Open Machine Learning for Resilience

Caroline Gevaert

The World Bank Group

Open Data for Resilience Initiative

GFDRR Global Facility for Disaster Reduction and Recovery

World Bank Group


The urban population in Africa
will double by 2040


70% of these citizens will live in
unplanned settlements


increasingly vulnerable to
natural hazards


and a changing climate

OpenDRI Principles

Disaster risk data should be:

1. Open by default

2. Accessible, Licensed, & Documented

3. Co-created

4. Locally Owned

5. Communicated in ways that meet needs of diverse users

Open Data projects in the disaster risk space should be designed to:

6. Engage user communities

7. Develop Strong Institutional Partnerships

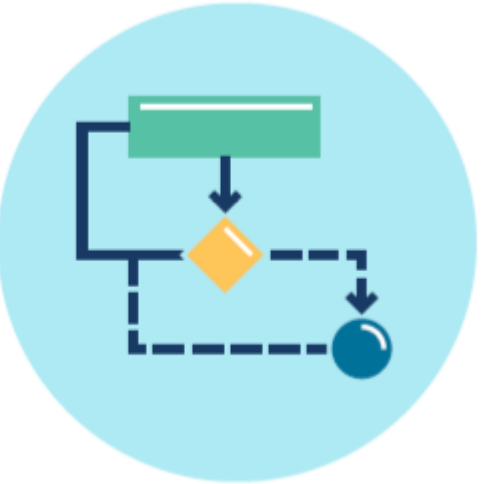
8. Prioritize Open Source

9. Set clear, long-term goals

What about Machine Learning?

Input data

Training samples



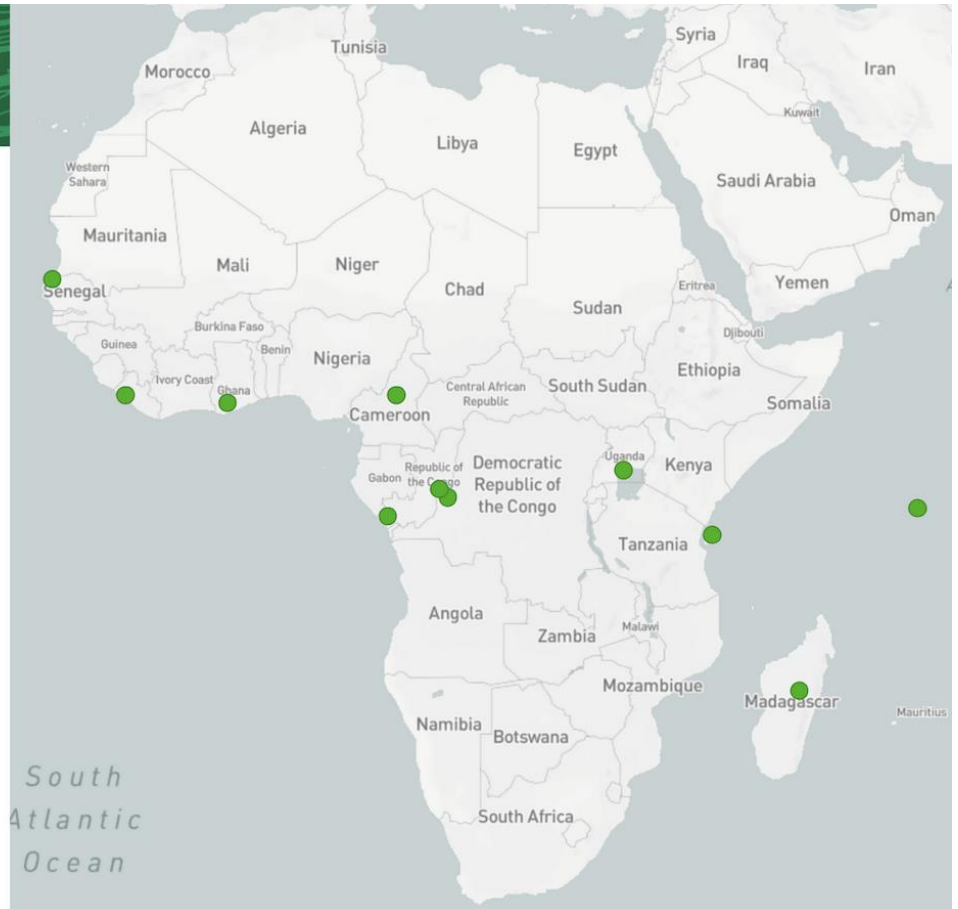
Algorithm

1. Geo-diverse training data

Open Cities Africa

Participating Cities

- **Accra**, Ghana
- **Antananarivo**, Madagascar
- **Kinshasa**, DRC
- **Pointe-Noire and Brazzaville**, ROC
- **Monrovia**, Liberia
- **Ngaoundere**, Cameroon
- **Saint-Louis**, Senegal
- **Victoria**, Seychelles
- **Stone Town**, Zanzibar
- **Kampala**, Uganda



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https://opencitiesproject.org/

2. AI challenges

2018 Open AI Tanzania Building Footprint Segmentation Challenge

Organized by jordan - Current server time: Nov. 20, 2018, 6:44 a.m. UTC

First phase	End
Validation	Competition Ends
Oct. 1, 2018, midnight UTC	Nov. 10, 2018, midnight UTC

Learn the Details | Phases | Participate | Results | Forums

- Overview
- Evaluation

ZMI — ZANZIBAR MAPPING INITIATIVE

Welcome to the Open AI Tanzania Challenge!

