

DataFromSky

A new point of view.



DATA FROM SKY

RCE
SYSTEMS



Virginia 
Aerial Imaging

Traffic is a problem everywhere

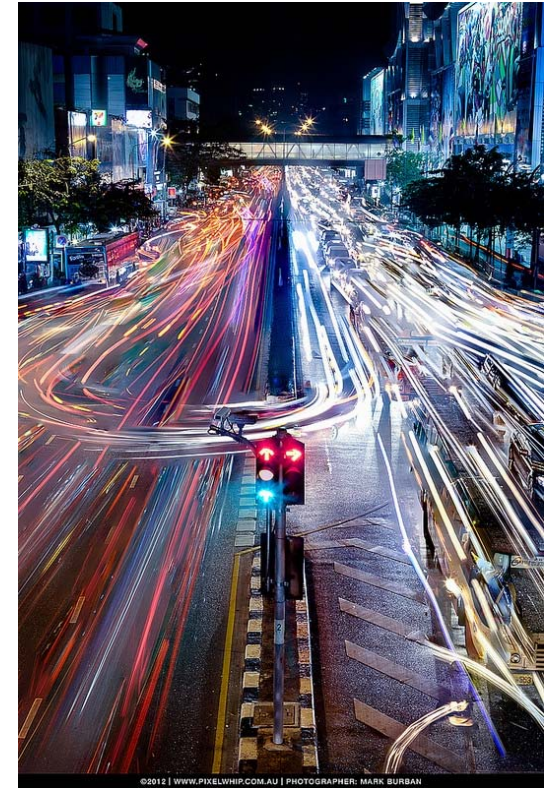
With more than 1 billion vehicles and more than 7 billion people all over the world, traffic jams are key issues.

Actually, the total number of road traffic deaths remains unacceptably high at 1.24 million every year⁽¹⁾.

The traffic jam costs in term of:

- Road accident costs(direct and indirect)
- Environment costs (air, acoustic)
- Business costs (travel time, queues)
- Parking search costs

All drivers are involved.



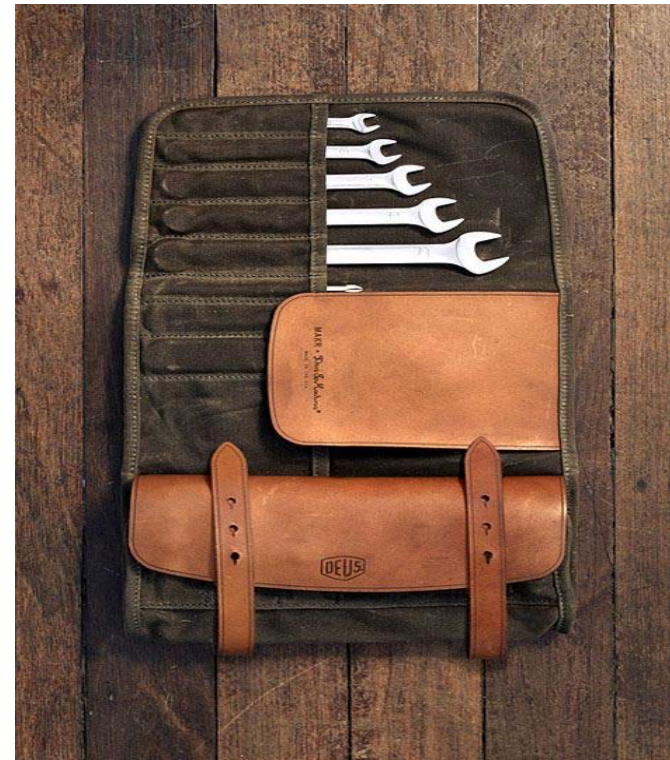
(1) Global status report on road safety 2013

Tool kit for road traffic issues

Tool kit available:

- Traffic engineering
- Traffic planning
- Traffic management
- Road design processes
- Support to the decision
- Traffic surveys
- OD matrix
- Micro simulation model
- Macro simulation model
- Parking management

Road traffic data are essential.



Actual market solutions

Traffic surveys are currently conducted with traditional methods such as detecting vehicles with:

Fix equipment

- by inductive loop
- by pneumatic tube loop
- by VMI (Vehicle Magnetic Imaging)
- by radar (Doppler effect)
- by camera

Mobile solutions

- by mast
- by Bluetooth sensors
- by radio frequency (RFID)



Actual market solutions

All these approaches have the same advantages/disadvantage:



Easy
installation

Local view
on the
scene



Stable
technology

Few data

This limitation reduces the traffic data acquisition.

Actually, all traffic detection system are able to analyze a few range of data:

- traffic counts
- vehicle classification
- speeds

Furthermore, actual solutions limits the capacity into traffic detection in order to costs and operability.

