

Artificial Intelligence for Mapping and Urban Monitoring

Session 4

Friday, Nov 22

14:00–15:30 in Room 1

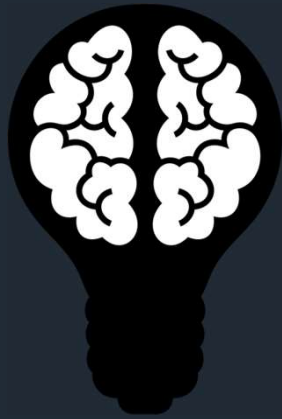
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FACEBOOK

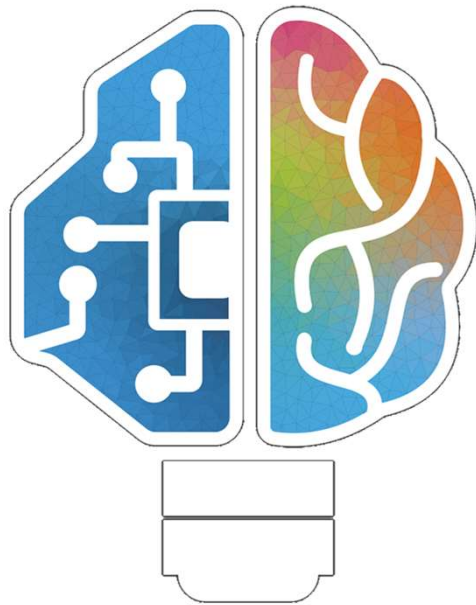




What is Artificial Intelligence?