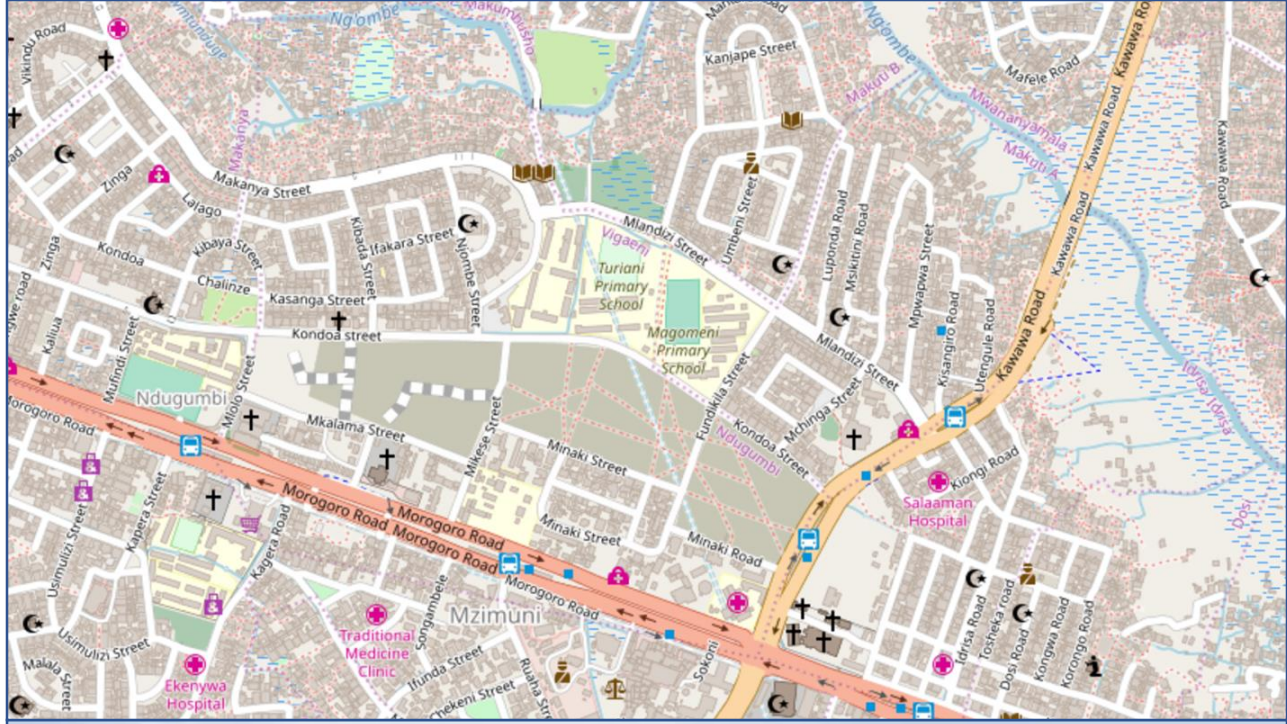
DAR RAMANI HURIA

Base map | UAV data

Community assets

Flooding | drainage

Solid waste | soils



3. Best practices

Outline of a machine learning project

Project goals

Data / imagery sources

Sample collection

Exploration

Choice of algorithm

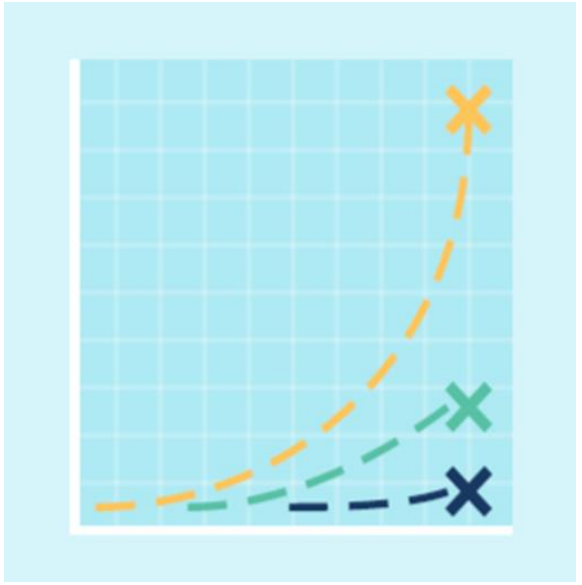
Develop algorithm

Validation

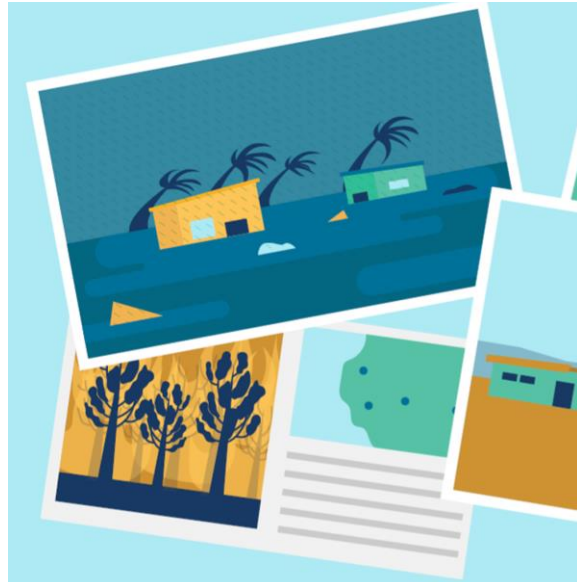
Output

Considerations

Selecting input data



Accuracy metrics and evaluation



DRM examples

Summary: Supporting OpenML

1. Geo-diverse training data
2. AI challenges
3. Best practices

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Caroline Gevaert | The World Bank Group | cgevaert@worldbank.org