Our project vision

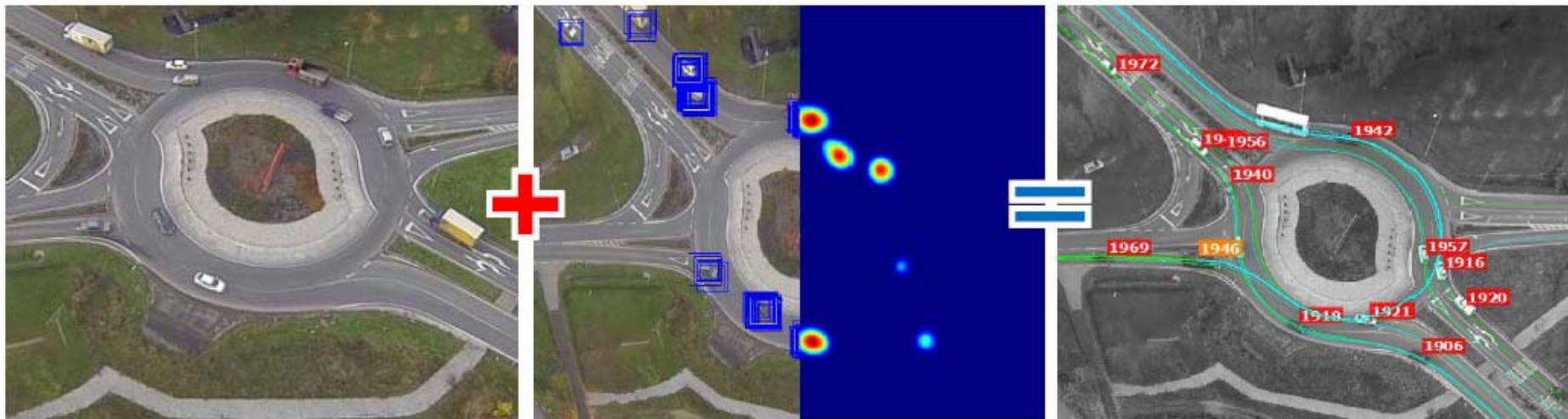
Imagine...
to have a new point
of view for your
intersections or your
road nets.

Imagine...
to be able to acquire
much more
information about
the vehicles, such as
dynamics parameters
or trajectories.

Are you able to
improve your
planning or your
analysis?

How **many data** can
be extracted from
this kind of aerial
analysis?

Our solution



Aerial video

DataFromSky service

Unlimited traffic data

DataFromSky is an advanced tool designed for monitoring and analyzing traffic flow in road networks by processing video data.

How can we record an aerial video?

UAVs (Unmanned Aircraft Vehicle System)

- Planar wing
- Rotor wing
- Micro drone
- RC helicopter

Aerostatic balloons

- Spherical
- Dirigible

Traditional flights

- Aircraft
- Helicopter

Without flight...

- Skyscraper
- High building

Classic traffic data

- Traffic counts
- Vehicles classification
- Gate counts
- O/D matrix

Dynamics data

- Speeds
- Lateral acceleration
- Tangential acceleration

Trajectories

- vectorial format
- Speed coloured tracks

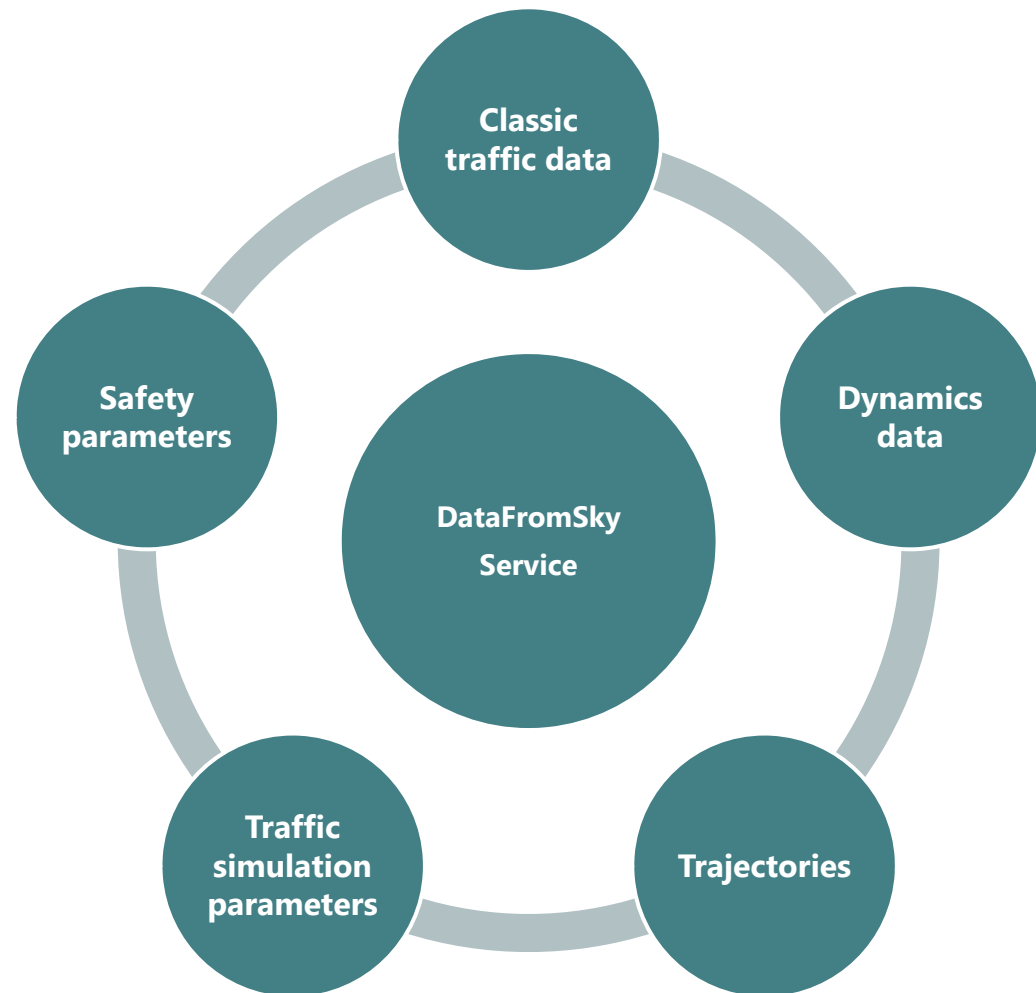
Traffic simulation parameters

- Travel time
- Travel distance
- Speed profile
- Gate gap
- Critical headway
- Follow-up headway