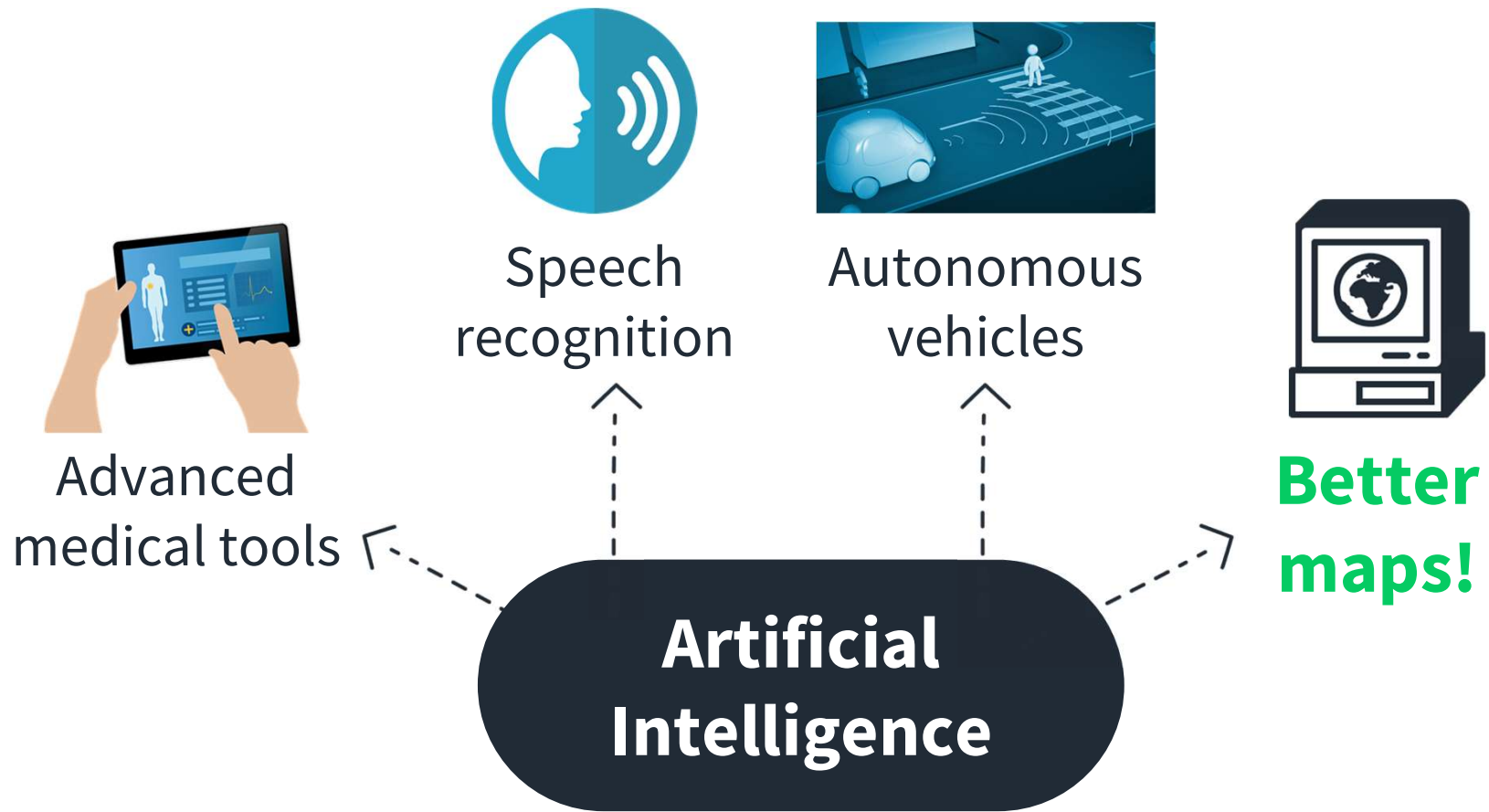
Artificial Intelligence



An area of computer science developing systems that function **independently** and **intelligently**

We live in a world full of data—machines work **faster** and with **more data** than people





Why do we need better maps?



Credit: Urban Hub



Why do we need better maps?

- Traditional methods of mapping struggle to keep up with how fast the world is changing
- **Up to date maps are critical**
 - For building resilience through infrastructure planning and maintenance
 - To get assistance to those in need when disaster strikes

