Sisipho Zinja

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Education

City, University of London – MSc Artificial Intelligence, Sept 2024 – Jan 2026
University of Rochester – BSc Computer Science, Aug 2016 – May 2020
Danish Institute for Study Abroad – Game Development & Data Science, May 2019

Research Experience

University College London, Cancer Institute – London, UK Jan 2025 – Present

- Developing ML models for cancer evolution and treatment resistance prediction, improving therapy identification by 85% and supporting clinical decision-making.
- Led engineering efforts on BioModelAnalyzer, fixing critical bugs, enhancing reliability, and deploying cloud-integrated bioinformatics pipelines used by 50+ researchers.

Twitter – San Francisco, USA Sep 2020 – Jul 2023

- Conducted research on distributed training (TensorFlow model/data parallelism), achieving 100x efficiency on sparse recommendation models powering feeds for 300M+ users.
- Scaled backend distributed systems for Twitter's authentication platform, improving monitoring and reducing latency across billions of daily requests.

Research Project – Reinforcement Learning for Oncology

- Designed reinforcement learning framework modeling tumor evolutionary dynamics to predict treatment outcomes.
- Trained spatial agent-based simulations incorporating clonal dynamics and phylogenetic tree structures; results informed ongoing bioinformatics collaborations.

Publications & Research Projects

- **Zinja, S.** (2025). *Unpaired Image-to-Image Translation using a CLIP-enhanced CycleGAN for Monet Style Transfer*. Deep Learning for Image Analysis. GitHub Repository.
- **Zinja, S.** (2025). *Fine-Tuning MarianMT for English-to-isiXhosa Machine Translation*. Deep Learning for Sequence Analysis. GitHub Repository.

Teaching Experience

University of Rochester – Teaching Assistant & Tutor Aug 2017 – May 2020

- Courses: Artificial Intelligence, Data Structures, Computer Organization.
- Supported 100+ undergraduates through tutorials, office hours, workshops, and grading; collaborated with professors on curriculum delivery.

Additional Professional Experience

Twitter – San Francisco, USA May 2019 – Aug 2019

- Improved global traffic routing systems handling billions of daily requests, enhancing reliability and reducing latency worldwide.

Bank of America – New Jersey, USA Jun 2018 – Aug 2018

- Automated 60% of manual workflows, reducing cycle time for internal teams.

- Built enterprise-grade services (Spring Boot, REST APIs, Oracle DB) improving client experience and reliability.
- Conducted debugging and testing with JUnit, identifying and resolving critical logical and compilation errors.

Skills

- **Programming:** Scala, Java, JavaScript, C, C#, Python, MySQL, HTML
- **Frameworks:** TensorFlow, PyTorch, Keras, AWS, WandB, MongoDB, Express.js, React, Node.js
- Experienced in distributed training, reinforcement learning, and biomedical ML applications.

Honors & Memberships

- Women in Machine Learning Member (2024 – Present)
- Black in AI Member – Emerging Leaders in AI (2024–Present)
- Institution of Engineering and Technology, Associate Member (2024–Present)
- BRAID Anita Borg Scholar; Women of Color Grace Hopper Scholar (2017–Present)