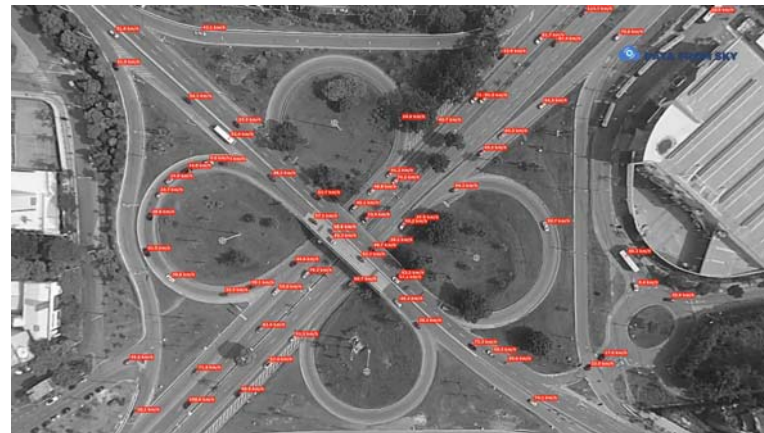
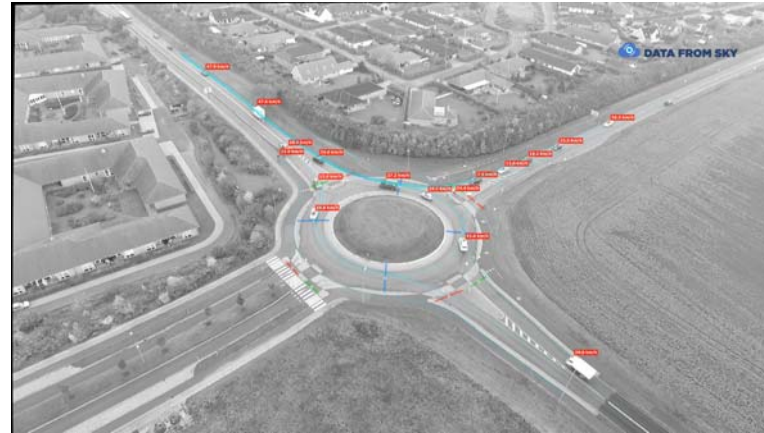
Safety parameters

- Time to collision
- Anomalies detections

How much are data can we collect?



Advanced traffic analysis of aerial video data





DataFromSky flow carts process

Annotation Tool

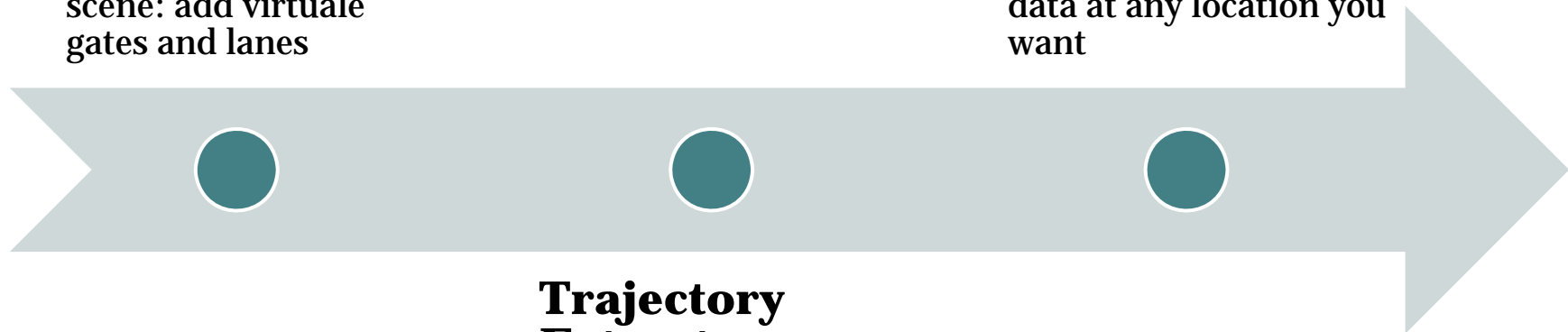
- setup parameters
- describe the observed scene: add virtuale gates and lanes

