

title
780
Revenue system

**Made Simple.
Made for Work.**

A government in the atmosphere, for the benefit of
that work, and the search for a better way to
do what it does best.



Empowering GIS for proactive city management

Alexey Dudarev
CEO & founder of Geometa

 www.geometa.ae



Geometa

Dubai, UAE
Tyumen, Russia



Software development
and consulting company

15 years

of experience in Geoinformatics
and Spatial Data Science

100+

team members

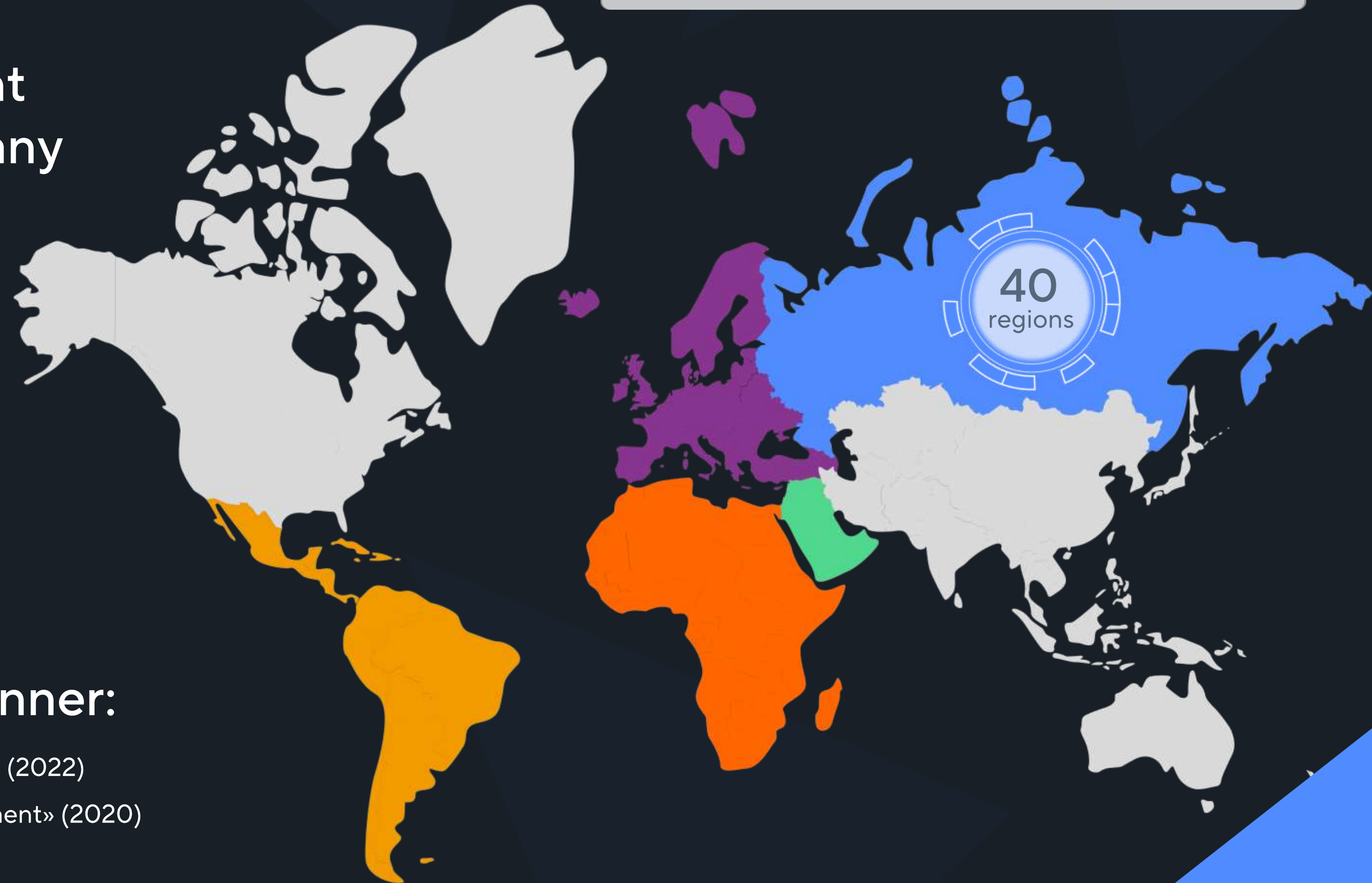
200+

successful client
implementations

Prestigious Award Winner:

- «CIPR Digital Smart City Award Winner» (2022)
- «Best IT solution for economic development» (2020)
- «Best solution for spatial analysis» (2017)
- «Best IT solution for urban planning» (2014)

200+ projects have been implemented in
Europe, Russia, Latin America and Africa





22/3/655

Wiki

Mayor Rating

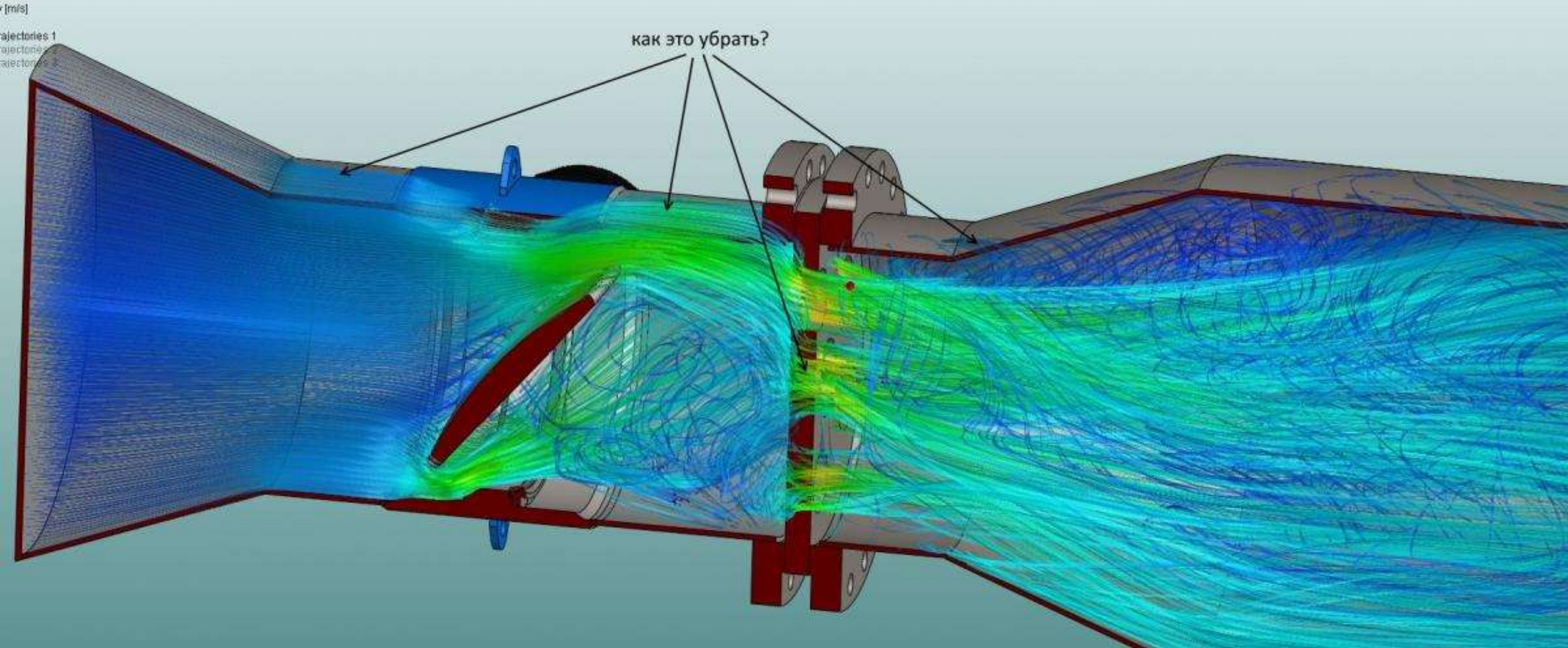
RCI

Monthly Budget

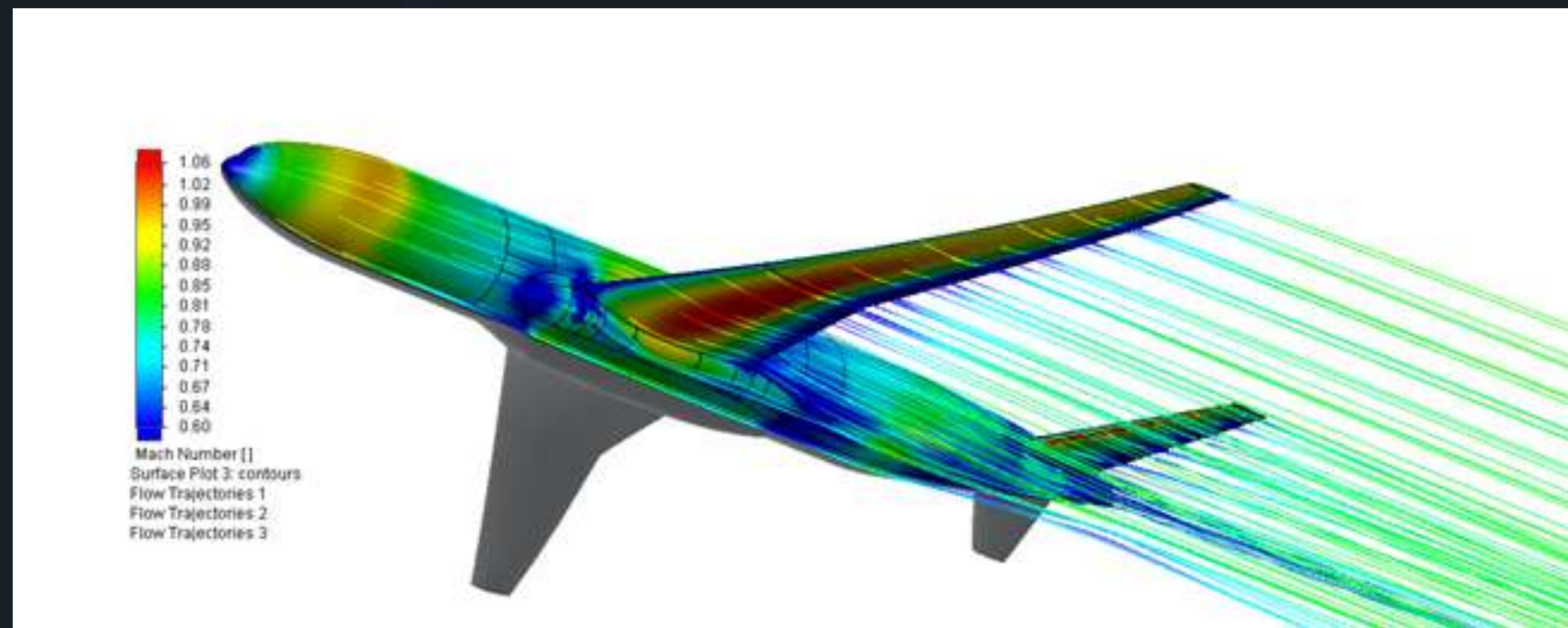
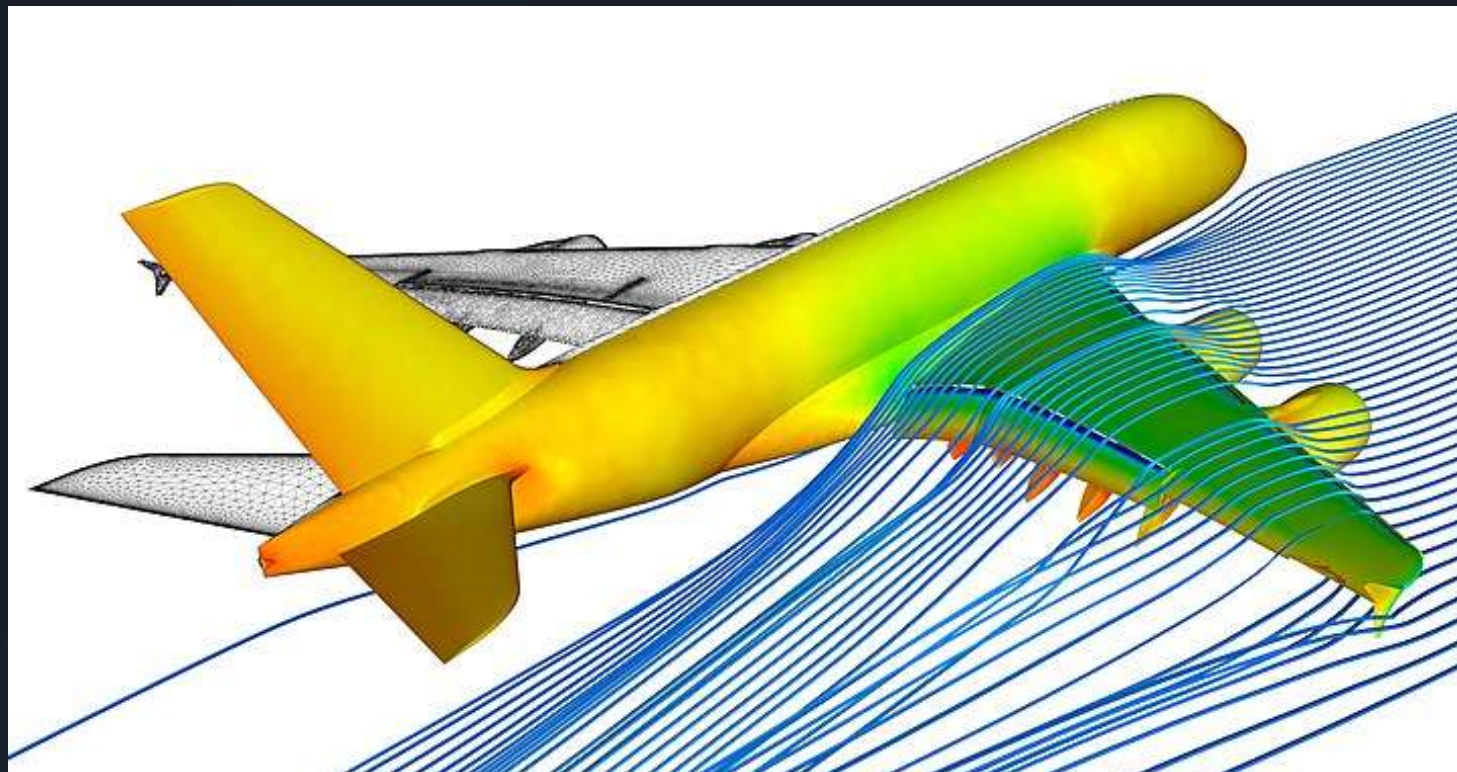
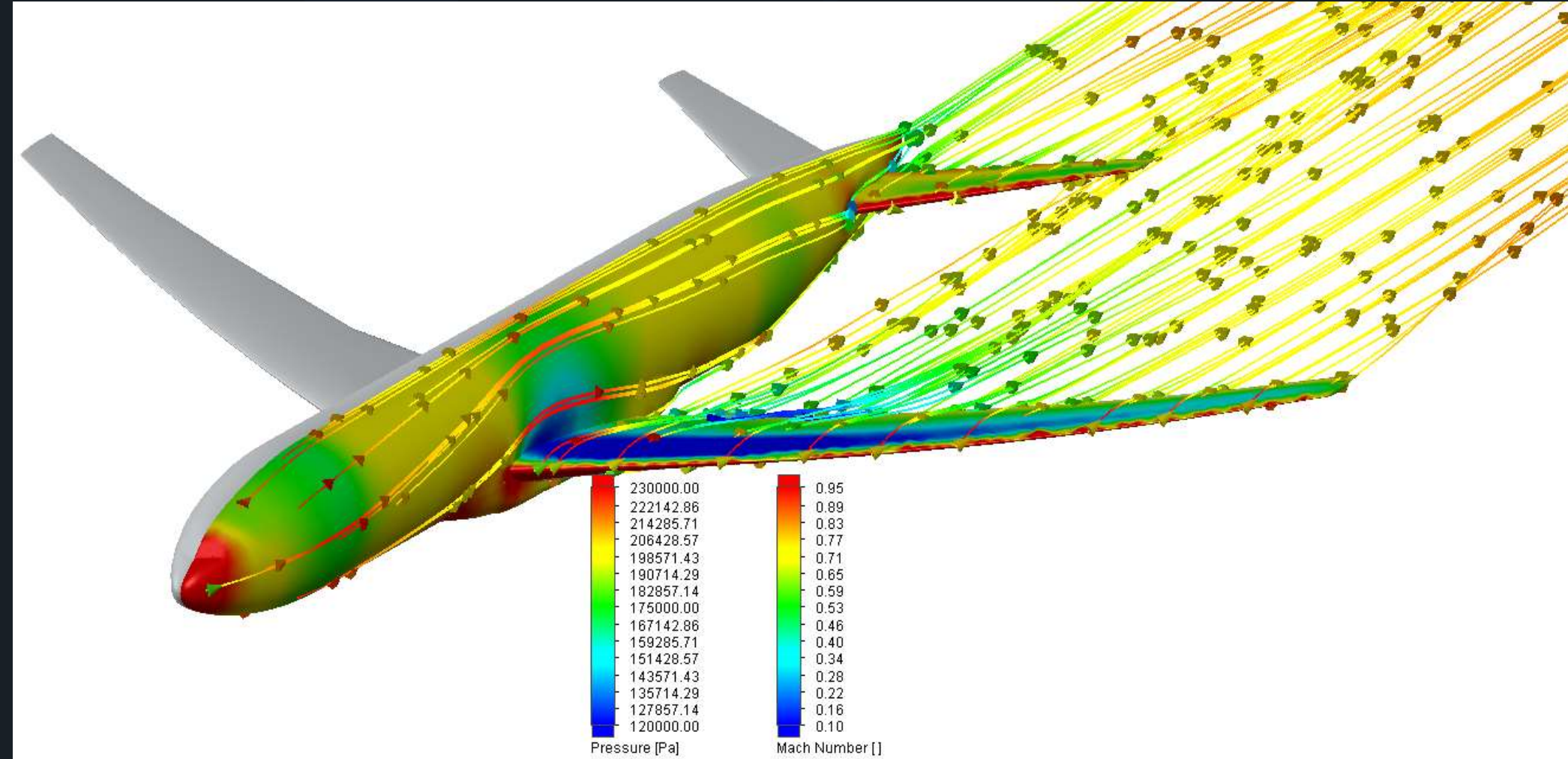
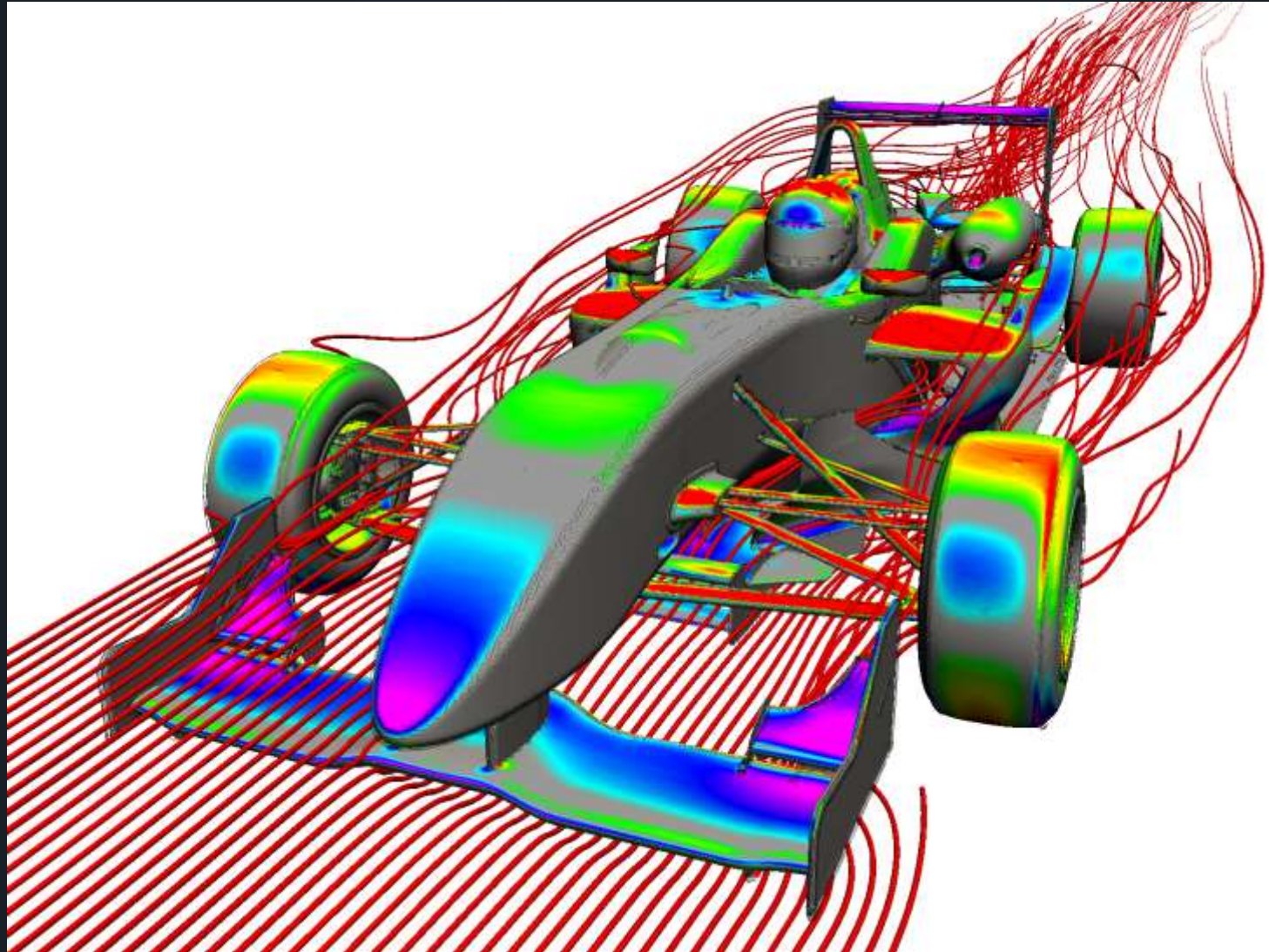
Current Balance	\$94,953
Monthly Income	\$31,356
Monthly Expenses	\$30,025
Month End Cash	\$96,284

