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NITheCS National Institute for Theoretical and Computational Sciences

The Africa-Europe Cluster of Research Excellence: Addressing Global and African Challenges Through Methods of Artificial Intelligence, Data Science, and Theoretical and Computational Thinking

presents a

MASTERCLASS:

Equitable AI in Health Care

Wednesday, 17 January 2024

South Africa: 12h00-15h30 (GMT+2) | Sweden: 11h00-14h30 (GMT+1)

Dr Chika Yinka-Banjo
Dept. of Computer Sciences
University of Lagos, Nigeria

Dr Mary Akinyemi
Dept. of Mathematics & Statistics
Austin Peay State University, USA

Dr Olasupo Ajayi
AI & Robotics Lab
University of Lagos, Nigeria

David Tresner-Kirsch
Chief Technology Officer
Nivi, Inc, USA

VENUES:

- Seminar Room 1020, Merensky Building, Stellenbosch University, South Africa
- Ångström Laboratory, University of Uppsala, Sweden
- Online

A half-day discussion of machine learning in health care for researchers, PhD students, equitable AI enthusiasts, data scientists and medical practitioners.

This masterclass describes and evaluates a novel active learning approach for incrementally improving the accuracy of a Natural Language Processing (NLP), while optimising for gender-equitable outcomes in healthcare systems.

The approach employs an iterative cyclic model, incorporating data annotation using NLP, human auditing to improve the annotation accuracy especially for data with demographic segmentation, testing on new data (with intentional bias favoring underperforming demographics), and a loopback system for retraining the model and applying it on new data.

We describe experimental integration of the audit tool with distinct NLP tasks in two separate contexts:

i. annotation of medical symptoms collected in Hausa and English languages based on responses to a research questionnaire about health access in Northern Nigeria;
ii. message intent classification in English and Swahili languages based on spontaneous user messages to a health guide chatbot in both Nigeria and Kenya.

Our findings indicate that this gender-aware audit workflow is language agnostic and capable of mitigating demographic inequity while improving overall system accuracy.

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