Trajectory Analyzer

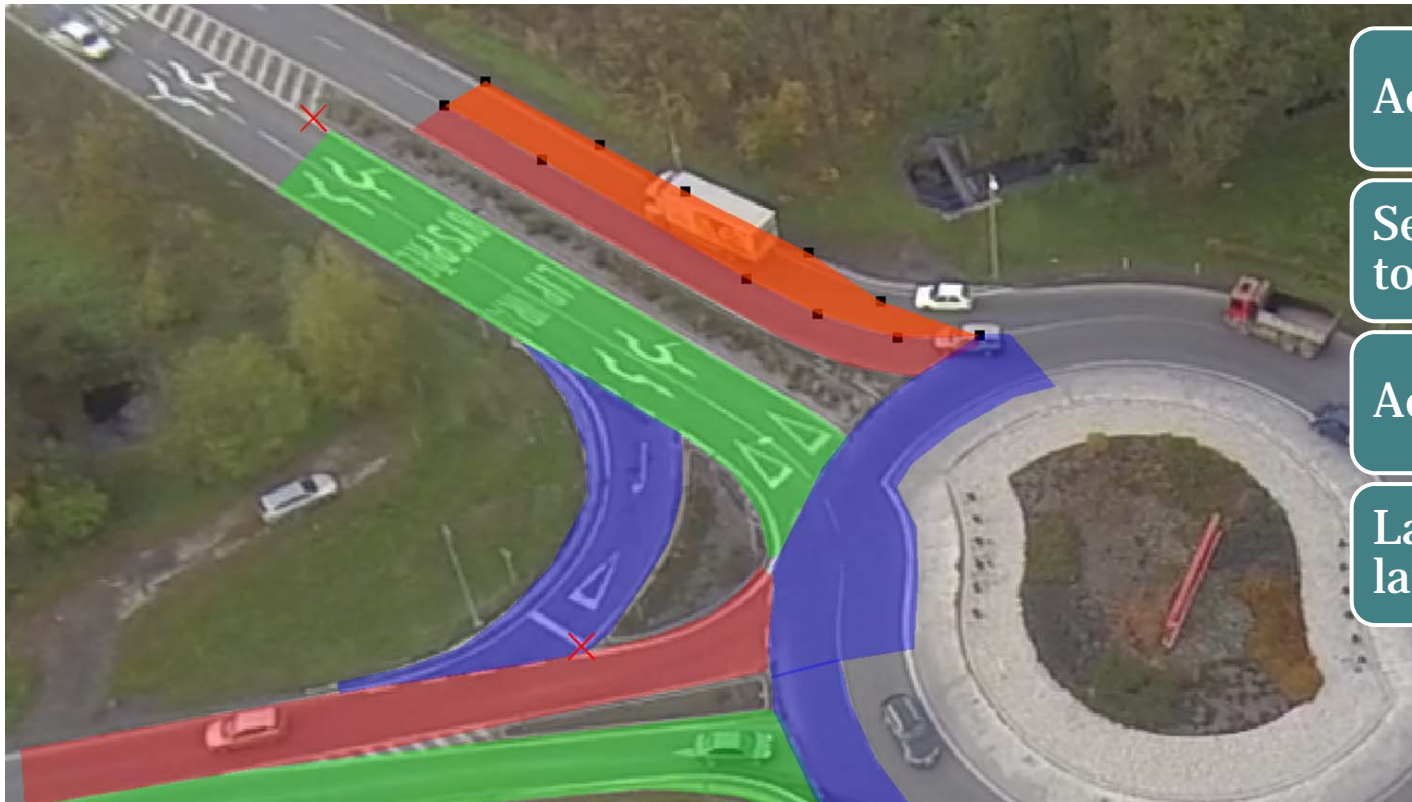
- Viewer software
- analyze the trajectory data at any location you want

