

# CALL FOR APPLICATIONS FOR POST DOCTORAL FELLOWSHIP

## 1 BACKGROUND

**The Multimorbidity in Africa:** Digital Innovation, Visualisation and Application (MADIVA) research hub—funded by the National Institutes of Health's (NIH's) new Harnessing Data Science for Health Discovery and Innovation in Africa (DS-I Africa) program—addresses the complex interplay, individual and public health challenges, and rising prevalence of multimorbidity in Africa through data science. We have rich longitudinal epidemiological data sets, partial but increasingly available clinical and laboratory records, and genomic data. The purpose is to develop data science techniques and solutions to tackle the problem of multimorbidity in Africa—the problem of multiple co-occurring diseases significantly adding to the health burden in Africa.

We work primarily on research sites in rural Bushbuckridge, South Africa and urban Nairobi, Kenya and build on the significant resources of the MRC/Wits Agincourt Rural Public Health and Health Transitions Research Unit and the African Population & Health Research Center (APHRC), Nairobi, which have long track records in working in these communities. We develop and apply data science techniques to link the different data sets, build dashboards for different stakeholders and apply new machine learning techniques to automatically stratify populations for risk profiles to different diseases, including the use of polygenic risk scores. The MADIVA seeks to recruit three Postdoctoral Research Fellows to be based in Johannesburg and Nairobi.

## 2 ELIGIBILITY CRITERIA

**The following eligibility criteria will apply:**

PhD degree (preferably less than three years ago) in data sciences or equivalent in related disciplines. Data Science in a very broad sense. We are looking for candidates with experience including, but not limited to, one or more of the following areas:

- Bioinformatics
- Numerical Optimization/Numerical Linear Algebra
- Approximation Theory/Functional Analysis
- High-dimensional (Computational) Statistics
- Bayesian Statistics and Probability
- Signal Processing/Applied Harmonic Analysis
- Machine Learning/Artificial Intelligence
- Natural Language Processing
- Parallel Computing and Programming
- Graph Theory and Complex Networks
- Be current or prospective teaching or research staff at an international university or research institution
- Be preferably nationals of an African country.

### Other preferred qualifications:

- Strong quantitative skills (managing, analysing and interpreting data), with extensive familiarity with quantitative statistical packages (e.g. SPSS, STATA, SAS etc.)
- Strong writing skills and good record of publications on relevant areas in sub-Saharan Africa

## 3 WHAT CAN BE FUNDED?

The objective for fellows is to undertake research during the tenure of the award. The projects should not be a reworking or mere extension of the candidates' doctoral research project. In addition: the selected candidates are expected to have a team spirit and participate in the scientific activities of MADIVA.

## 4 RESPONSIBILITIES

The following are the responsibilities:

- Work independently on projects that are directly related to MADIVA research program.
- Though mentored, the fellows should show initiative in research question development and research direction and to help establish themselves as independent researchers.

## 5 DURATION OF THE FELLOWSHIP

The awards are tenable for a period of one year.

## 6 FELLOWSHIP PACKAGE

The fellowship covers the following:

- Total salary: USD \$ 25,000
- Travel and other research-related costs: US\$ 5,000

## 7 APPLICATION PROCESS

Fill out the online application form ([Click Here](#)), then submit the following documents to: [SBIMB@wits.ac.za](mailto:SBIMB@wits.ac.za) Copied to: [kerry.glover@wits.ac.za](mailto:kerry.glover@wits.ac.za); [aphrctraining@aphrc.org](mailto:aphrctraining@aphrc.org), with the subject title, "MADIVA: Call for Applications for Postdoctoral Fellowship."

- a) Cover Letter (not more than 500 words) detailing motivation for applying for the fellowship and how it fits with your overall career goals,
- b) Curriculum Vitae, including list of publications
- c) Research proposal (maximum 5 pages) including detailed time and work plan
- d) Two recommendation letters by academic referees.
- e) Certified copies of PhD and Master's certificate and transcripts,
- f) Copy of passport (personal details page) or National Identification (I.D) card, and
- g) Electronic clear coloured passport size photograph (2cmx2cm, jpg, png, tiff)

All documents to be submitted as one running PDF document

## 8 APPLICATION DEADLINE

The application letter and supporting documents must be submitted via email addresses provided and addressed to The Postdoctoral Selection Committee, MADIVA on or before **June 30, 2022 at 1700 hrs (EAT), 1600 (SAST)**. Applications received after this deadline will NOT be considered.