

## **Call for Research Associate**

### **The Equity Equation Project: Predictive Modeling of Policy Impact on School Enrollment**

#### **Project Summary**

The Equity Equation Project seeks to revolutionize education planning in Pakistan by developing a sophisticated computational model to address the persistent challenge of over 26 million out-of-school children. This project offers a unique opportunity for researchers with expertise in computational modeling, machine learning, and GIS to contribute to a cutting-edge initiative with the potential for significant societal impact.

#### **About the Project**

This project will leverage advanced techniques in agent-based modeling (ABM), causal graphical modeling, and spatial analysis to simulate the impact of various policies on school enrollment. By integrating diverse datasets, including census data, household surveys, and GIS information, the model will provide policymakers with a powerful tool to understand the complex interplay of factors influencing educational access and make evidence-based decisions to increase enrollment, particularly among marginalized children.

#### **Position Overview**

We are seeking a highly motivated and skilled Research Associate with a strong background in computational methods to contribute to the development and implementation of the ABM. The Research Associate will work closely with the project team to:

- Develop and refine the ABM, incorporating relevant social and behavioral dynamics.
- Apply machine learning techniques to analyze large datasets and identify key factors influencing school enrollment.
- Utilize GIS data to map and analyze spatial patterns of out-of-school children and educational resources.
- Conduct model simulations and analyze policy outcomes.
- Contribute to the development of data visualizations and interactive tools for policymakers.
- Prepare reports, presentations, and publications based on the research findings.

#### **Desired Qualifications and Skills**

- Master's degree in Computer Science, Statistics, Engineering, or a related field with a strong emphasis on computational methods.
- Proven experience in developing and implementing ABMs.
- Strong programming skills in Python or a similar language.
- Familiarity with machine learning algorithms and libraries (e.g., scikit-learn, TensorFlow).
- Experience with GIS software and spatial data analysis.
- Excellent problem-solving and analytical skills.

- Ability to work independently and as part of a multidisciplinary team.
- Sincere commitment to equity and ethics in data use.

### **Application Process**

Interested candidates are requested to submit their CV and a cover letter highlighting their relevant skills and experience to [careers@mathsandscience.pk](mailto:careers@mathsandscience.pk). Please include "Research Associate - Equity Equation Project" in the subject line of your email.

### **Deadline**

The deadline for applications is January 21, 2025.

We strongly encourage individuals from marginalized or underrepresented groups, particularly in STEM fields, to apply.