Strange Goings-On At Advanced Research Center Have Wiki Residents On Edge
Mayor Rocks According to City Blocks

Digital twin is just a tool



Digital twin is just a tool



The goals of creating Digital twin

For what?

What we should do?

Is the results brought us closer to our goal?

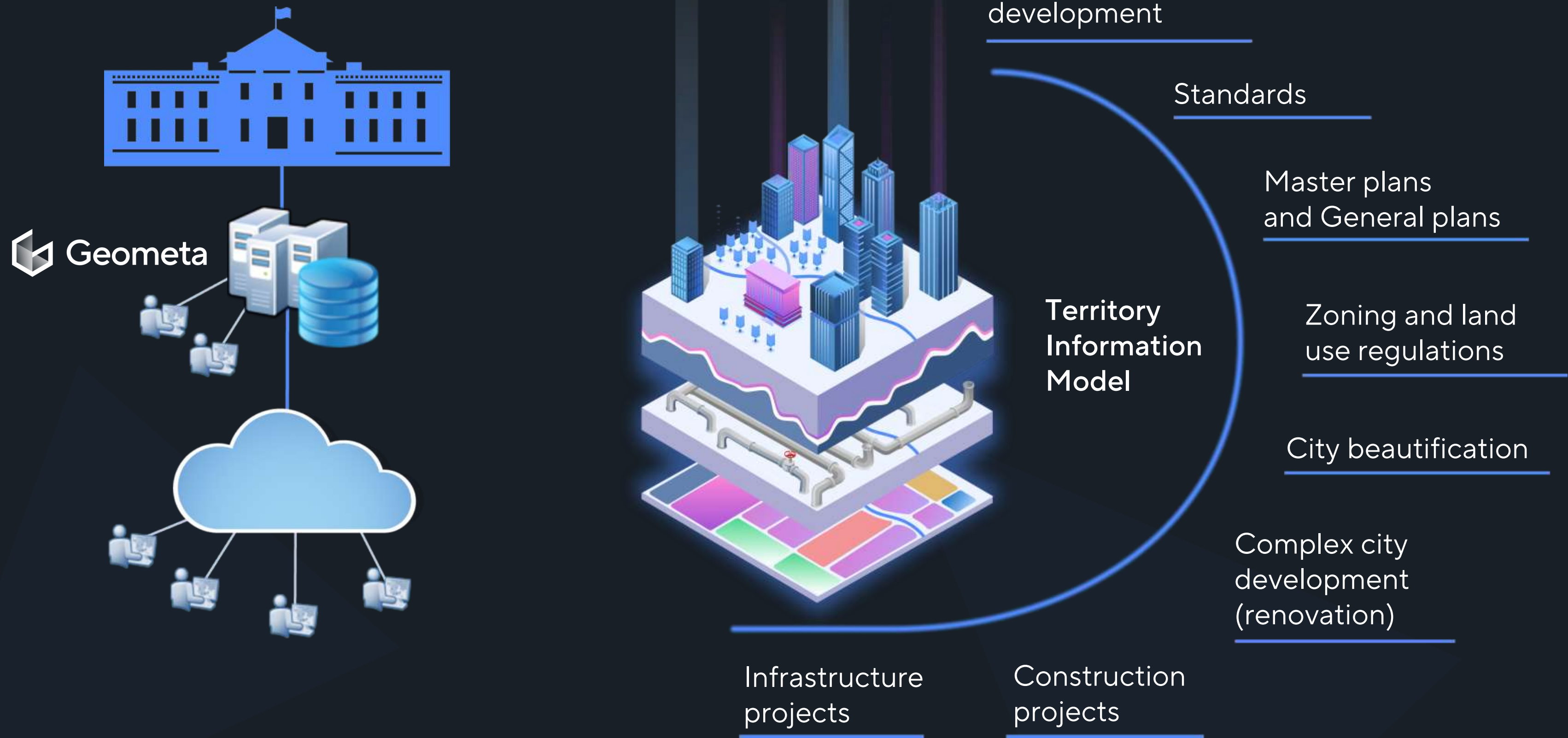




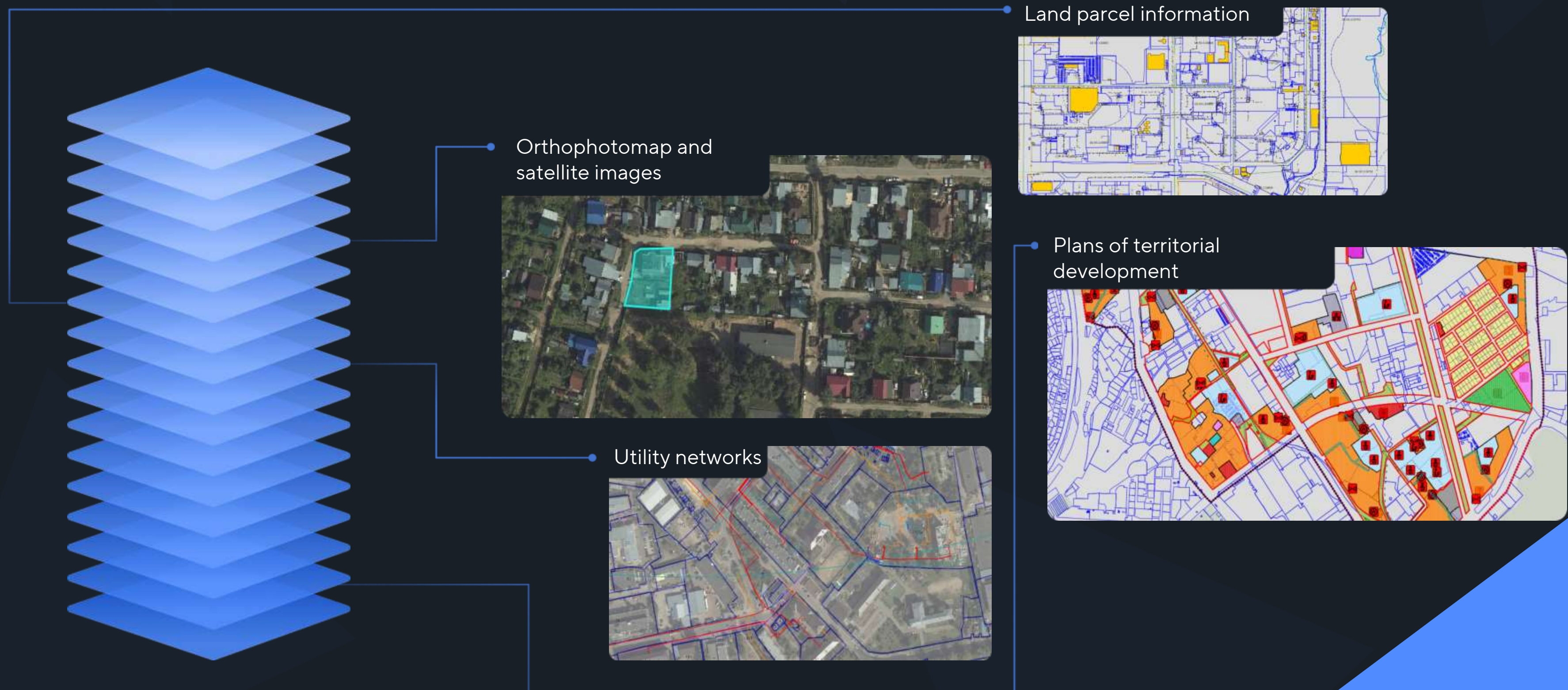
Cities compete for the smart people

Data-driven decision-making

using the Complex Digital Infrastructure Plan of city Development (CDIPD)



Digital twin of a city through connection of different types of data to create a single view that can be updated and accessed on a real-time basis



