Street-Level Imagery in the Cloud
Getting More Out of Videologs

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Mapillary is a street-level imagery platform, powered by collaboration and computer vision.
Any device

To date

260 million images
4.0 million km mapped
21.8 billion map objects
190 countries
Core technology components
How Mapillary works

Powered by collaboration and computer vision

3D Reconstruction → Traffic Sign Recognition → Object Recognition → Map Features → Map Data → Contributor Network → Images → 3D Reconstruction
Structure from Motion  3D Reconstruction

Dense 3D Point Clouds

Map Objects

Amsterdam: 2.2 billion 3D points
Traffic signs recognized in 67 countries, 97 street scene objects recognized, all referenced in 3D
Human in the Loop

Verification and confidence

Traffic Sign Verification

Segmentation Verification

Object Tagging
Map features  Available at scale

Machine-generated map data served through vector tiles and APIs
Spot updates

Managing change

- Automatically detect changes
- Handle moving objects and occlusions
- Verify changes and enhance machine learning

Filtering algorithms for change candidates

Verify changes
Case studies
Transportation Departments
Vermont released statewide photologs as part of an open-data initiative including five years of imagery.
360-degree imagery on 5,500 miles of paved and unpaved roads opened by the Lithuanian Road Administration, Ministry of Transport and Communications
Lithuanian Road Administration

Validate speed limit signage and match to existing asset management database
Lithuanian Road Administration

Scalable systemwide guardrail assessment, prioritized field investigations
Traffic inspectors quickly inventoried 30,000 traffic signs on unincorporated county roads using action cameras.
City of Amsterdam

More than 800K stitched 360-degree images released as part of Amsterdam’s open data initiatives.
Challenge one
Removing barriers to fresh map data contributed by anyone
Usage  Map editing with images and data
Open data improves transportation mobility

Navigation and route map data accessible across platforms and tools
Open data improves transportation safety

Street-level data insights enhance the understanding of transportation performance
Challenge two

Asset management across the enterprise
Mapillary Tasker  Collaborate around tasks

Mapillary Contributors verified 60 km/h speed limit signs in Germany. Within hours more than 10,000+ verifications were completed.

Agency teams and fleet vehicles capture images and verify data together.
Usage  Street view for maps and apps

Images used as “street view” in map services and navigation apps
Images and data in GIS tools

**ArcGIS Online**
View and edit webmaps with Mapillary for ArcGIS Online, a web application for ArcGIS Online and Portal.

**ArcGIS for Developer**
Add street-level imagery to applications for ArcGIS Online or Portal using the Mapillary custom widget for WebAppBuilder.

**ArcGIS Pro**
View and edit on desktop with the full power of the Mapillary for ArcGIS Pro Add-in.
Challenge three

Build organizational capacity, prepare for record data velocity
Usage
Training data for automotive and AI

Mapillary Vistas Dataset
25,000 Images | 242 Categories | 4 Instance-wise Categories | 6 Continents | Variety of Weather, Season, Time, Day, Camera, and Geopoint

Learn more about the dataset on our blog

Automotive OEMs and Tier1s using Mapillary as a source of training data
Benchmark for computer vision research

Mapillary Research ranks #1 for semantic segmentation of street scenes on the Cityscapes and Mapillary Vistas leaderboards.

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Benchmarks for computer vision research

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#1 result on LSUN / Mapillary Vistas

Mapillary’s algorithm is 24x faster
Image Processing Services
Process your imagery with Mapillary’s state-of-the-art technology for your own services.

- **Anonymization**: Blurring of faces and license plates.
- **Traffic sign recognition**: Over 900 signs recognized in 67 countries. Positioned with lat/lon.
- **Semantic segmentation**: Pixel-wise labeling with 97 classes.
  - The best performing algorithm on road imagery.
  - #1 on Cityscapes benchmark
  - #1 on Mapillary Vistas benchmark
Plans
Pay-As-You-Go and Commercial
Hosting is free

Viewing your images is free

All the tools for capture and for using images are free
Subscriptions

Imagery from the Mapillary contributor base

Traffic signs

Imagery labels

Updates and changes over time
Map the world with us!

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More Mapillary
4:30p, today in Izard

@mapillary