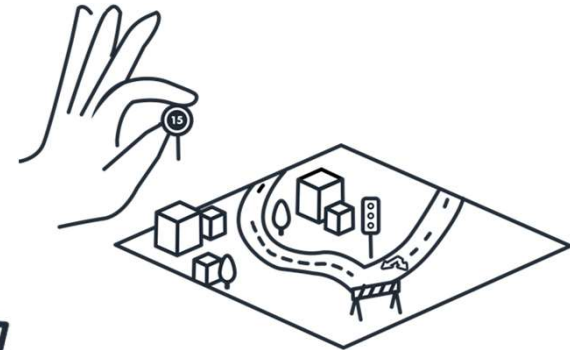




**Mapillary is the street-level imagery platform
that scales and automates mapping
using cameras and computer vision**

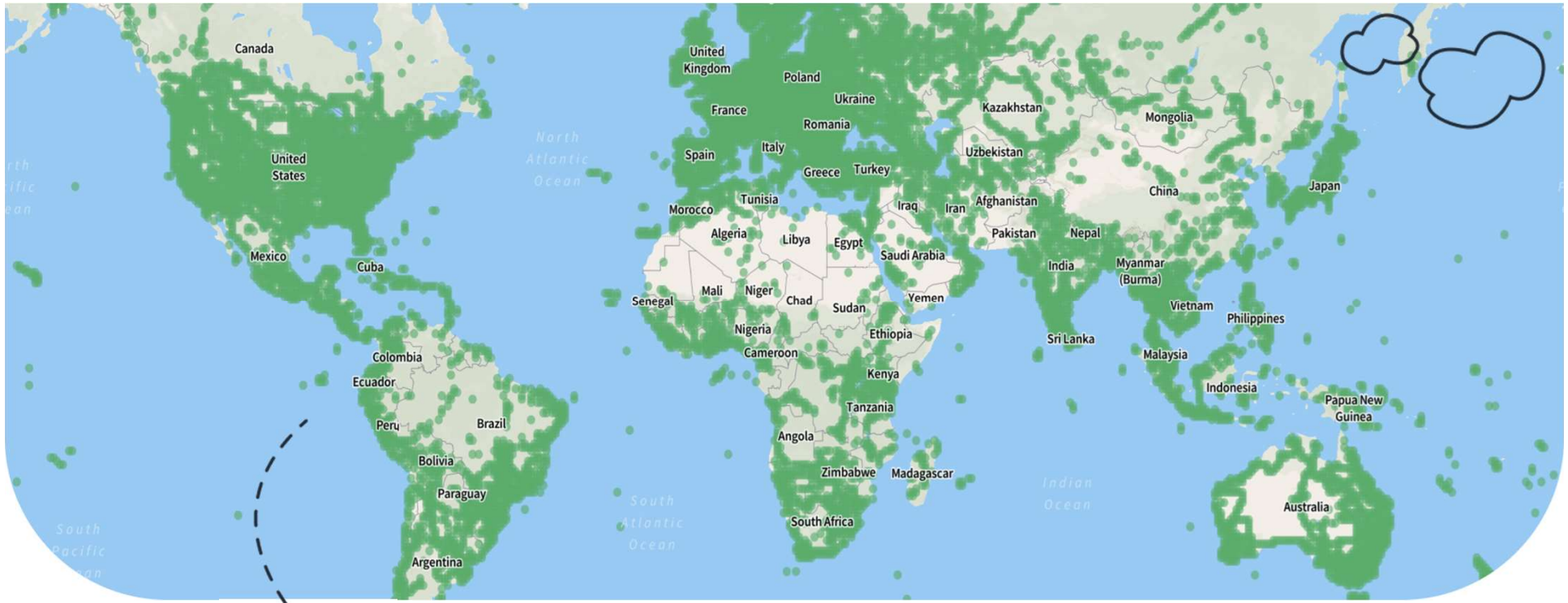


Any camera,
anywhere



 **Mapillary**





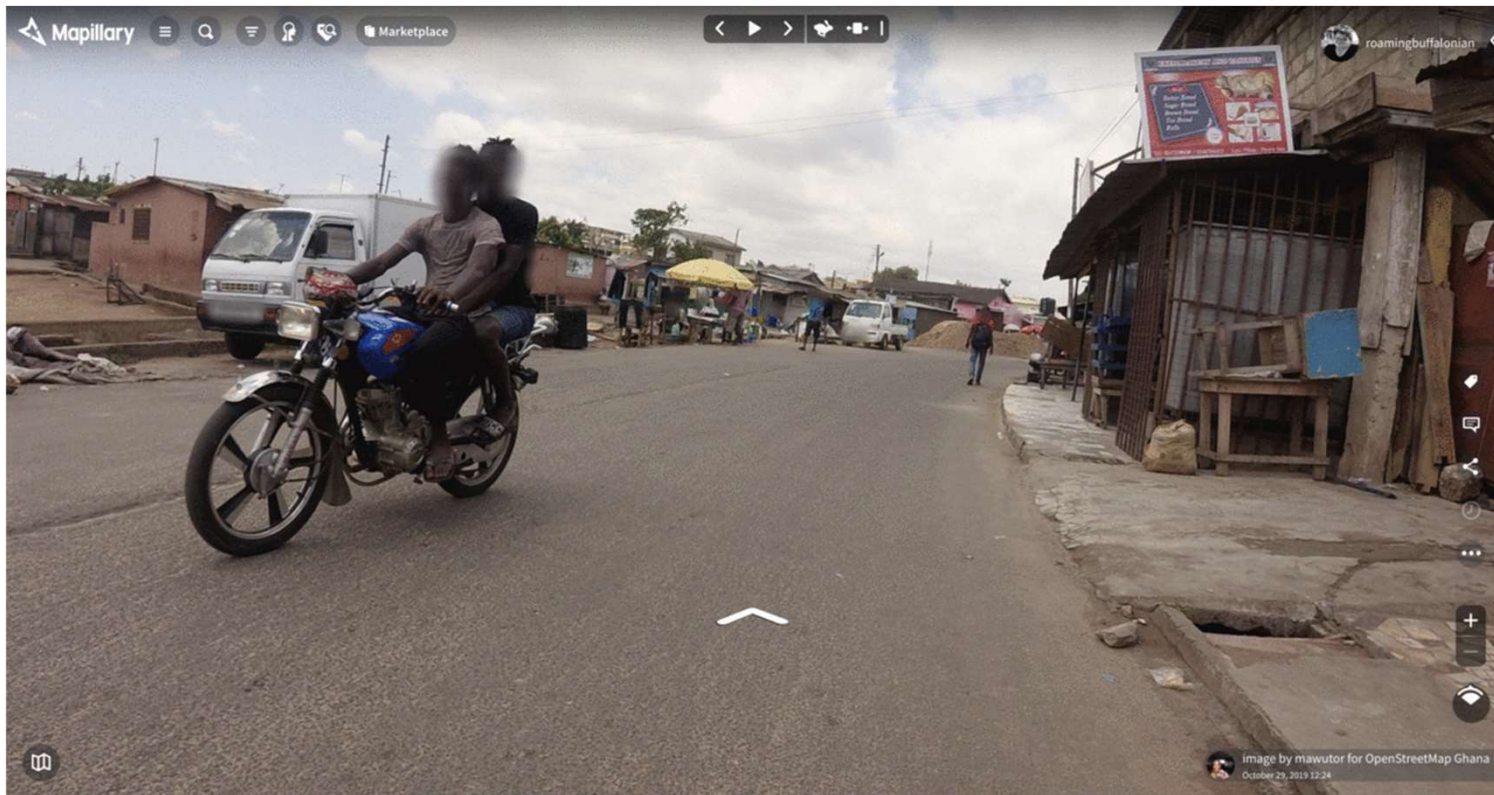
**Roughly one billion images and
50 billion objects detected**