The most common case



The utilities department

Water supply network reconstruction plan

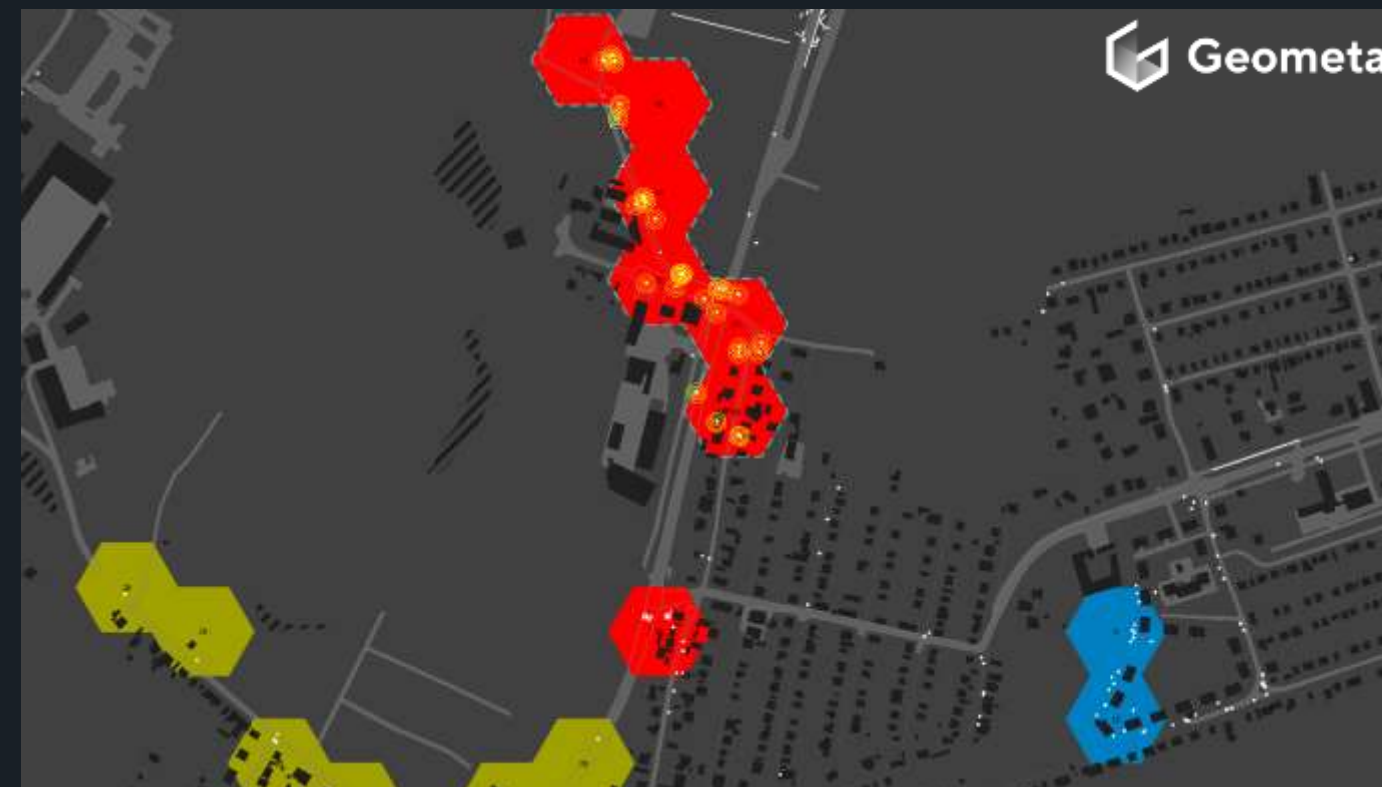
The transportation department

Streets and routes reconstruction plan

Plan synchronization



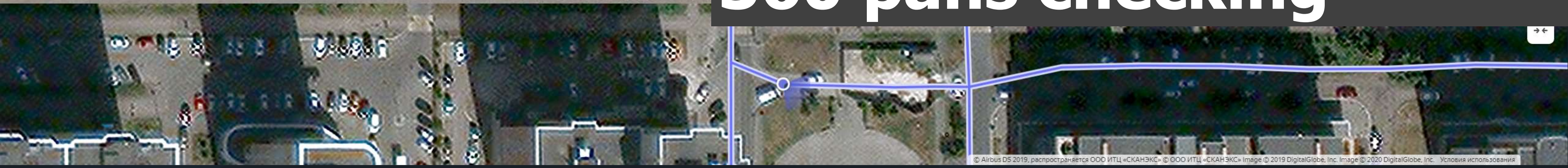
- Geometa combines data from several departments: transport, utilities, beautification. And optimizes their plans based on spatio-temporal analysis revealed the possibility of carrying out work in one construction site simultaneously.
- This is more effective than changing pipes 3 months, after the road had been repaired.
- It also reduces the time of work and the time of temporary street closure, which has an additional economic effect.

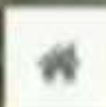


- Completed 4 years project **22 months** ahead of the schedule and saved **\$53,000,000**
The city's population is 750.000.



360 pans checking





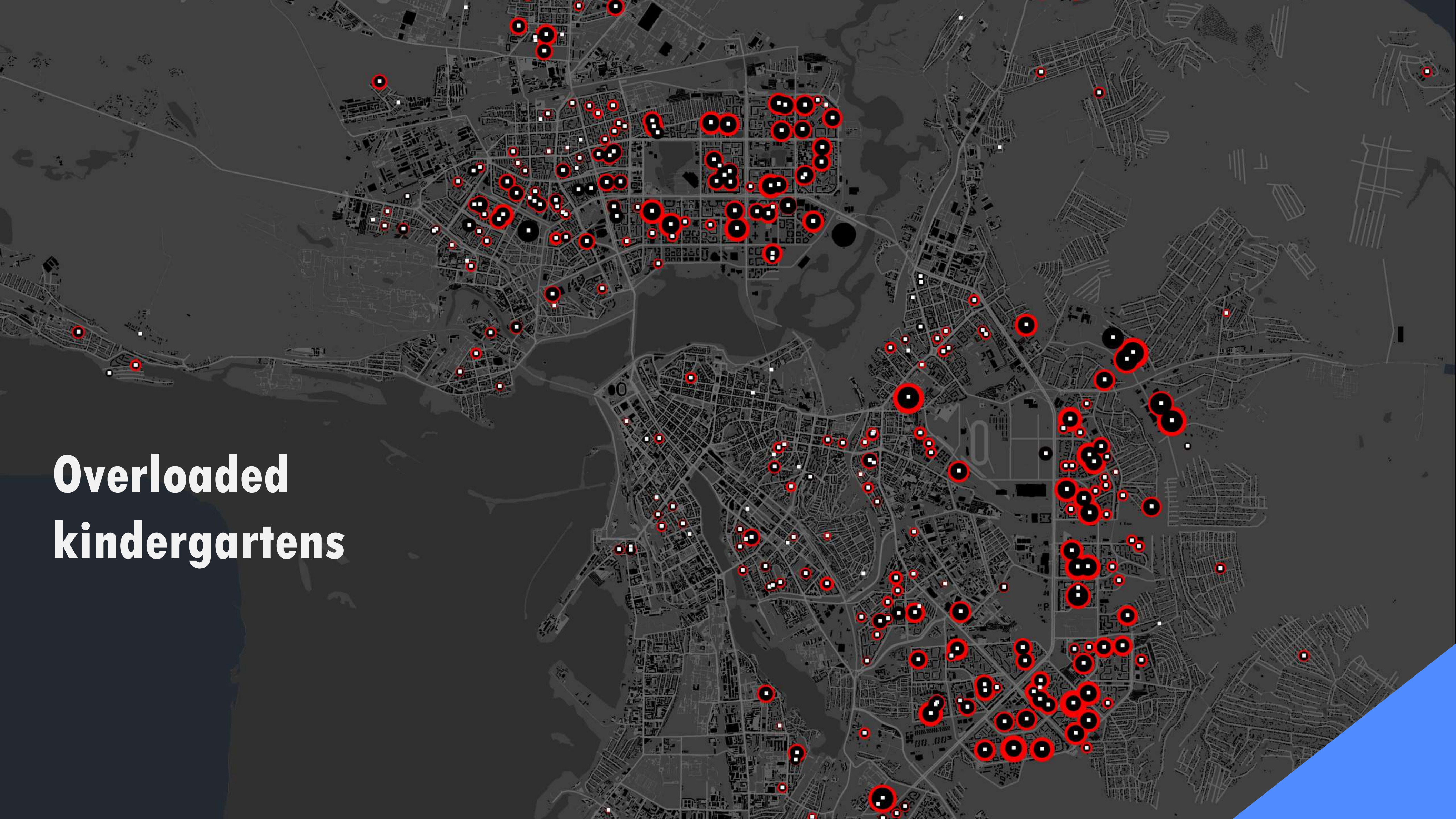
Population parameters





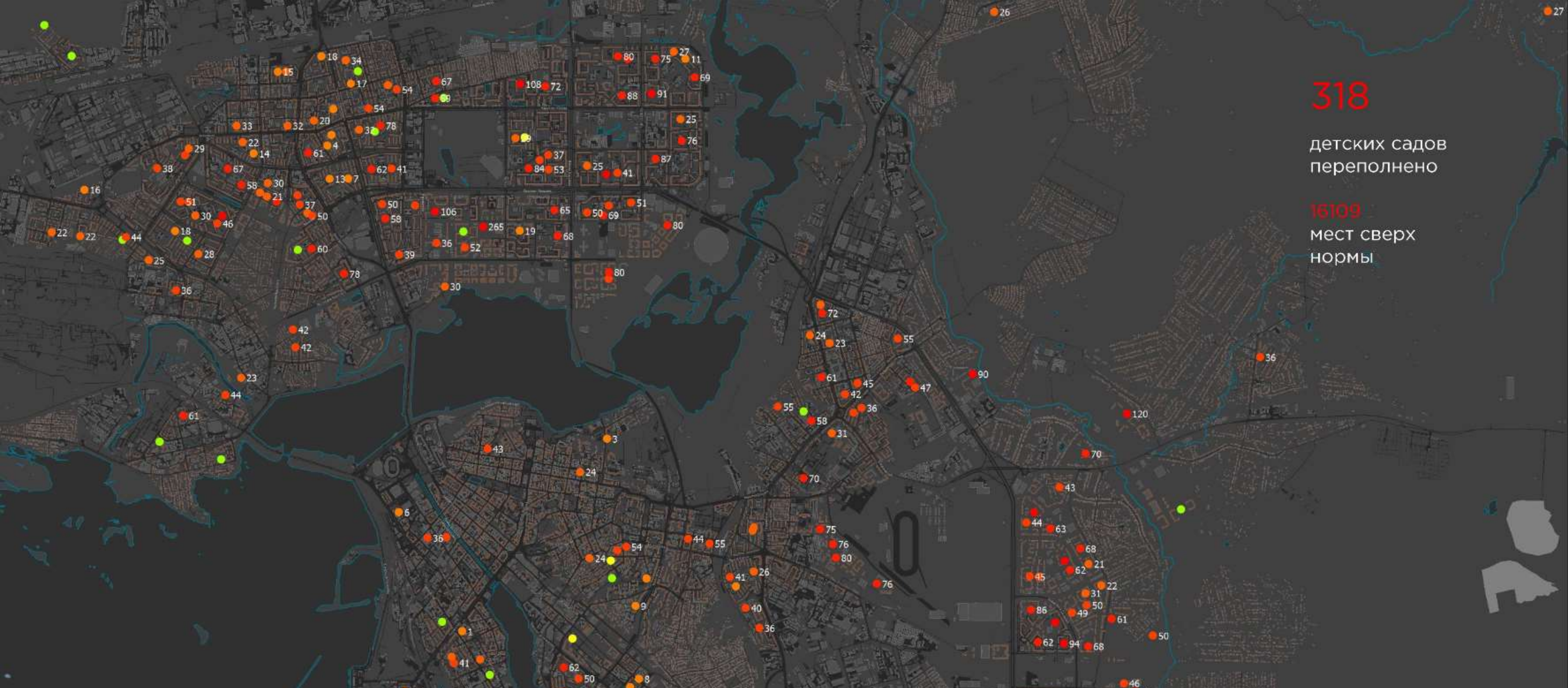
**Schools and kindergartens
availability and reachability
for citizens**

Overloaded kindergartens



Overloaded schools





318

детских садов
переполнено

16109

мест сверх
нормы

**Deploying new objects taking into account
the planned residential development**





2018

2035

Economical evaluation

Transport planning and parking



Transport. Vehicle Location

Satellite imagery analysis using Computer Vision to determine the coordinates of each car in a city for solving urban density, transportation, and parking lots issues.



Road Network Reconstruction Planning

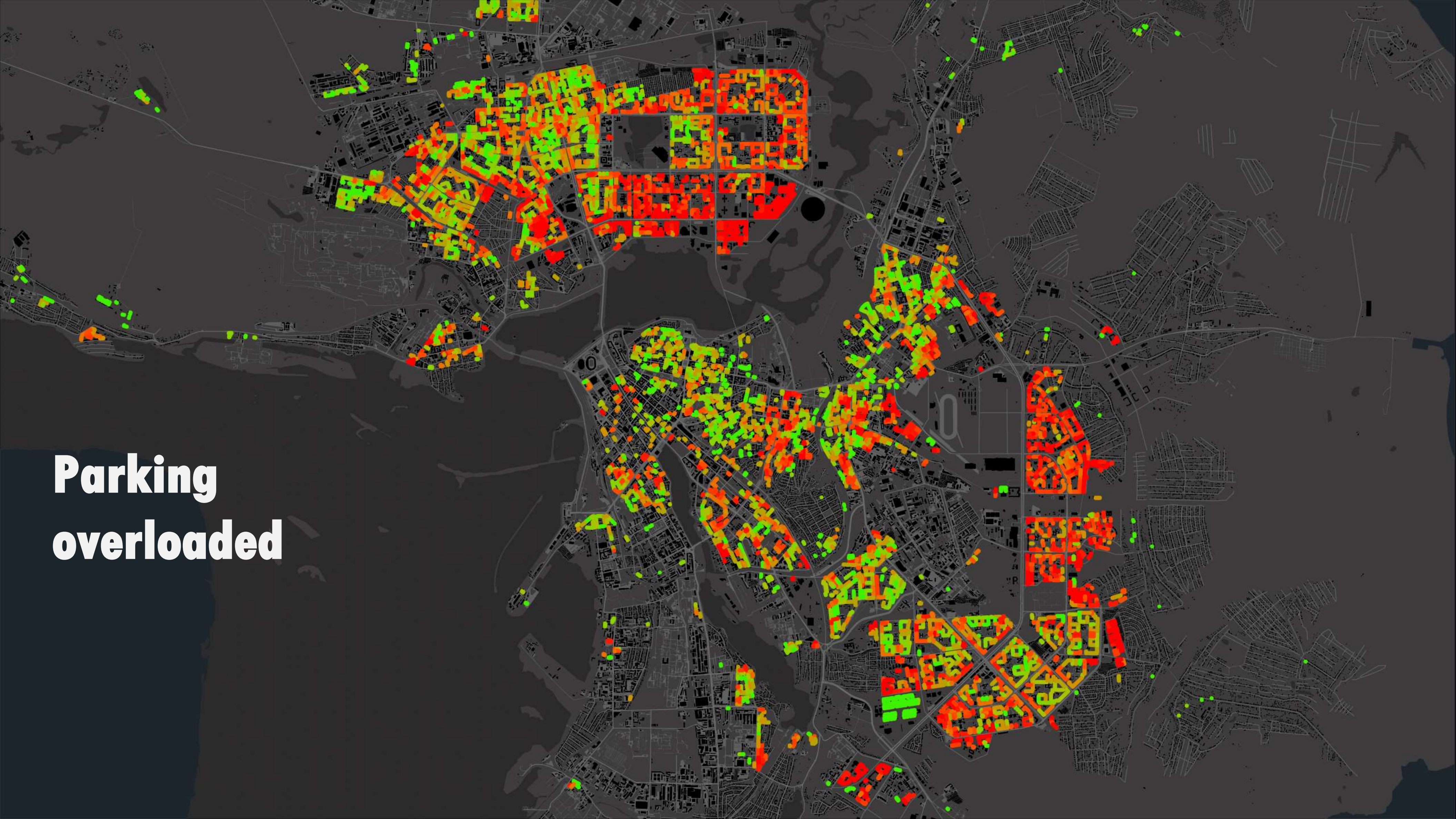
Calculating the transportation development program based on the factors: population, traffic situation, cost, and terms of reconstruction.