Trajectory Extractor

- Core processor
- automatically detect and track vehicles / targets



Annotation Tool: define the scene



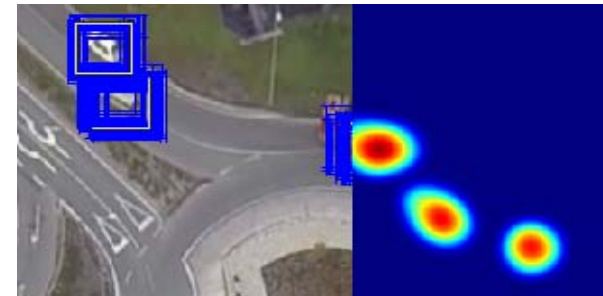
Add virtual gates

Select type of vehicle
to detect

Add lane area

Labelling gates and
lanes

Trajectory Extractor

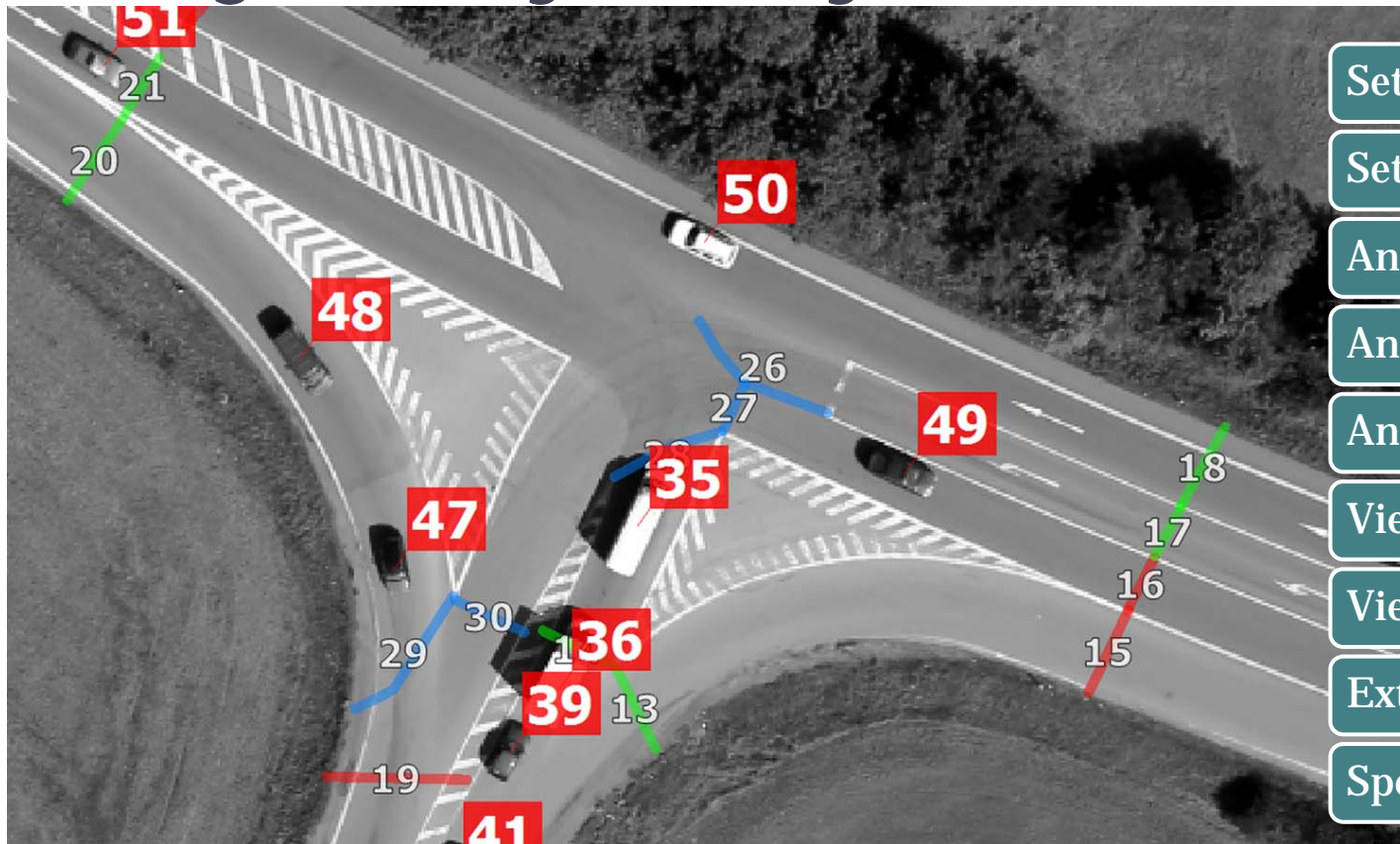


Georeference

Detection

Positive and
negative matching

Trajectory Analyzer



Set video views

Set vehicles views

Analyse vehicles data

Analyse gates data

Analyse trajectories