Computer Vision: 3D reconstruction



Computer Vision: Semantic Segmentation



But wait, there's more



World Settlement Footprint and urban risk in African Cities

Presented by Mattia Marconcini, PhD



Satellite image analysis at scale

Presented by Danil Kirsanov, PhD



Putting insight in the hand of decision makers:

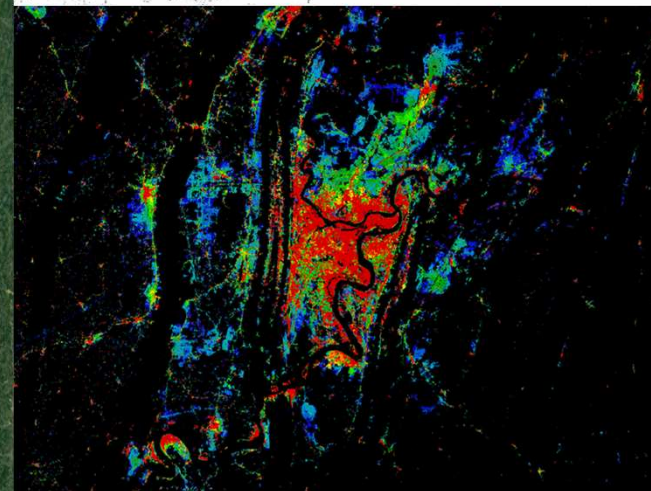
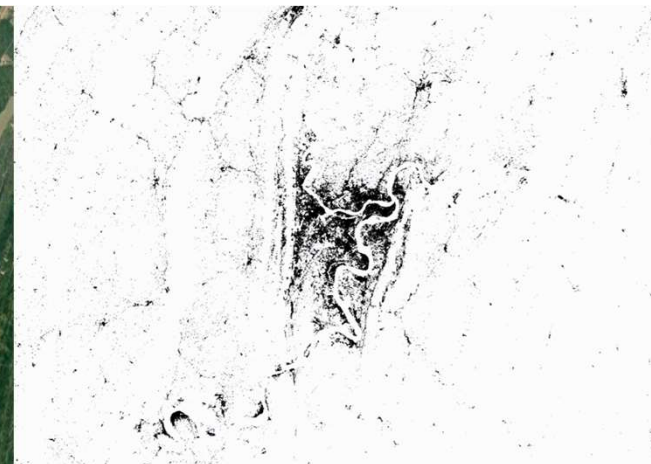
Innovations for Urban Monitoring and Mapping