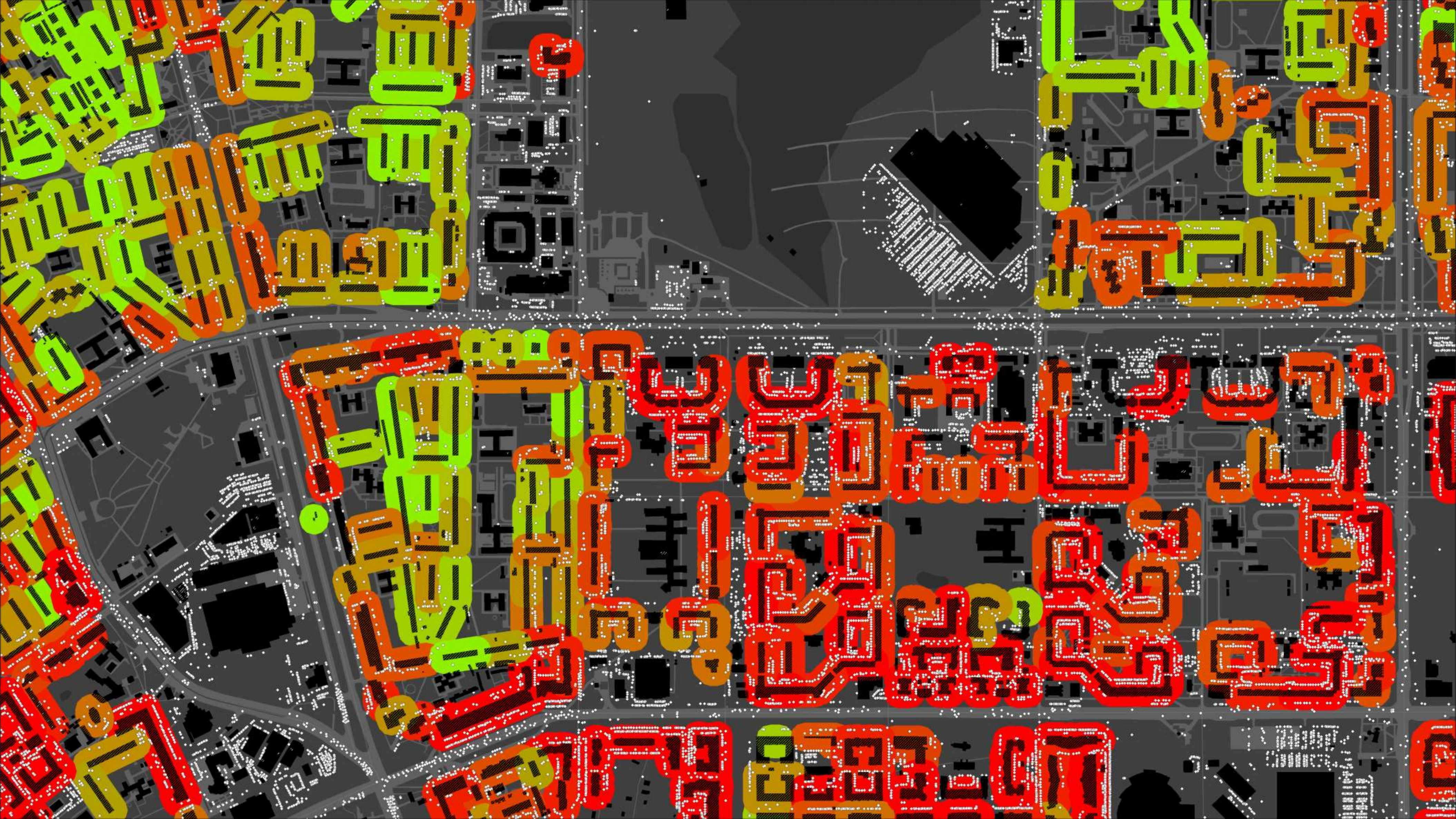


Transport. Traffic safety. Analysis of accidents

Visualization of accidents, their concentrations, causes, and comparison of this information with other data layers related to road safety (traffic lights, road signs).