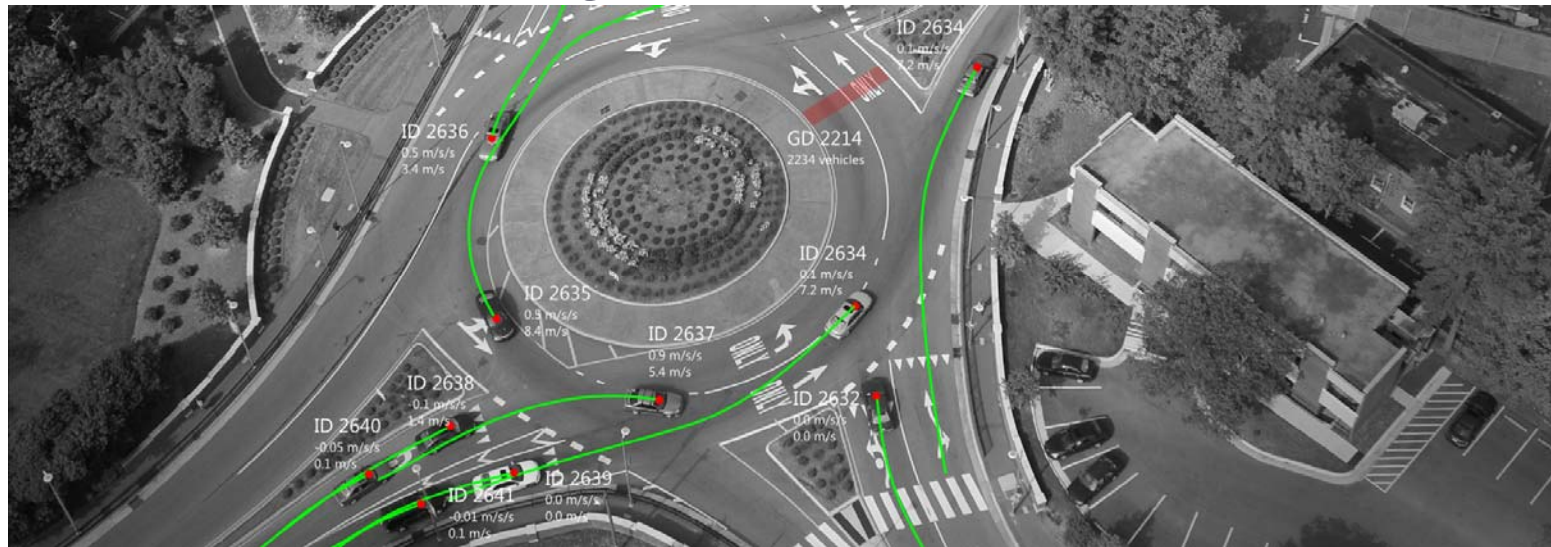
View video analysed

View OD matrix

Extract data

Speed coloured tracks

DataFromSky applications



Road traffic planning

Parking management

Transport management

Road safety agency

Road traffic authorities

Public administration

Traffic forecast service

Shopping centre

Big events

Telemetry race service

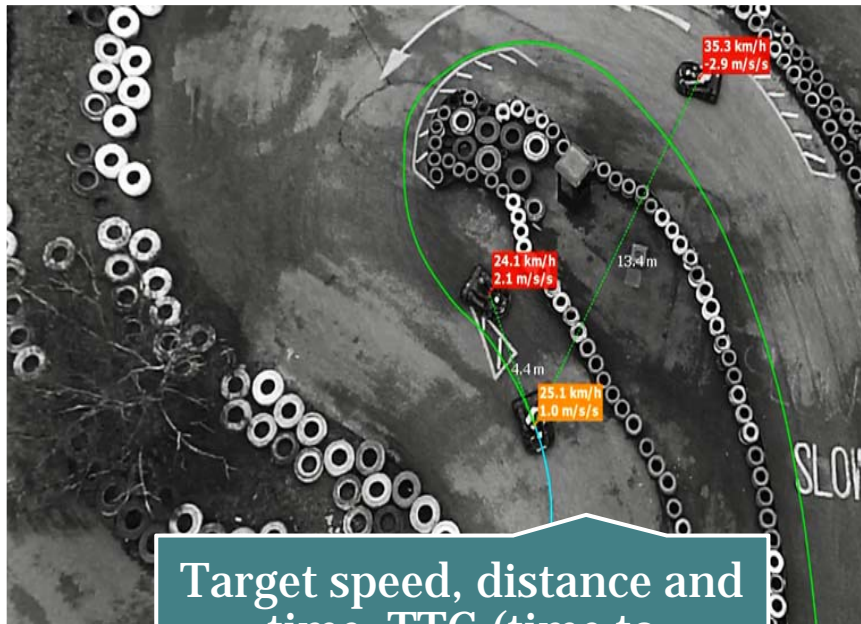
Highway authorities

Transport people and goods

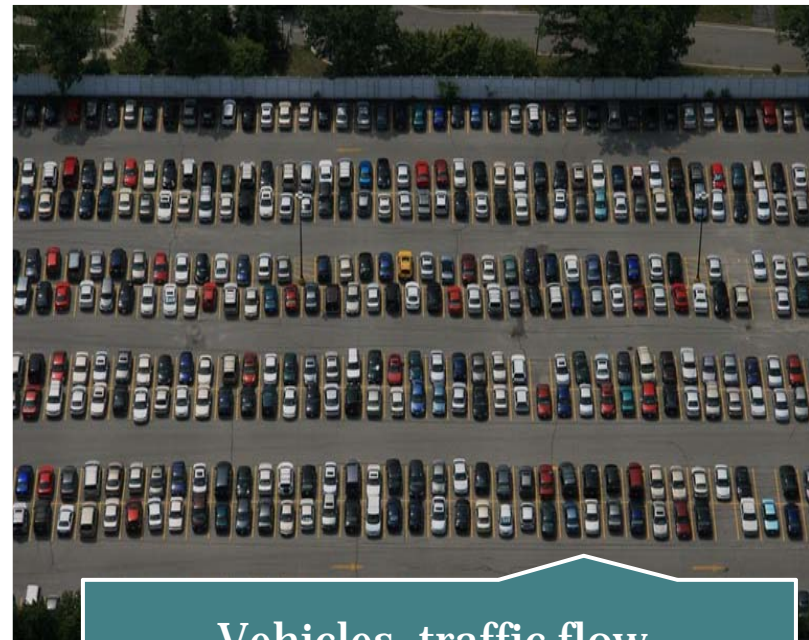
Attractors/generator traffic

