

Research Assistant (1 post) – Artificial Intelligence for Mental Health Project.

AI and ML have the potential to transform public services in crucial sectors like healthcare, infrastructure, digital economy, and agriculture in the Global South. Despite the promises, Tanzania, like other developing nations, faces challenges hindering AI benefits. To address this, a consortium led by the University of Dodoma, Nelson Mandela African Institution of Science and Technology, and Mirembe National Mental Health Hospital is initiating a project to enhance AI-powered clinical decision support systems for mental health care in Tanzania. Using a mixed methods research design, the study will focus on mental health hospitals in Dar es Salaam and Dodoma.

The general objective of this research project is guided by the following specific objectives:

- (i) Assess the quality of the current clinical decision support systems for AI-powered mental health innovations in Tanzania.
- (ii) Improve early detection and screening of mental health conditions by implementing AI algorithms to analyze patient data and identify individuals at risk.
- (iii) Enhance diagnostic accuracy and efficiency by integrating AI-powered innovative system that assist healthcare professionals in making accurate and timely diagnoses.
- (iv) Develop personalized treatment plans by utilizing AI algorithms that consider individual patient characteristics to increase health care quality and efficiency.
- (v) Piloting and evaluate the impact and effectiveness of AI-powered clinical decision support solutions in improving the overall continuum of mental health care in Tanzania through rigorous monitoring and evaluation processes.

The AI for Mental Health Project is seeking a qualified and experienced Research Assistant for a project focusing on Artificial Intelligence and Embedded Systems. The objective is to enhance the capacity of a public university in Africa to conduct high-quality, multidisciplinary, and responsible AI research, with a focus on gender-inclusive Artificial Intelligence for Development in Africa. The Research Assistant will be engaged in machine learning, Artificial Intelligence (AI), software programming, data management, analytics, and embedded system applications for duration of three (3) months. The position will be based at the AI4MH Offices at the University

of Dodoma, Tanzania. Additionally, the Research Assistant will play a key role in supporting and building the capacity of the AI4MH project team in the implementation of the developed AI solution for mental health.

Qualification and Experience

Candidates should have knowledge and experience in one or more of the following areas:

1. Holder of BSc in Health Informatics, Computer Science, Software Engineering, Artificial Intelligence/Machine Learning, Mathematics, Statistics or any other related discipline.
2. Having previous experiences supporting multidisciplinary research.
3. Programming languages: Python, Java, C/C++, JavaScript, R, etc.
4. Machine learning theory: discriminative models, generative models, deep neural networks, detecting and mitigating bias, adversarial robustness, causality, uncertainty
5. Machine learning engineering: creating training pipelines and evaluating models using toolkits such as PyTorch, TensorFlow, and sci-kit-learn
6. Experience in front and back-end web application development and frameworks such as HTML, CSS, Bootstrap, Carbon, React, Flask, Node.js, etc.
7. Backend storage technologies such as SQL and NoSQL databases such as Postgres, MongoDB, Cloudant, ElasticSearch, etc.
8. Cloud-native development and toolkits such as Docker, Kubernetes, and OpenShift
9. Software engineering best practices, including agile techniques
10. Qualitative and quantitative user research and user-centric design
11. Experience solving analytical problems using rigorous and quantitative approaches
12. Experience analyzing large-scale data from a variety of sources

Mode of Application and Deadline

The application package **MUST** be named with an applicant's FULL NAME and submitted by email to info@ai4mh.or.tz before **18th December 2023**. The application package shall contain the following documents:

University degree transcripts. If a degree was conferred by an institution outside Tanzania, the applicant shall submit a Recognition of Foreign Award from the Tanzania Commission for Universities (TCU).

1-page motivation letter.

3-page up-to-date curriculum vitae.