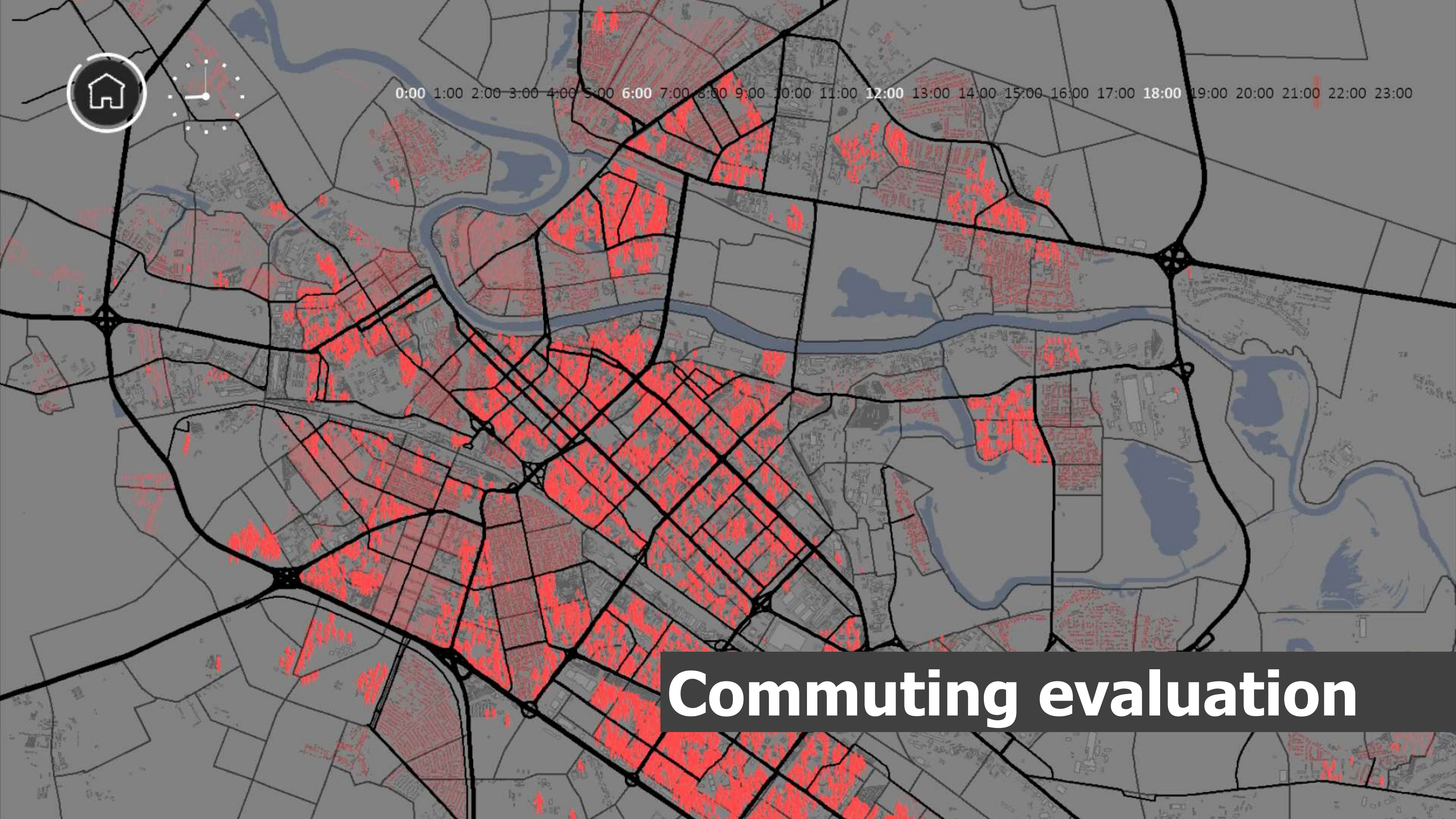
**Parking
overloaded**





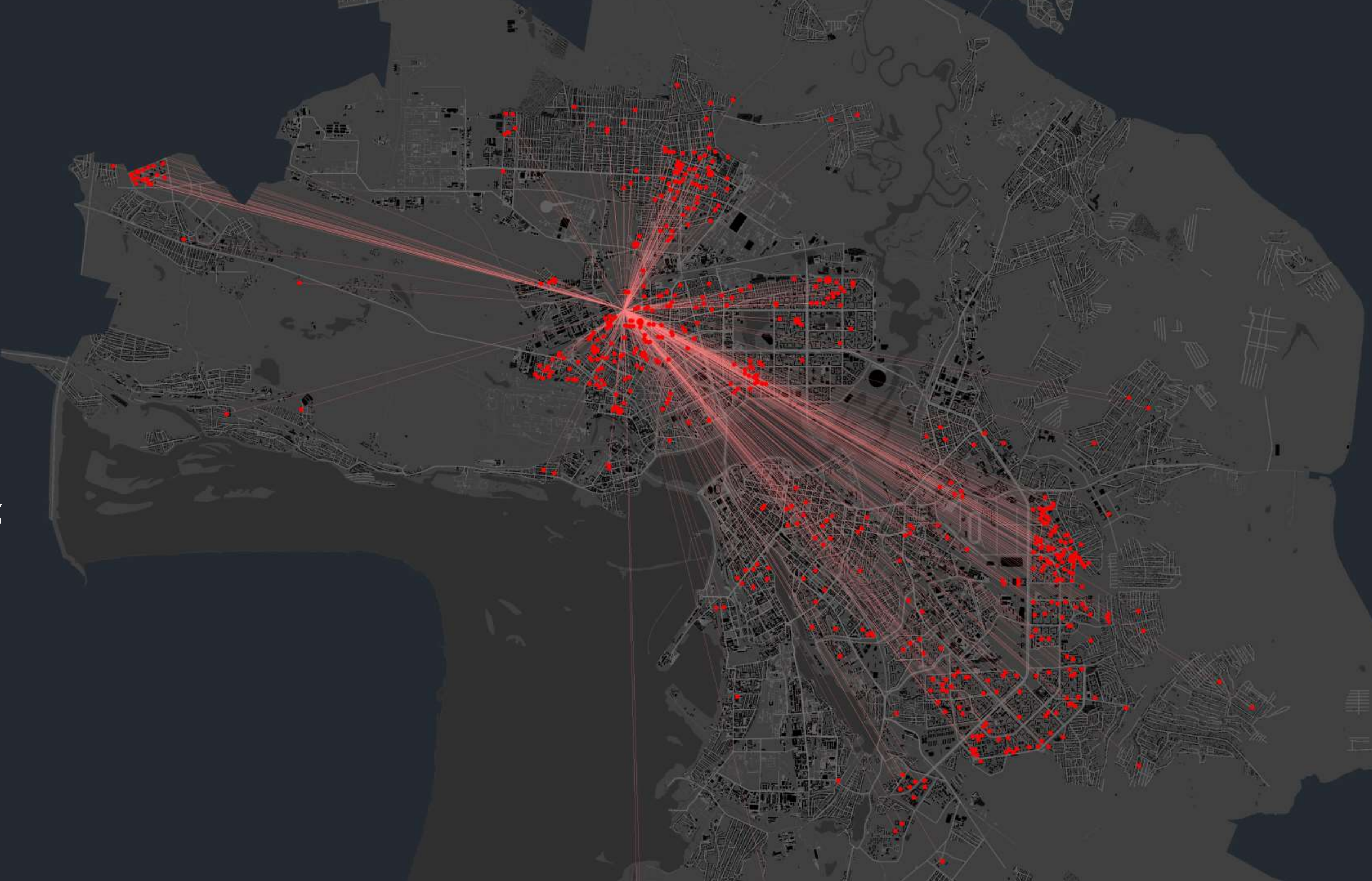


0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00

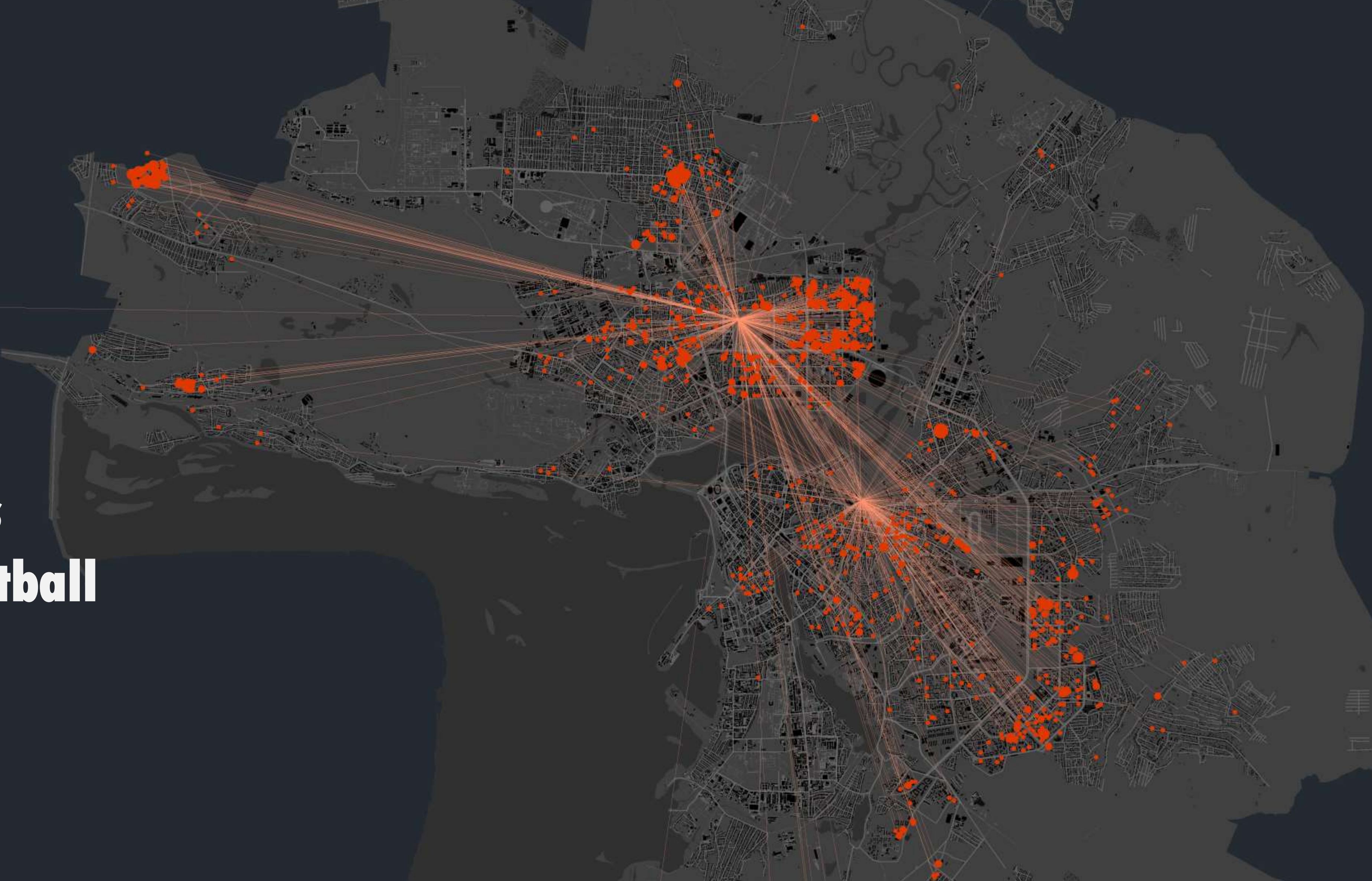


Commuting evaluation

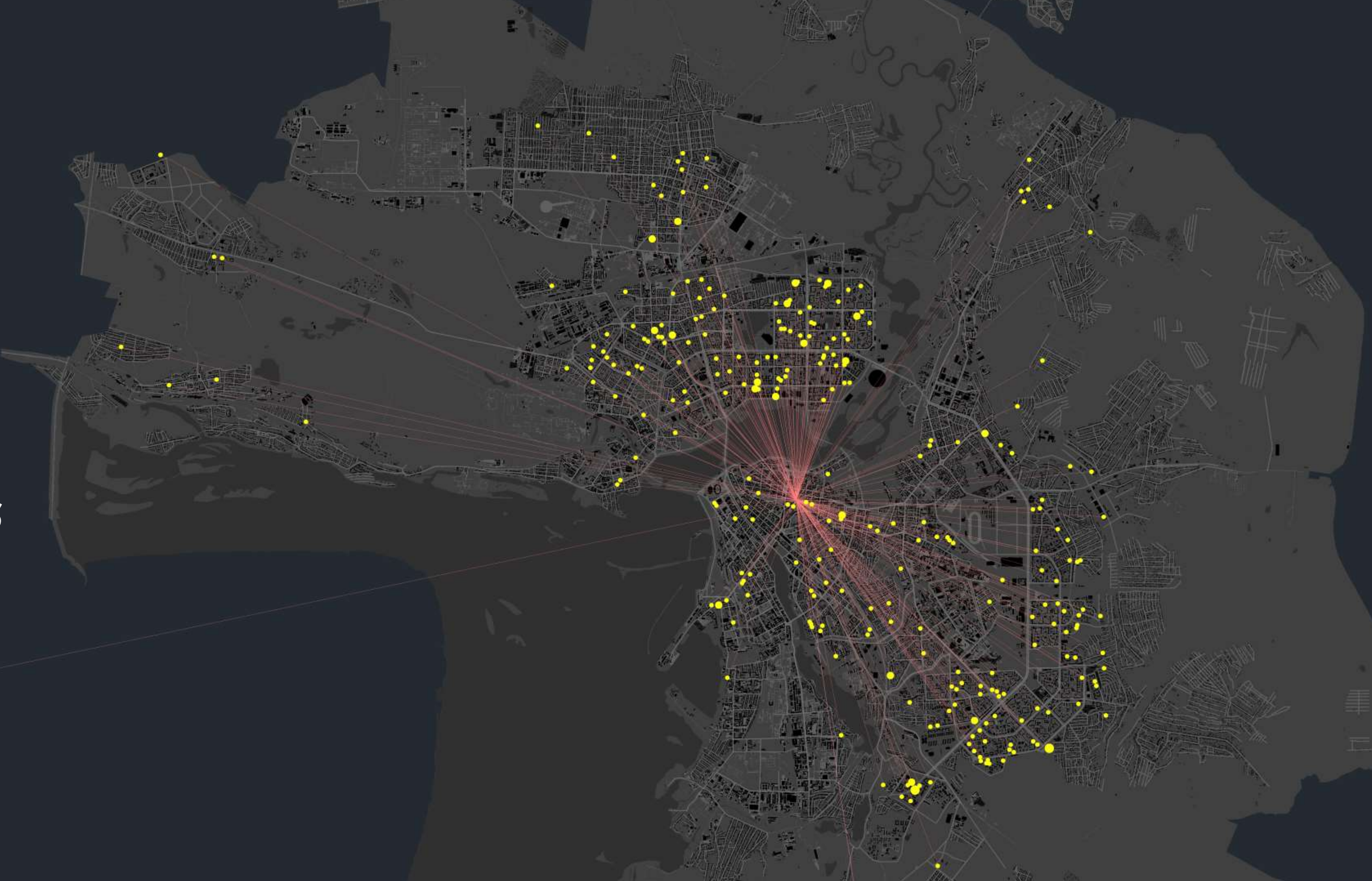
**Sports
judo**



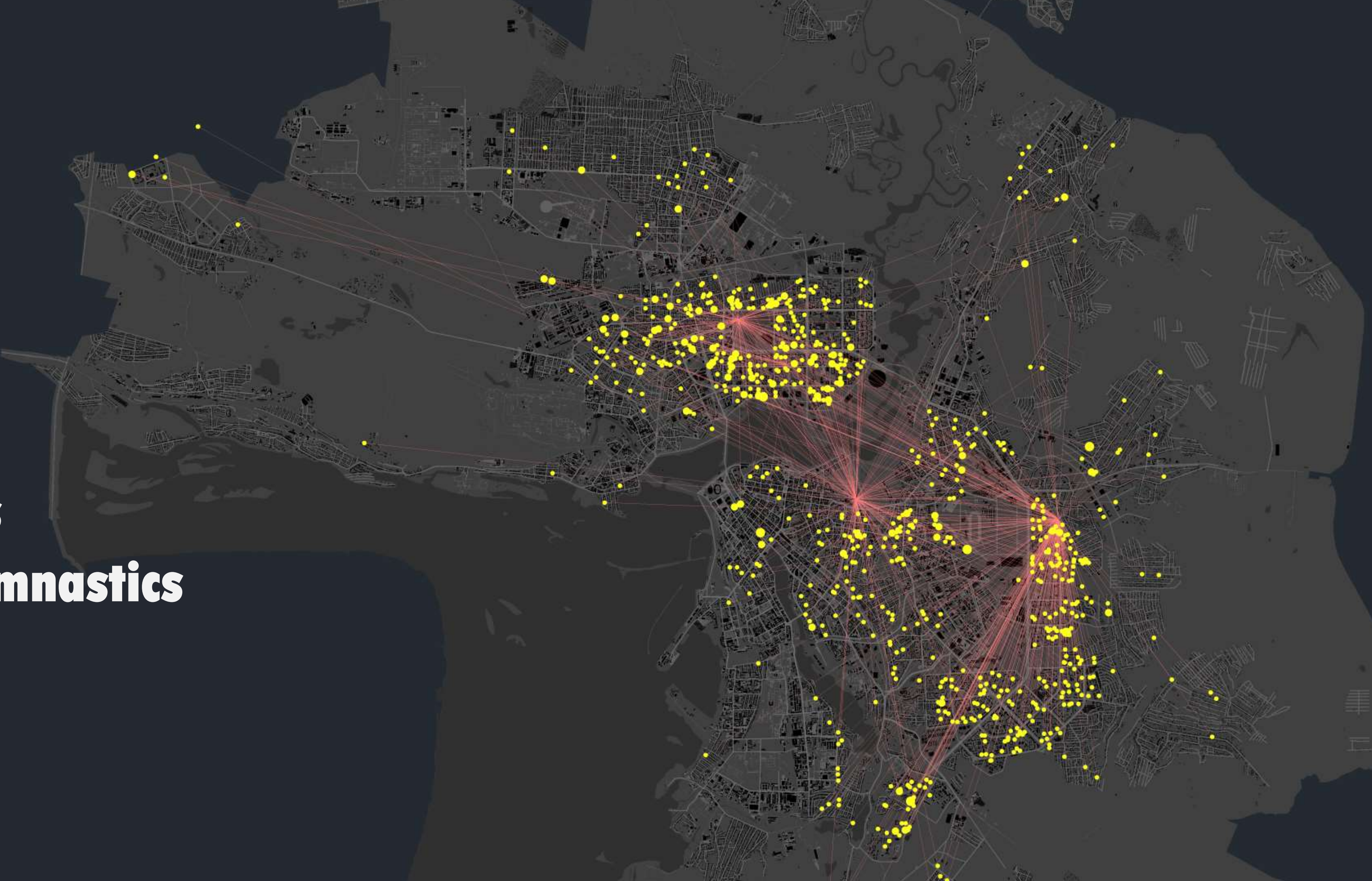
Sports basketball



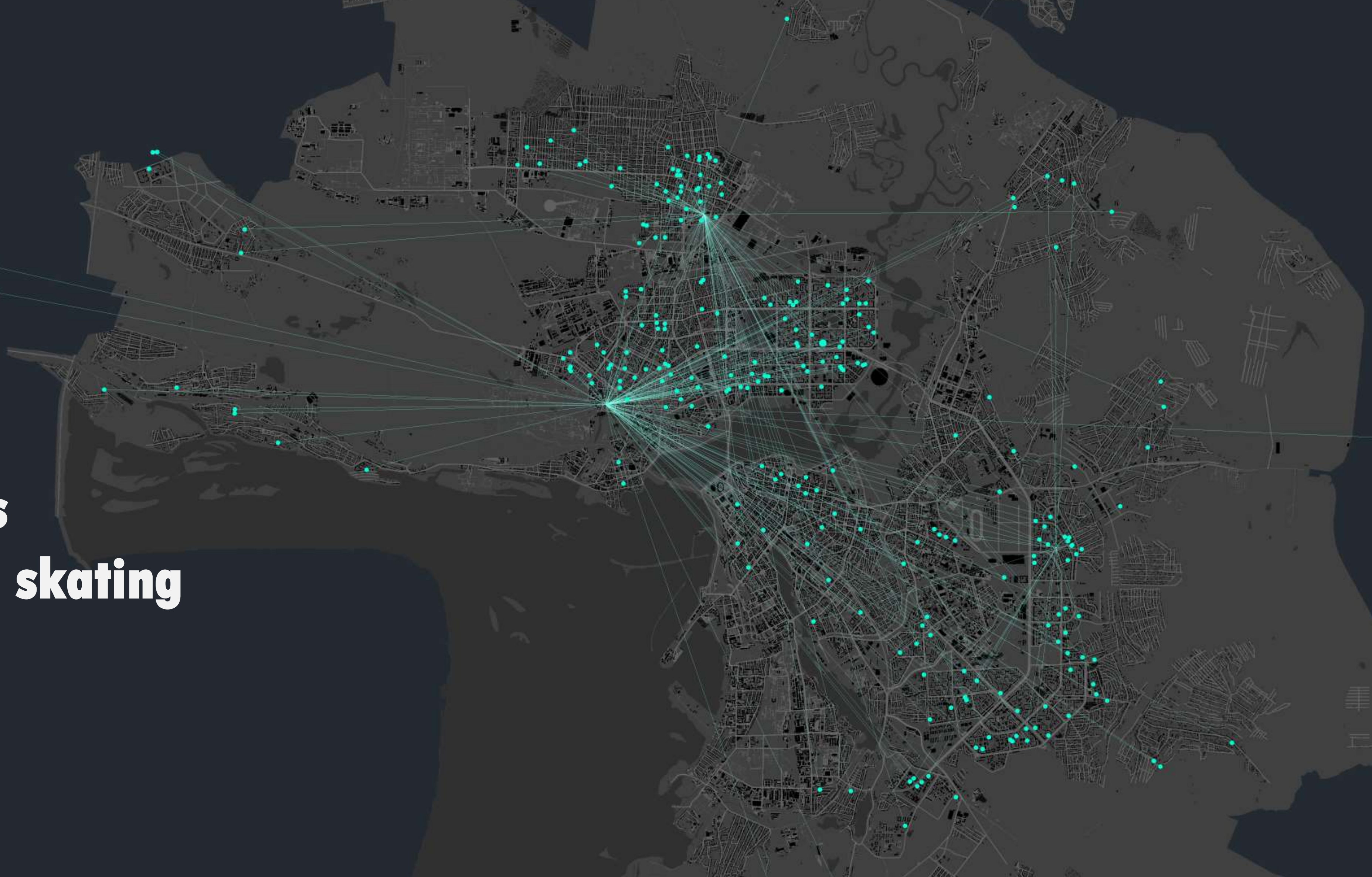
**Sports
yoga**



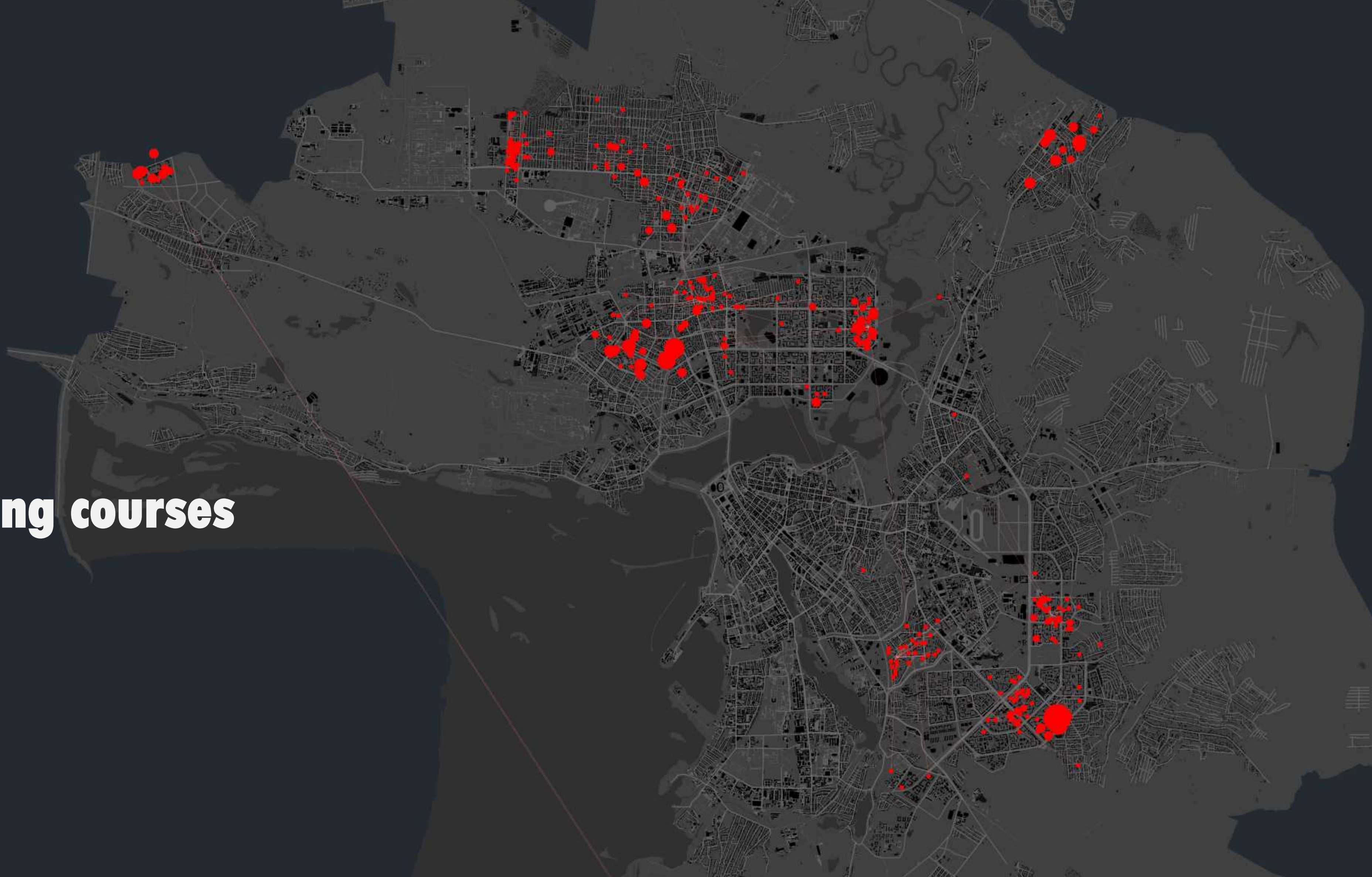
Sports
all gymnastics



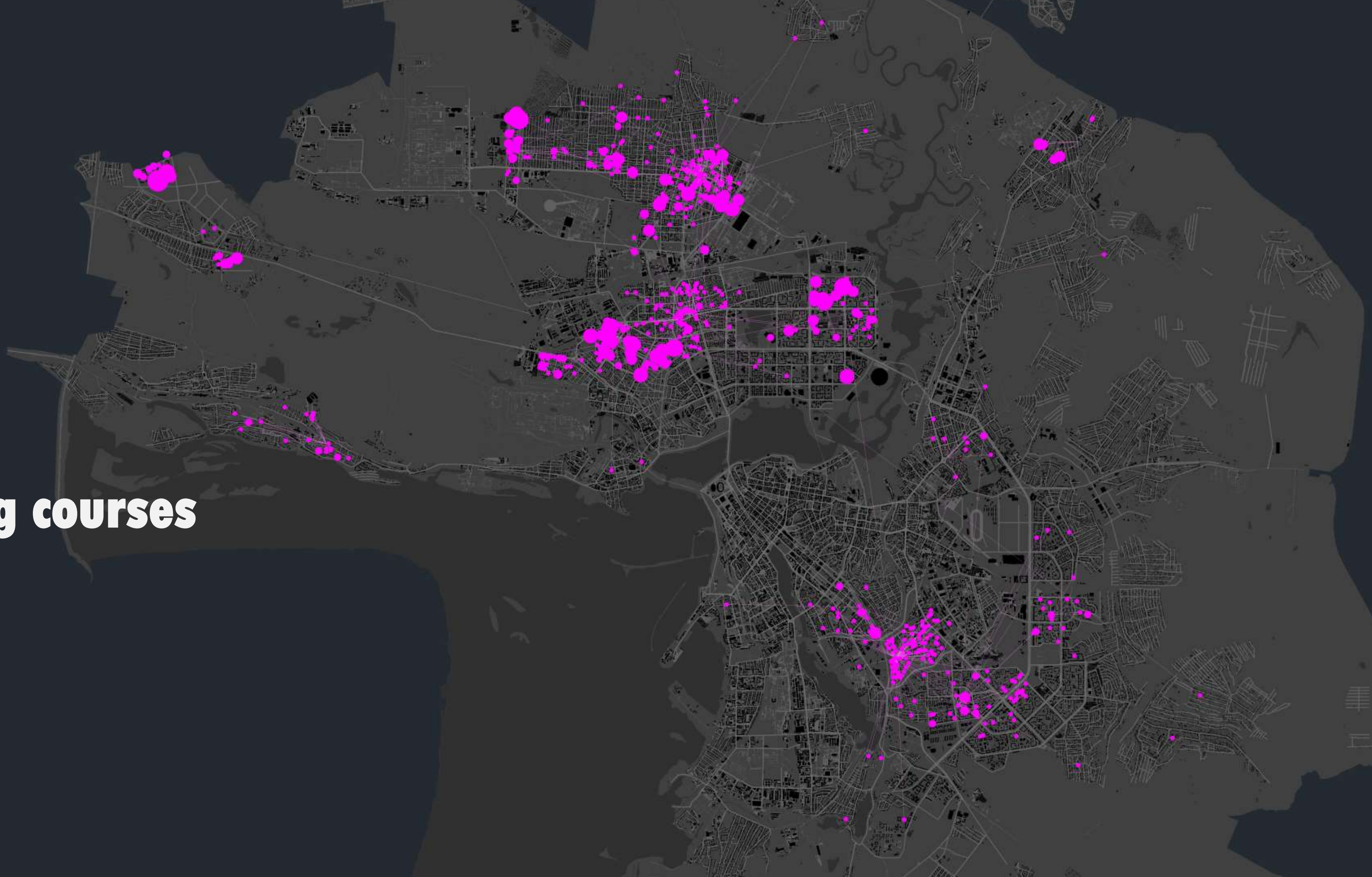
**Sports
figure skating**



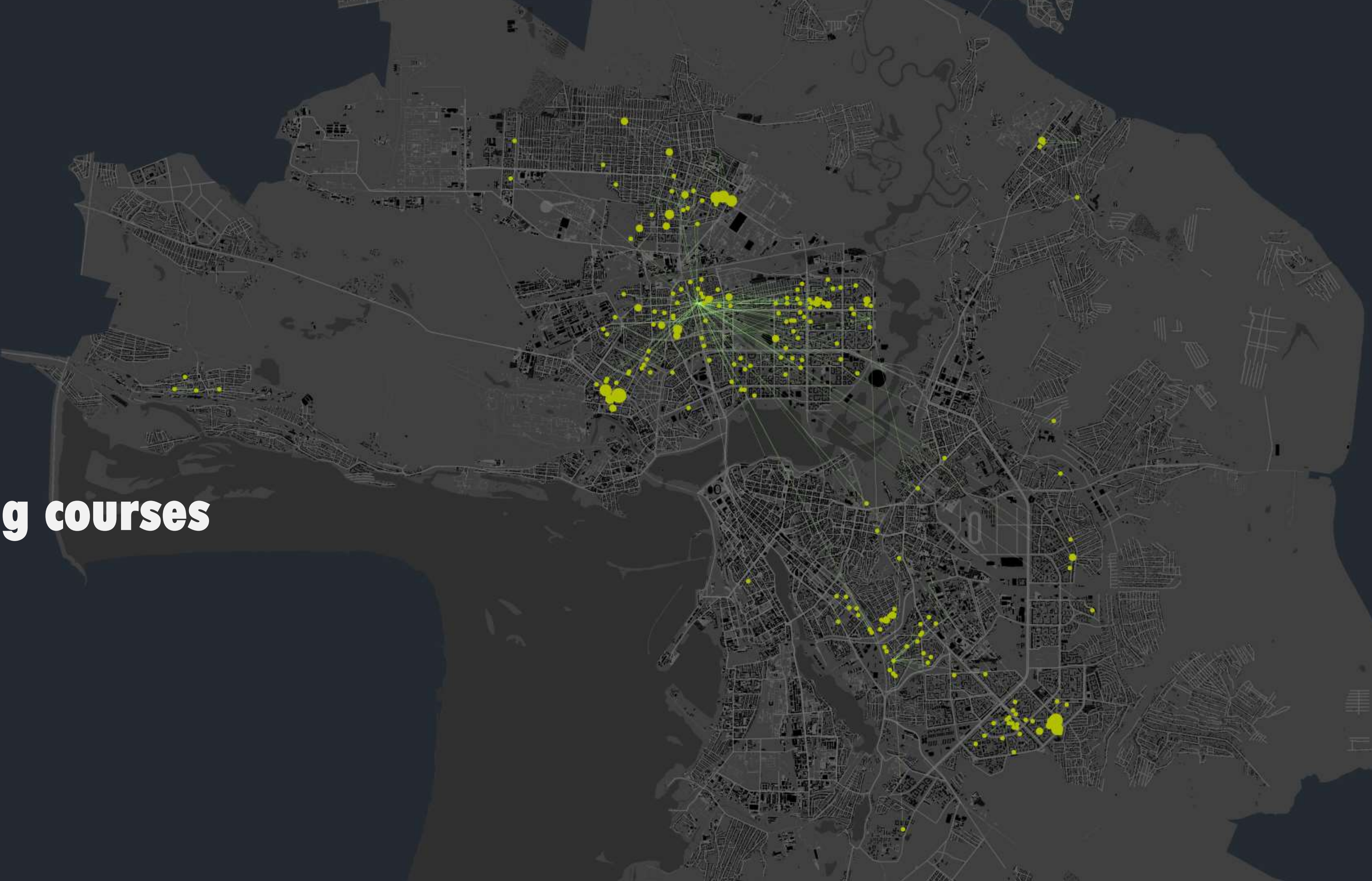
Drawing courses



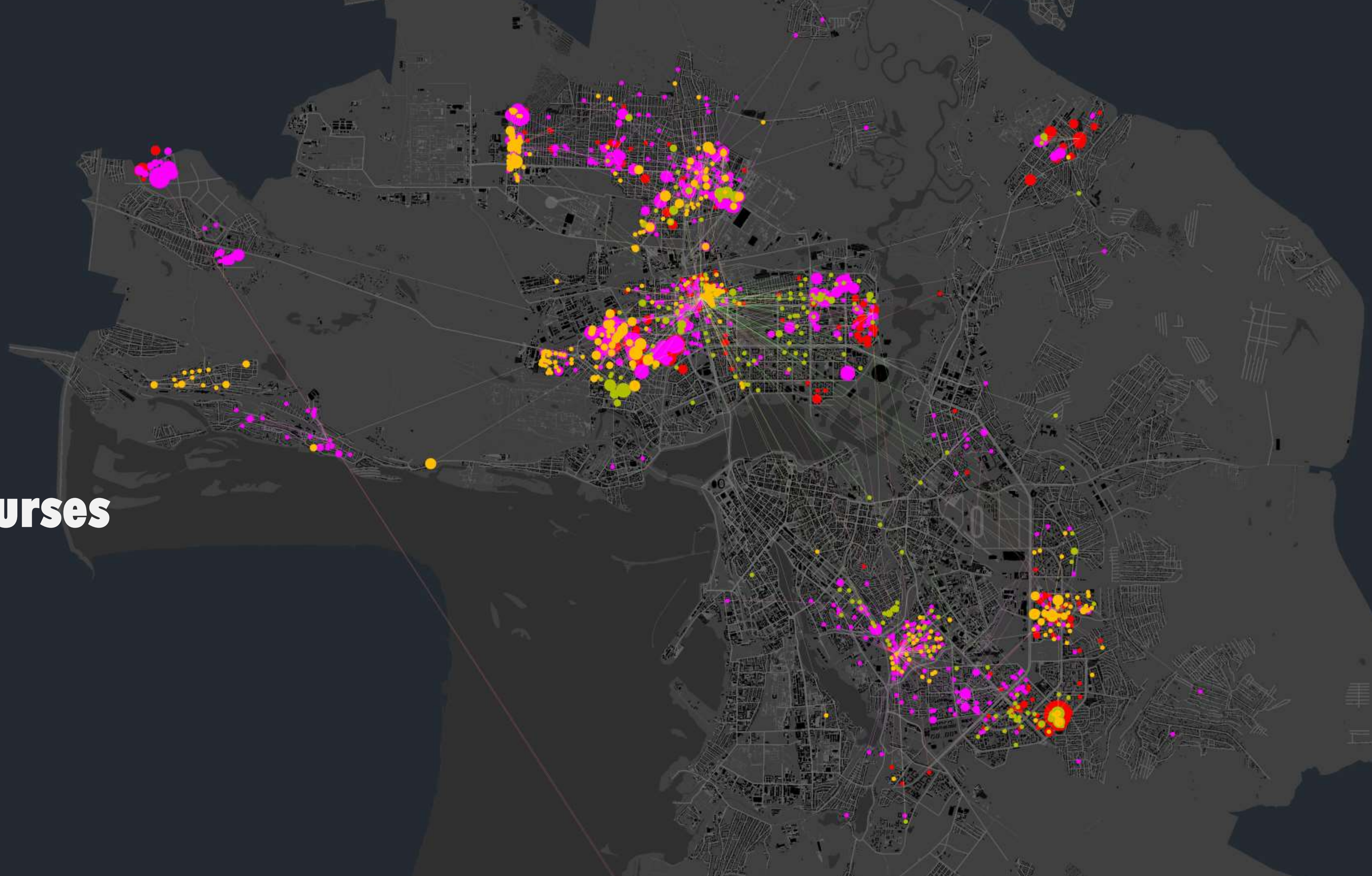
Dancig courses



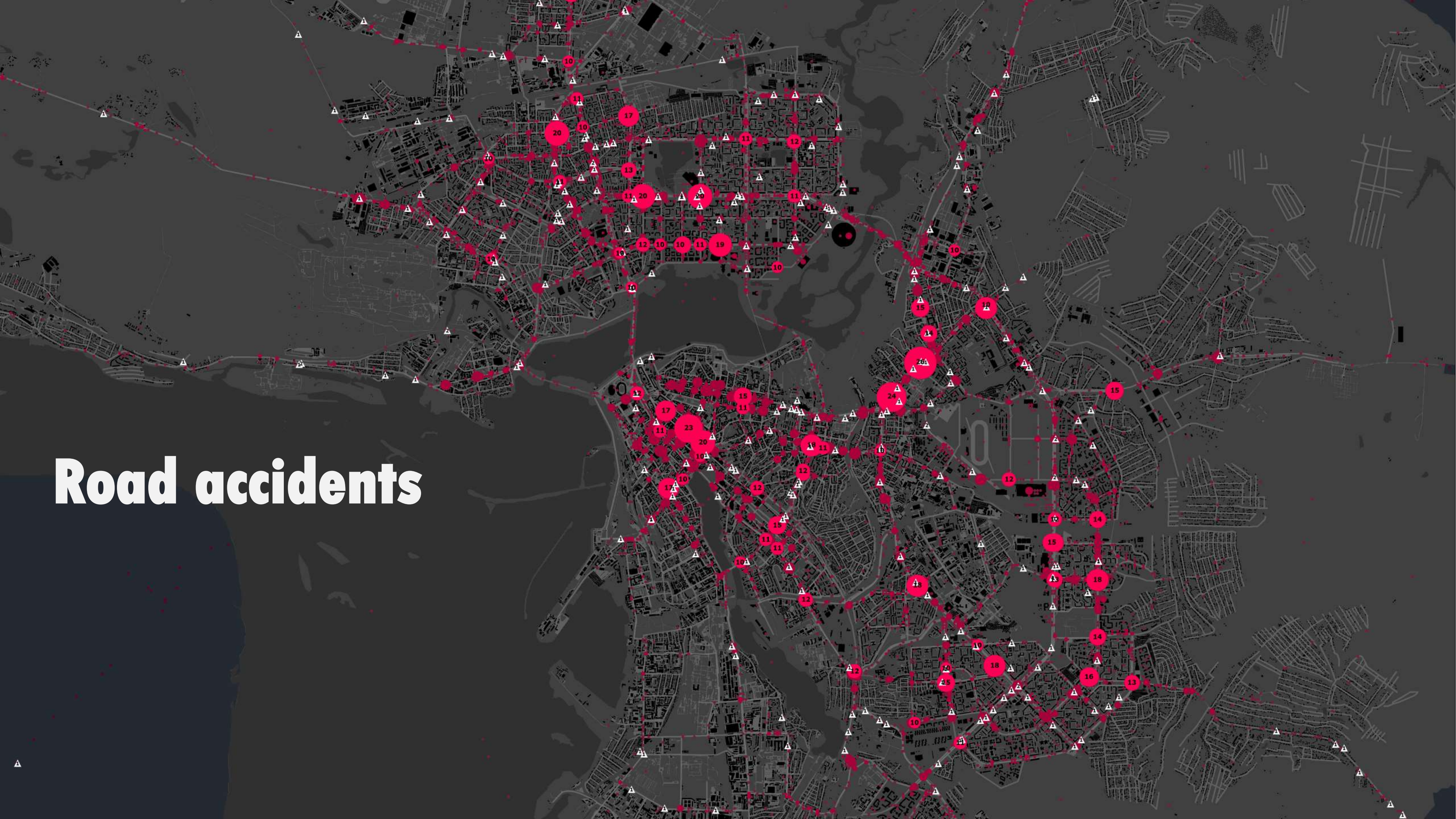
Singing courses



All courses

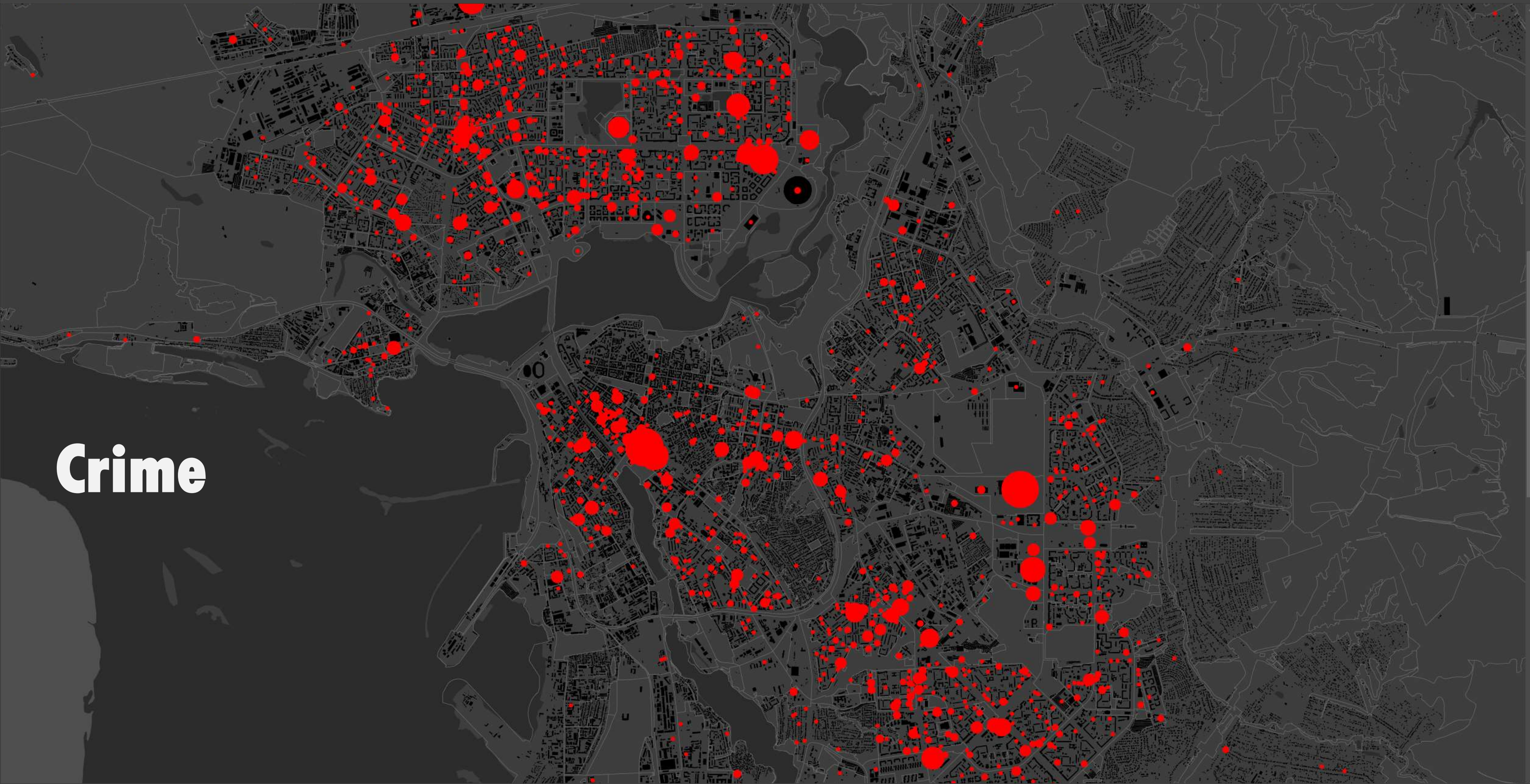


Road accidents