Presented by Olaf Veerman



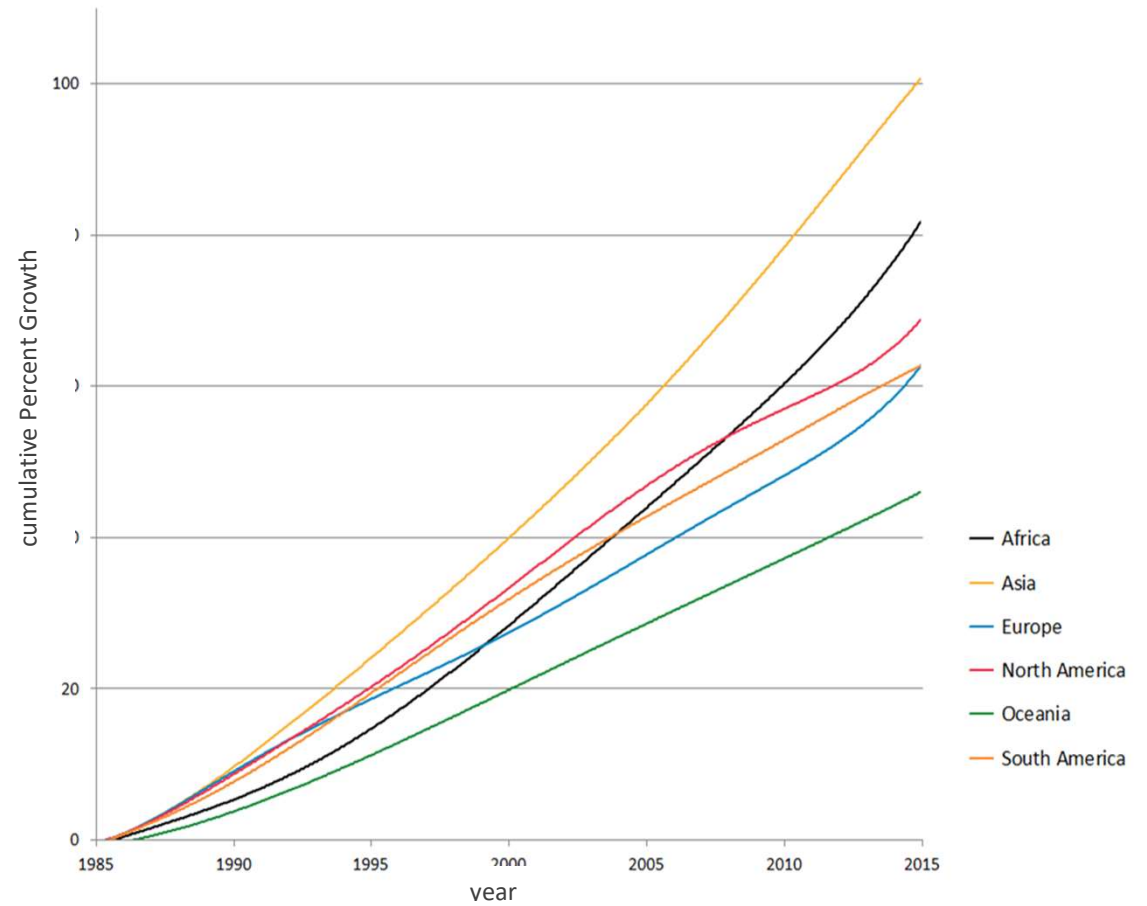
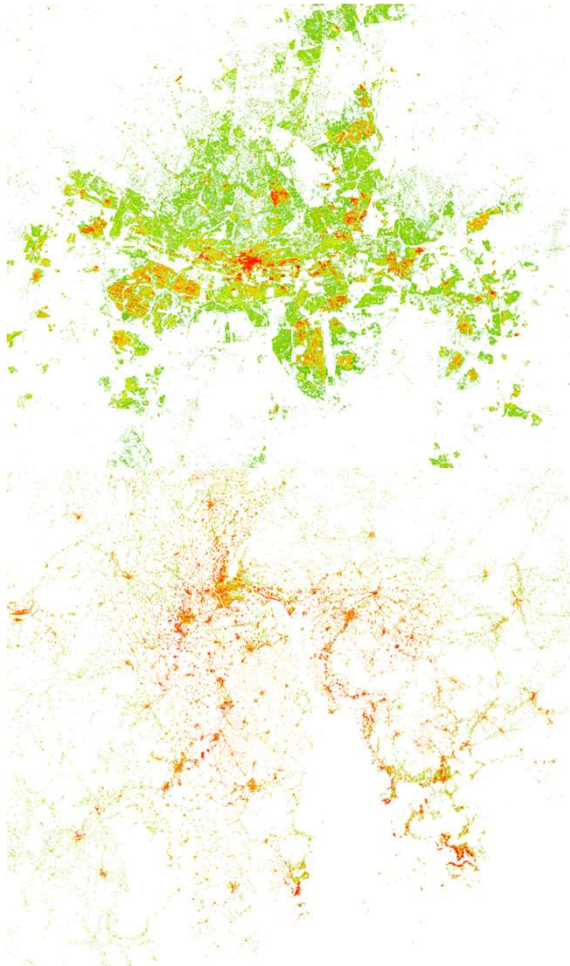


Chongqing



World Settlement Footprint and urban risk in African Cities

Presented by Mattia Marconcini, PhD



World Settlement Footprint and urban risk in African Cities

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Satellite image analysis at scale

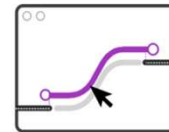
Danil Kirsanov

Facebook, Inc.