Emergence service

Case studies

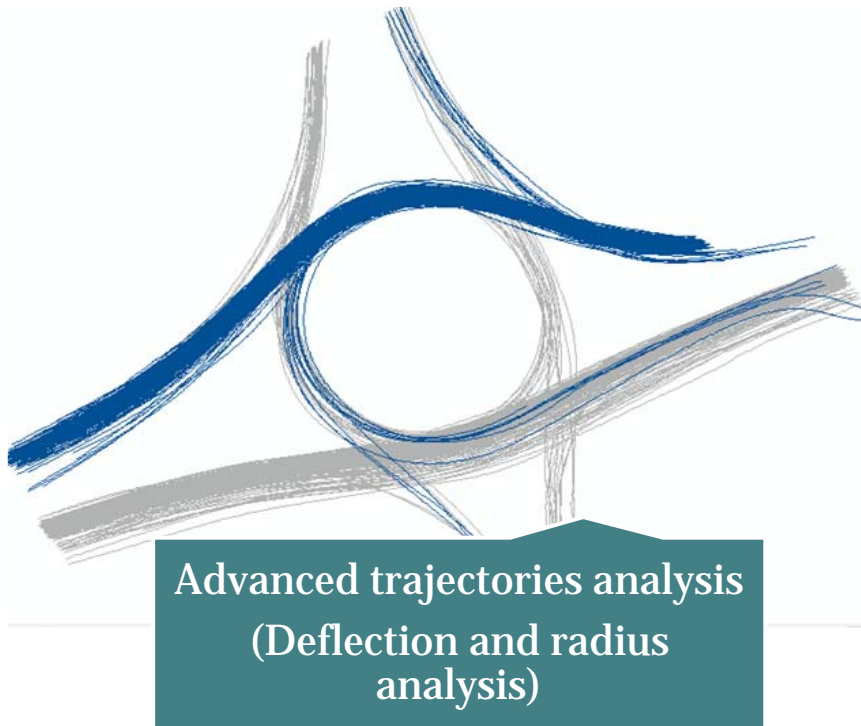


Target speed, distance and time, TTC (time to collision), danger situation

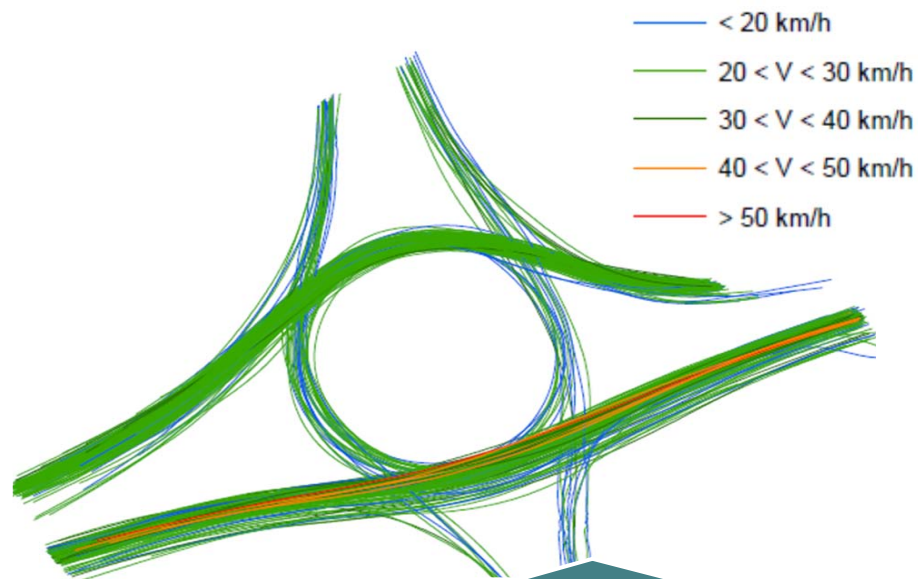


Vehicles, traffic flow, occupancy, queue time, entry/exit time

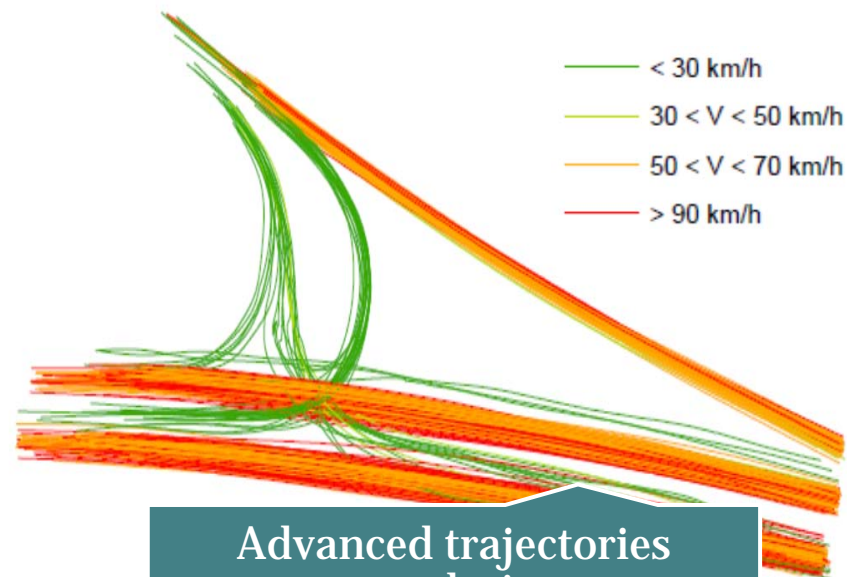
Case studies



Case studies

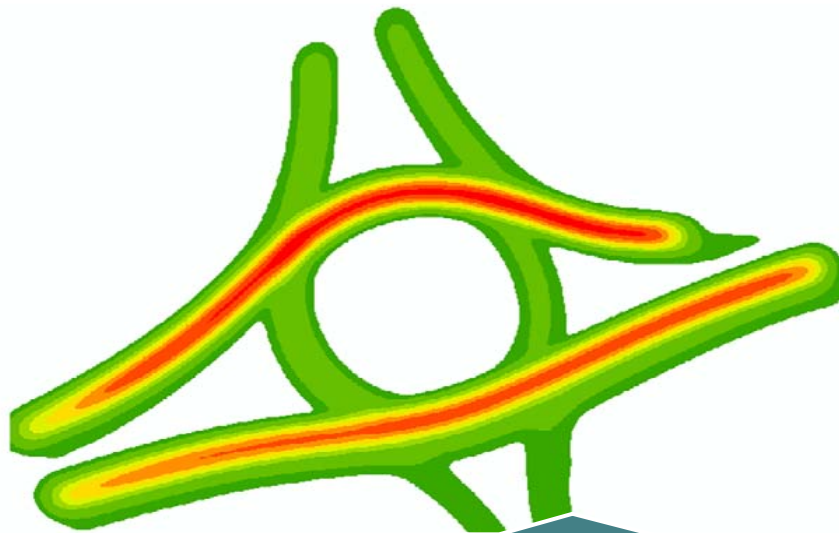


Advanced trajectories
analysis
(Speed profile)

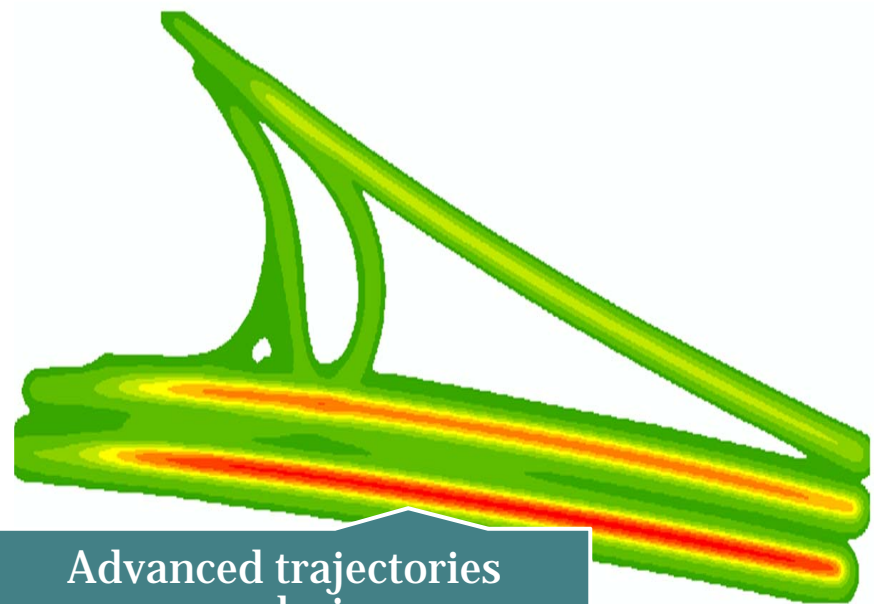


Advanced trajectories
analysis
(Speed profiles)