Road accidents

Crime





Преступления

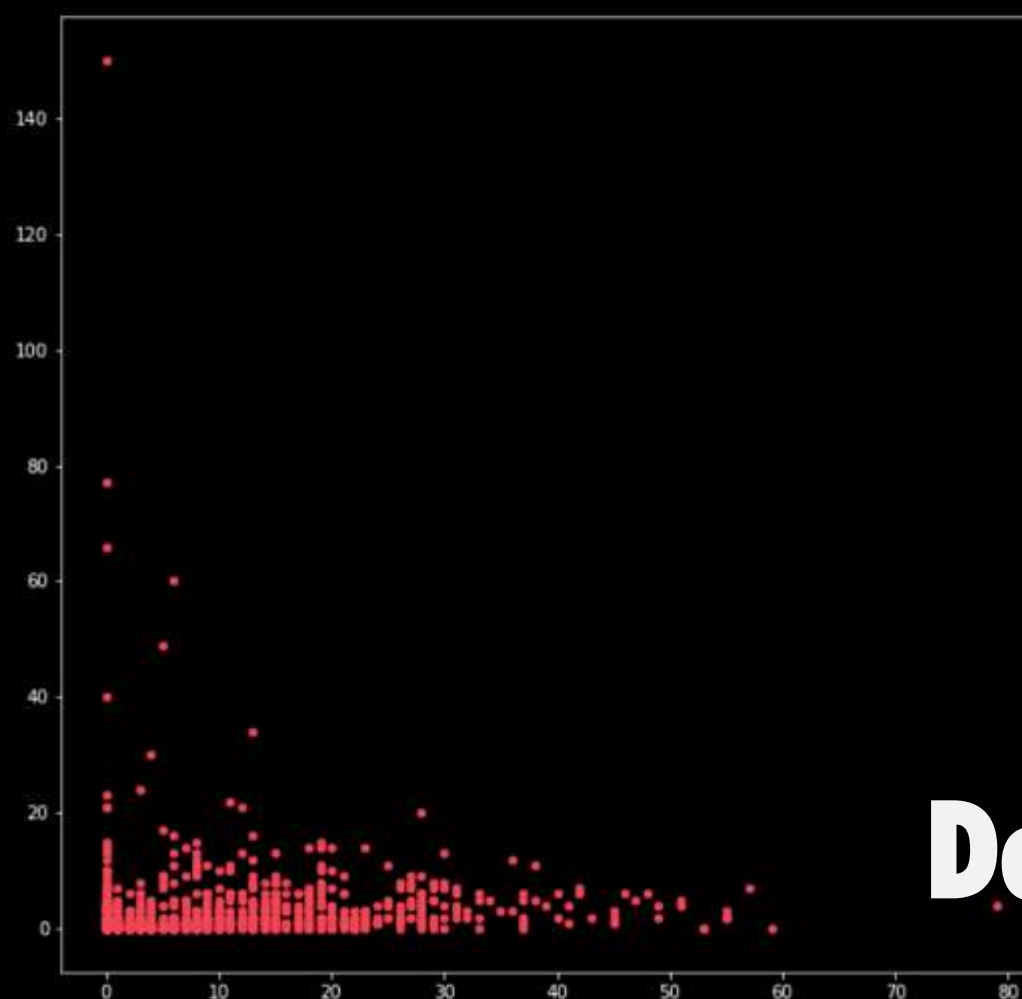
Crime detection and solving

300 м



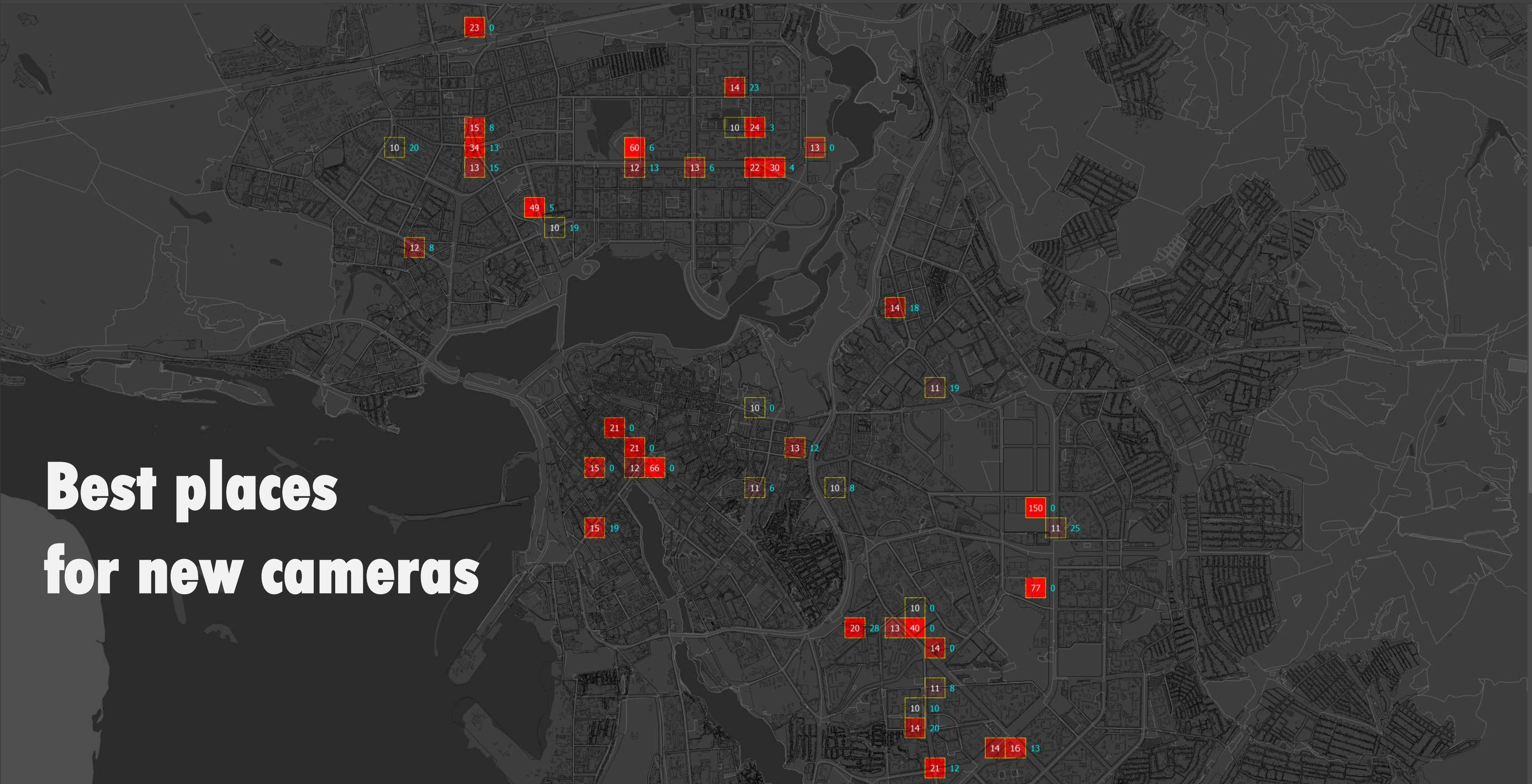
Камеры видеонаблюдения

Surveillance cameras



Dependance

Best places for new cameras



Land management, appraisal and tax regulation

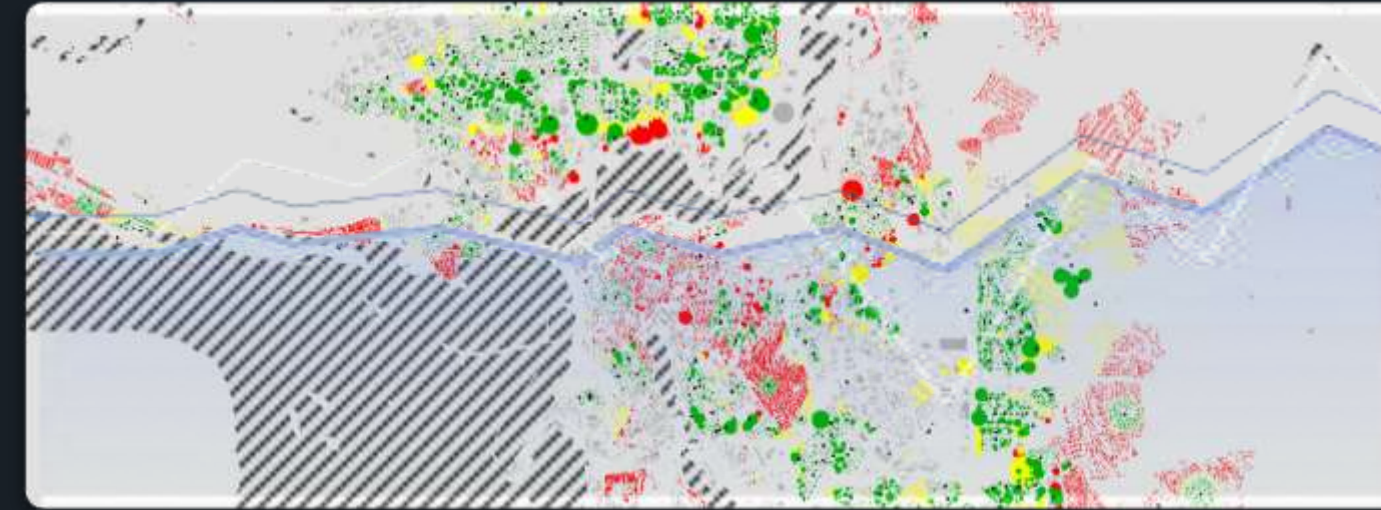


Environmental quality assessment



Green Planning of Public Spaces

Keep georeferenced registers of green spaces: trees, lawns, shrubs. Digital public service delivery: issuance of permits for transplanting, pruning, removing green spaces.



Park Accessibility Analysis

Investigate the adequacy of neighborhood park services in terms of accessibility, parks' spatial distribution, the size of park areas, and use intensity. Provide an optimum level of distribution of neighborhood parks.



Identification of City's Popular Spots by Analyzing Social Networks

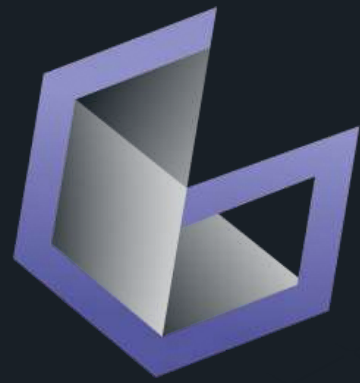
Tourists' and residents' photos in different city locations on social networks can be analyzed to identify the main city's attractions, in order to improve the urban environment.



Urban Environment Quality Assessment

Calculation and visualization of indicators of the urban environment quality index: the green spaces availability, traffic safety, transport accessibility, etc.

How to implement CDIDP?



GIS-integrated content management



GIS data, associated engineering, and business documents through a single user interface

Geometa provides automation of business processes, and electronic document management - with reference to maps, their objects, and layers.

