

About The Signal Program

The Signal Program on Human Security and Technology (Signal Program) was founded by the Harvard Humanitarian Initiative (HHI) in 2012. Signal Program staff, fellows, and partners work to advance the safe, ethical, and effective use of information technologies by communities of practice during humanitarian emergencies. The Signal Program designs and scientifically tests tools and methods that remotely collect and analyze data about humanitarian emergencies; helps lead the development of technical standards and professional ethics for the responsible use of technologies to assist disaster-affected populations; and conducts retrospective analyses of satellite imagery and other related data to identify remotely observable forensic evidence of alleged mass atrocities. The Signal Program works in concert with HHI's Humanitarian Geoanalytics Program on the spatial understanding of crisis-affected populations and their health and environmental impacts.

Project Background

By November 2016 an estimated 1.5 million people have become internally displaced in Somalia. Climate change, environmental degradation, conflict, political and economic instability, and food crises stand to increase the numbers and movement of Somalia's internally displaced populations (IDPs). There is an urgent need for the development of an agent-based model to understand the effects of climate change and conflict on pastoralists and internally displaced populations in the Horn of Africa. The aim of this work is to support UNICEF and other humanitarian agencies to provide a method for improved remote assessment and generate decision support data related to movements of nomadic pastoralists and IDPs in conflict and food insecure areas in Somalia.

To accomplish this, the Signal Program is applying agent-based modeling to new, theoretical methods of tracking migration patterns, considering variables ranging from environmental indices, conflict, and available support. We're seeking assistance in translating conceptual models into code, test ABM prototypes with empirical data and produce preliminary deliverables for project partners.

Application

- Deadline: May 10, 2019 at 5 p.m. EST
- Materials:
 - 1) Resume
 - 2) Brief description of relevant projects

Duration

May 20, 2019 - Aug 16, 2019

Tasks

- Translation of theoretical agent-based model into logic statements and code
- Multivariate data visualization of maps, charts, diagrams, and associated products from the model
- Help evaluate existing platforms for ABM
- Contribute to meetings, reports, and other updates with project partners

Skills required

- Recent graduate or currently enrolled in an undergraduate/graduate degree focused on computer science or related programs
- Experience using (2+ years) Python and Java
- Processing and analysis of spatial (GIS and remote sensing) data layers
- Strong analytical and problem-solving skills
- Strong ability to work independently and in teams

Preferred skills:

- Agent-based or systems dynamics modeling (agent-based modeling experience preferred)
- Experience using ABM platforms such as RePast, Mason, GAMA, or Mesa
- Experience using ArcGIS
- Experience with humanitarian projects and/or regional context (East Africa)

Benefits

- Acknowledgement in related publications
- Complimentary attendance at the Remote Sensing for Humanitarian Programs Workshop from June 24 to June 30, 2019

Contact Info

Saira Khan, Data Analyst, Signal Program

sakhan@hsph.harvard.edu

About HHI

The Harvard Humanitarian Initiative (HHI) is a university-wide center involving entities within the Harvard community that provide expertise in public health, medicine, social science, management, and other disciplines to promote evidence-based approaches to humanitarian assistance. The mission of HHI is to relieve human suffering in war and disaster by advancing the science and practice of humanitarian response worldwide.

HHI fosters interdisciplinary collaboration in order to improve the effectiveness of humanitarian strategies for relief, protection, and prevention; instill human rights principles and practices in these strategies; and educate and train the next generation of humanitarian leaders.