole-body PET/CT scans. LINK
- **Led the development of an open-source tool** for 3D functional imaging reconstruction, supporting reproducible research in medical imaging. LINK
- **Contributed to PyTomography**, a GPU-accelerated open-source library for tomographic image reconstruction. LINK

SKILLS SUMMARY
- **Coding Languages:** Python, C, C++, PostgreSQL
- **Additional Skills:** Computer Vision, Natural Language Processing, Large Language Models, Finetuning
- **Frameworks:** PyTorch, Numpy, W&B, LangChain, Azure, ReAct, HuggingFace
- **Soft Skills:** Leadership, Communication, Teamwork

EXPERIENCE

Machine Learning Researcher • UBC & Vector Institute • Vancouver, Canada **Jan. 2025 – Present**
PhD Research | Multi-Agent Systems, Reinforcement Learning, Trustworthy AI
- Investigating agentic architectures and reasoning patterns of large language models to enable cooperative decision-making under uncertainty.
- Researching reinforcement learning strategies to reduce hallucinations and improve factual accuracy in generative models.
- Developing ML methods for modeling complex spatiotemporal patterns in structural data, with applications in risk modeling and material stress prediction.

Machine Learning Intern • Vector Institute • Toronto, Canada **Sept. 2024 – Dec. 2024**
Collaborative Research Project (BCCRI) | Medical AI, Segmentation, Trustworthy ML
- Built end-to-end ML pipelines for high-dimensional multimodal data (PET/CT), optimizing system performance for object detection and quantitative evaluation.
- Designed a novel loss function that improved detection accuracy of rare-event targets (prostate tumors) by 13% over baselines; demonstrating techniques transferable to anomaly detection and rare event modeling in other domains.
- Applied principles of model robustness, interpretability, and reproducibility to support real-world deployment.

Machine Learning Researcher • BC Cancer Research Institute • Vancouver, Canada **Jan. 2023 – Dec. 2024**
Graduate Research | Semantic Segmentation, Trustworthy AI, Healthcare
- Developed and managed data pipelines for complex, noisy, and multi-scale real-world datasets.
- Trained and evaluated deep learning models for segmentation and classification tasks with custom optimization techniques.
- Proposed a quantitative evaluation framework to assess the real-world impact of ML predictions, applicable to healthcare domain where decision support is high-stakes.

Data Scientist Intern • Conversion Science • Cape Town, South Africa **Mar. 2021 – May 2021**
- Analyzed behavioral and search data to inform predictive modeling and personalization strategies.
- Developed custom language models with enhanced long-range dependencies, improving semantic understanding by 20%.

PUBLICATIONS
- **O. Dzikunu,** A. Toosi, S. Ahamed, S Harsini, X. Li, A. Rahmim. Reproducibility Assessment of Clinical Metric Quantification using L1-weighted Dice Focal Loss on PSMA PET/CT scans. IEEE Transactions on Radiation and Plasma Medical Sciences (Under Review)
- **O. Dzikunu,** S. Ahamed, A. Toosi, S. Harsini, F. Benard, X. Li, A. Rahmim. Adaptive Voxel-Weighted Loss Using L1 Norms in Deep Neural Networks for Detection and Segmentation of Prostate Cancer Lesions in PET/CT Images. Journal of Computer Methods and Programs in Biomedicine (Under Review)
- **O. K. Dzikunu,** S. Maziar, S. Ahamed, C. Uribe, A. Rahmim, & L. A. Polson (2024). SlicerSPECTRecon: A 3D Slicer Extension for SPECT Image Reconstruction. Journal of Open-Source Software, 9(104), 7399
- Anonymized Authors (2025). ProTeUS: A Spatio-Temporal Enhanced Ultrasound-Based Framework for Prostate Cancer Detection. MICCAI (Provisional Accept)

AWARDS/RECOGNITION
- Recipient of UBC Four-Year Doctoral Fellowship Award – 2025
- Recipient of the President's Academic Excellence Initiative PhD Award – 2025
- Awardee of the Multi-scale Multi-modal Image and Omics Computing for Health by NSERC – 2024
- Recipient of Vector Institute Research Grant and CIFAR Inclusive AI Scholarship – 2024
- Recipient of BPOC Graduate Excellence Award – 2024