Case studies

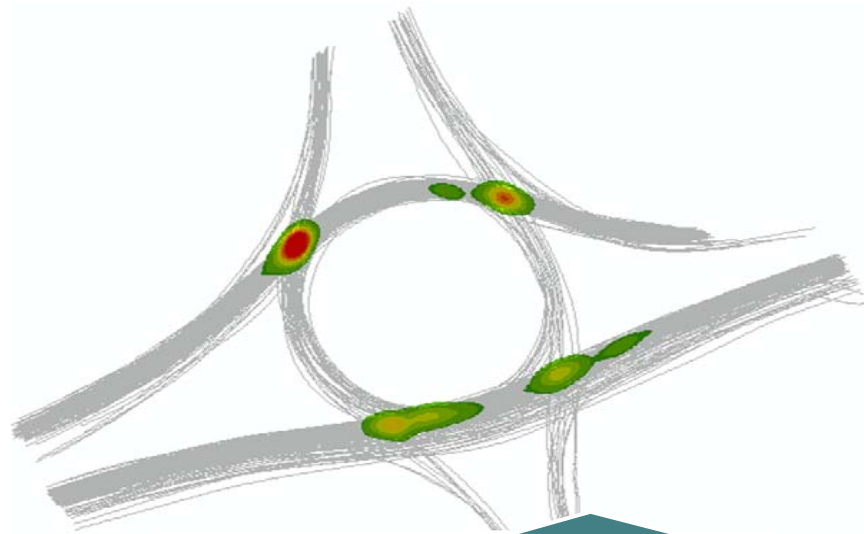


Advanced trajectories
analysis
(Area coverage)

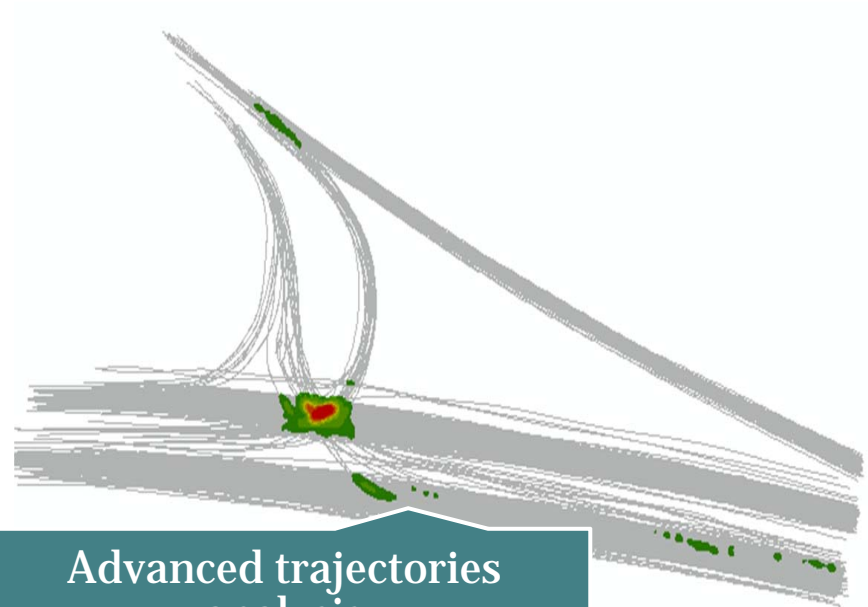


Advanced trajectories
analysis
(Area coverage)

Case studies

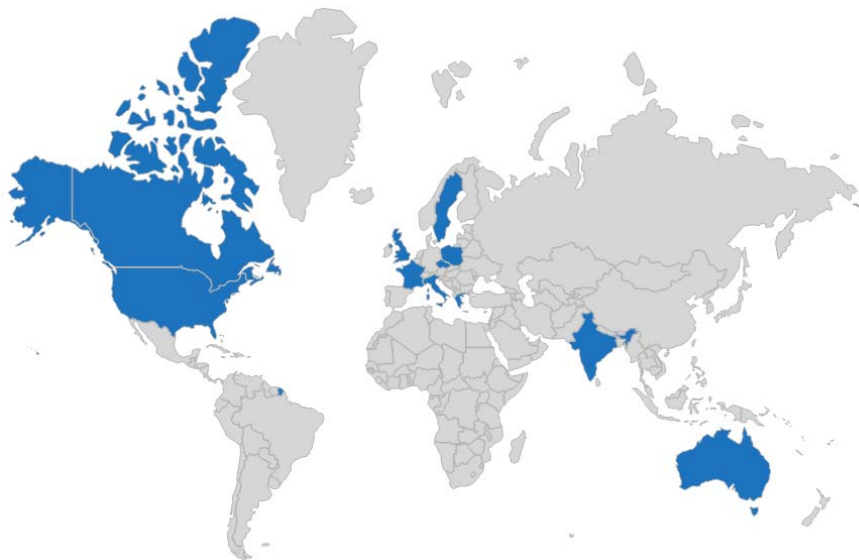


Advanced trajectories
analysis
(Conflict area)

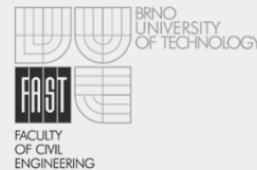


Advanced trajectories
analysis
(Conflict area)

Our commercial partners



Cooperation with Universities



Business Partners



Contact us



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