Artificial Intelligence
Detected Roads

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Mapping the World w/ RapiD
Editor

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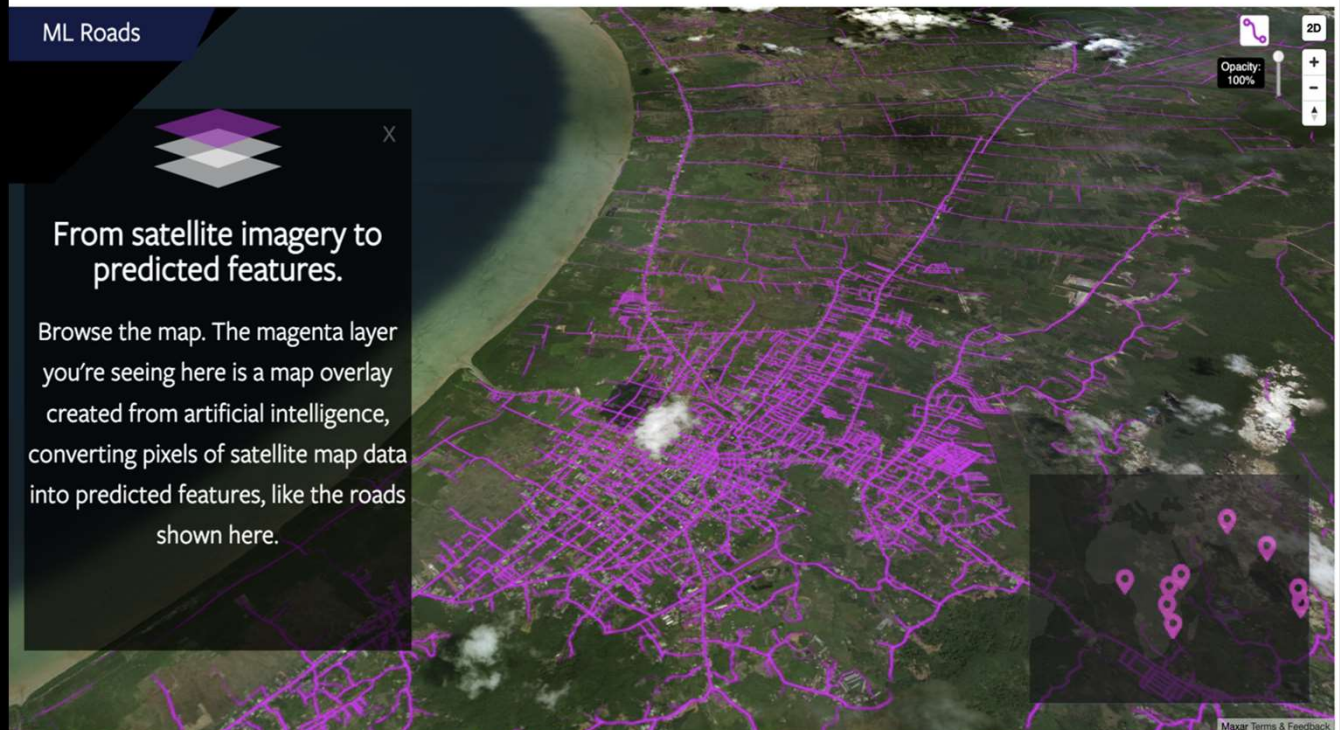
Humanitarian Prioritized
Community Task Mapping

ML Roads



From satellite imagery to
predicted features.

Browse the map. The magenta layer
you're seeing here is a map overlay
created from artificial intelligence,
converting pixels of satellite map data
into predicted features, like the roads
shown here.



Deriving meaningful insight

Our capacity to produce data is growing at a fast pace. We need to be building tools that put this data in hands of decision makers in a way they can consume it:

- Open tools that allow people to see under the hood, and understand what is going on.
- Tools that combine data streams so they can draw insight from a richer insight.



Latest Change Detection and OSM Edits

Madrid

Show City Information

How good is your map?

Urchn tells you where map is incomplete and out of date. Satellite change detection flags features that have changed since they were mapped.

OSM Edits over Time

2007

2018



LOCATION

LATITUDE 4.549682
LONGITUDE -74.161051

EVALUATION

AREA 56.8767174981
AVG SLOPE 4.35222031222
AVG HEIGHT 9.50733462087
FLOORS 3
VOLUME 541

STREETVIEW DETECTION

CONSTRUCTION **complete**
ML
DESIGN ML **designed**
MATERIAL ML **painted**



GLOBAL PROGRAM
RESILIENT HOUSING



RISK

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FACEBOOK



Staying for State of the Map Africa?



Win a GoPro and help build better maps with Mapillary



Follow [@mapillary](#) on twitter for more details

