Call for PhD and Masters Scholarships in the Transformative Artificial Intelligence Research and Innovation Lab (TAIRI Lab)

I.   Background

A research team at the University of Rwanda is working on a project to establish a Transformative Artificial Intelligence Research and Innovation Lab (TAIRI-Lab) at the University of Rwanda. The lab is expected to position Rwanda as a regional leader in Artificial Intelligence for development and advance key Sustainable Development Goals in Health, food security, Climate change resilience, and sustainable urbanization. The establishment of TAIRI-Lab is funded by the International Development Research Center (IDRC). As part of the project, the research team is pleased to recruit 5 PhD and 5 Master students who will work on the project topics as their theses.

II.   Description

The establishment and implementation of TAIRI Lab is expected to improve healthcare delivery, reduce workload for community health workers (CHWs), improve patient outcomes by incorporating AI technological empowered diagnosis and treatment, enhance food security through adaptive AI-driven agriculture methods. The project will also contribute to the management of the Urban air quality problems and associated health conditions. The lab is expected to facilitate knowledge transfer from universities to community and industry and will formulate policy briefs and guidelines to ensure responsible and ethical adoption and use of AI in Rwanda and in the region. The project will work on the 5 different topics addressing challenges in health, malnutrition, agriculture, urban planning and air pollution as follows:

- **AI-powered tools to support primary care**: Development of AI tools to assist Health Facilities and CHWs in managing patient care by improving prescription accuracy, availing treatment or referral suggestions, explaining medication adherence and providing information on potential drug resistance.
- **AI-powered Recommender System for Healthier Nutrition**: Creation of a smartphone-based AI system to provide villagers with personalized, nutritionally balanced meal plans based on local harvests to combat malnutrition and stunting.
- **AI for Climate-Resilient Agriculture:** Development of AI models that use geospatial and climate data to predict crop yields and recommend optimal crop types and rotation schedules to increase agricultural productivity.
- **AI-based Urban Planning for Sustainable Cities**: Development of AI-based solutions to enhance urban planning, focusing on optimizing land use, managing traffic, and promoting climate-resilient infrastructure development. The ultimate goal is to develop a user-friendly AI-powered app for real-time congestion data in Kigali, enabling smarter traffic management, efficient urban planning, and sustainable development, leveraging existing AI infrastructure.

- **AI-Powered Air Quality Monitoring and Forecasting**: Development of AI-powered tools to analyze real-time weather data and industrial activity to provide accurate air pollution forecasts. These tools will support Rwanda Environment Management Authority (REMA)'s existing air quality monitoring systems. The expected outcome is to come up with an user-friendly AI-powered app for real-time and predictive air quality data in Kigali, enhancing REMA's systems to provide actionable insights for citizens, policymakers, and industries.

III. Funding

The funding of 5 PhD and 5 Master students has been planned under the implementation of the project. The funding will cover the tuition fees and monthly stipends for 2 years for the following candidates:

- 4 PhD Positions in Internet of Things (PhD in IoT-Wireless Intelligent Sensor Networks & Embedded Computing Systems).
- One PhD position in Health Sciences (PhD in Biomedical Sciences).
- 5 Masters In Internet of Things (Msc in IoT-Wireless Intelligent Sensor Networks & Embedded Computing Systems).

IV. Eligibility

- The applicants should be ongoing students who have been admitted in the ACEIoT and Health Sciences programmes at the University of Rwanda prior to the application.
- Only PhD candidate who are currently in year 1 and 2 will be considered
- Only Master Candidates who are currently in year 1 will be considered
- The applicants should not have another full scholarships
- The applicant should have interest in working on one of the project topics as the final thesis.
- The applicant should be available and work on the project on full time basis

V. Application Documents

- Application letter addressed to the Director of Centre for Postgraduate Studies at UR, with a copy to the project lead specifying level of study applied for and category of the research interest (**In the five categories**).
- Updated Curriculum vitae (3 pages maximum showing research experience of the selected topic if any).
- Admission letter
- Proof of registration
- A 2-page PhD Research Concept note on the selected project topic for PhD scholarship applicants. The concept should focus on what is the issue in line with each topic, why it matters, and how It will be addressed?
- Two academic recommendation letters from an academic supervisor or teaching professor.
- A copy of National Identity Card or passport

VI. Specific selection criteria

- Staff of the University of Rwanda are highly encouraged to apply
- Female candidates are highly encouraged to apply
- Have a profound experience in the implementation of Artificial Intelligence powered projects in the fields of Health, Nutrition, Agriculture, Environment and air quality or related fields.
- High level of English proficiency and writing skills

VII. Selection Methodology

Shortlisted candidates will be invited for interview on dates that will be communicated through their respective emails.

VIII. How to apply

Applicants are requested to send the application documents listed above by email to the UR scholarship officer; E-mail : ur-cpgscholarship@ur.ac.rw at the University of Rwanda, Centre for Postgraduate Studies, Tel: **+250792988304** with a copy to the Project Lead, dhanyurwimfura@ur.ac.rw Tel:+250783944447, **not later than 5th February 2025.**

IX. Who to contact for any further information

For any other detailed information regarding this call, kindly contact Prof. Damien Hanyurwimfura, Project lead at dhanyurwimfura@ur.ac.rw Tel:+250783944447 .

Done at Kigali, 23./01./ 2025

Assoc. Prof. KAYIHURA Muganga Didas
Acting Vice Chancellor