The screenshot displays the Geometa Global web application interface. The main map shows a cadastral plan with various land parcels outlined in blue. A specific parcel is highlighted in green. On the left, a sidebar lists various layers and filters, including 'Urban planning standards', 'Cadastral plan of the territory', and 'Land parcels (existing)'. A 'Documents' window is open, showing a list of documents related to the selected parcel, including a 'Commissioning permit No. 16-RU16301000-81-2016 dated 20.05.2016', a 'Construction permit No. 16-RU163771000-36-2022 dated 06.06.2022', a 'Land parcel development plan RU 16301000-2524', and a 'Ruling to assign, alter or cancel an address No. 726g dated 17.02.2020'. A 'Construction permit' document is also shown, detailing the permit information and the executive committee of the municipality of the city of Kazan. At the bottom, a data table provides details for the selected parcel.

Cadastral number	Land category	Calculated area deviation	Info set	Area, sq m	Permitted land use	Primary use as per related docs
16:50:110504:11	Residential areas	33.2	Number: KUVI-001 / 2022-72195078 Organization: Branch of the Federal St...	9000		Cadastr

GIS and ERP construction plans

Развитие сети магистральных автомобильных дорог в г. Тюмени

Объекты развития транспортной с...

№	Наименование	Статус	Начало СМР
1	Реконструкция ...	Планируется	2016
2	Объездная IV ...	Проектируется	2019
3	Строительство ...	Проектируется	2017
4	Объездная III П...	Проектируется	2017
5	Объездная II П...	Строится	11.2007
6	Мост через р. Т...	Строится	10.2014
7	Строительство ...	Планируется	2018
8	Реконструкция ...	Проектируется	2017

5. Объездная II ПК до а.д. «Тюмень – Быково»

Изображения

Основные свойства

№: 5

Расположение: Восточный обход

Наименование: Объездная II ПК до а.д. «Тюмень – Быково»

Статус: Строится

Технико-экономические показатели: Общая протяженность - 3,471 км в т.ч. 2 моста и 1 путепровод через ж/д; число полос движения 4 шт (по 3,75 м)

Заказчик: ГКУ ТО «Управление автомобильных дорог»

Проектная организация:

Подрядная организация:

Стоимость объекта:

Профинансировано на отчетную дату:

Остаток сметной стоимости на отчетную дату:

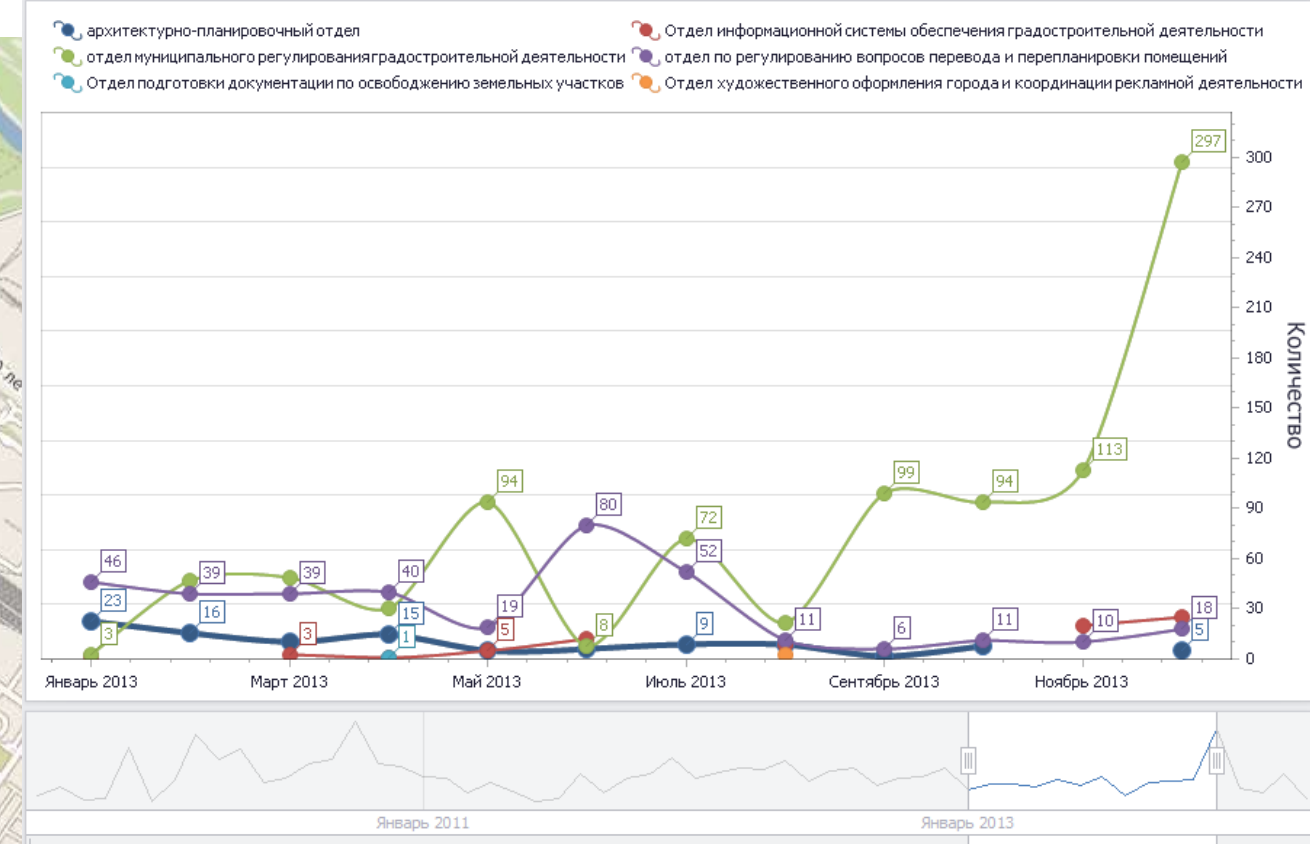
План финансирования СМР:

Начало СМР:

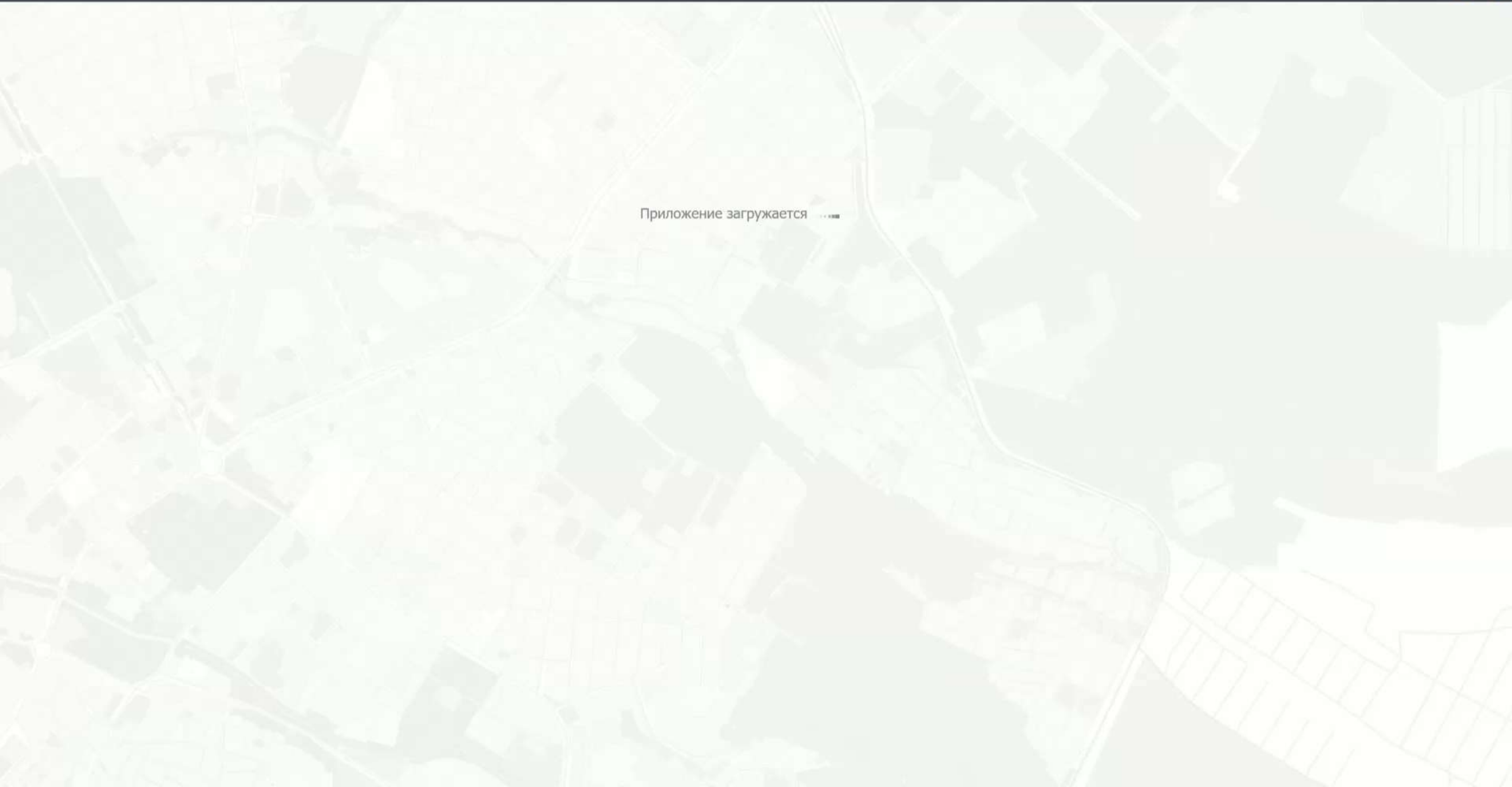
Окончание СМР (план):



04.03.2016г. автомобильная дорога "Обход г. Тюмени" вид в сторону 1 Этапа



1:70000
1 km



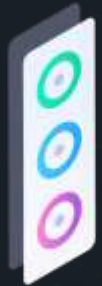
Приложение загружается

Importance of GIS oriented document management

- 1** Use Geometa platform to unite and to combine data about the territory from different departments
- 2** Analyse the data and make decision
- 3** Generate documents based on the system data, coordinate and sign with an electronic signature.
- 4** Update date in the system at the same time as any change happens. Use workflows for it
- 5** Use tools to maintain the data quality and accuracy and do change monitoring



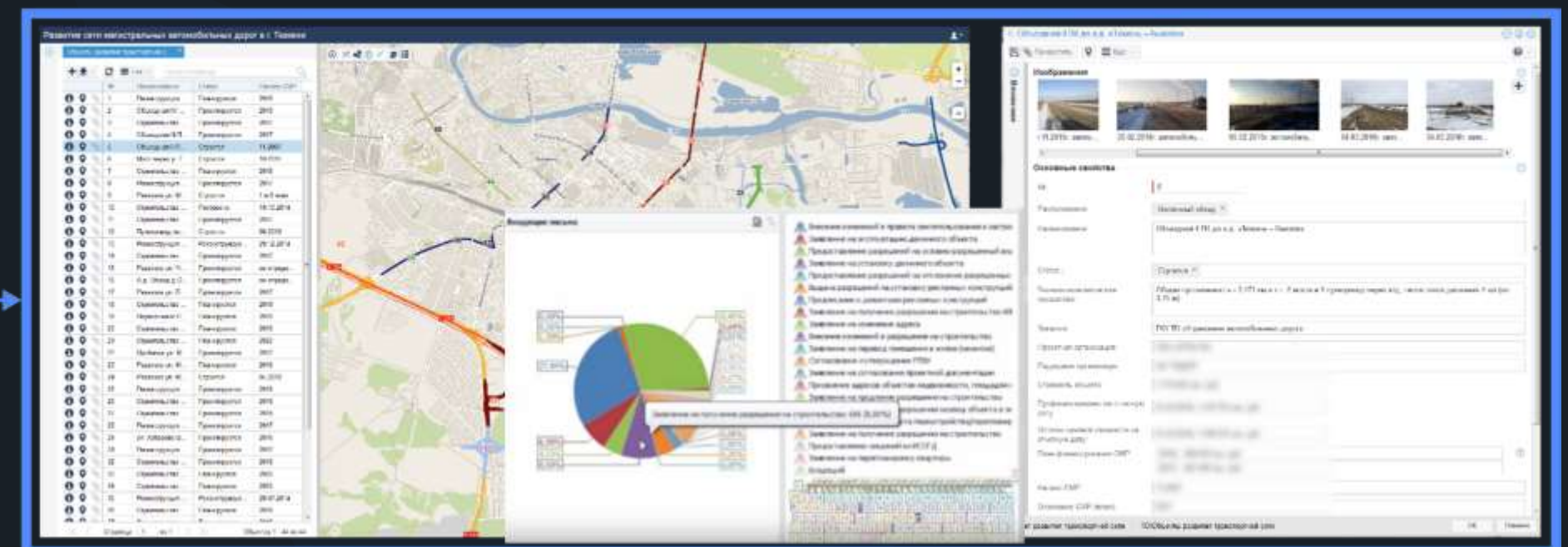
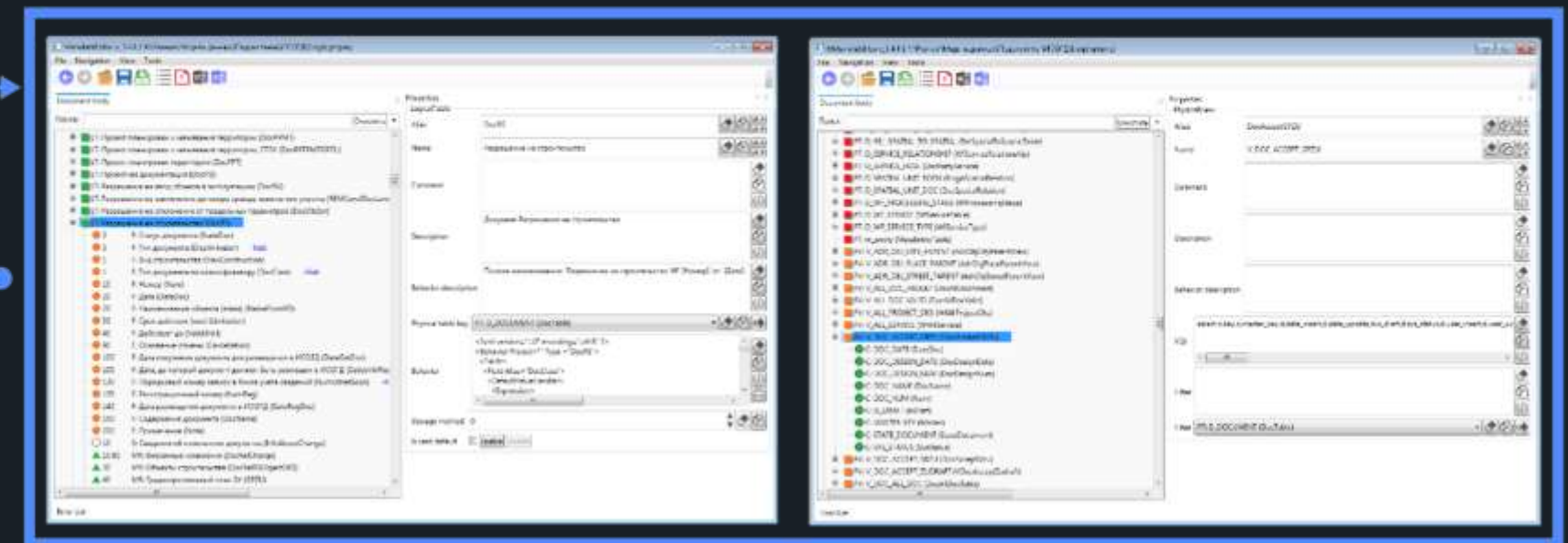
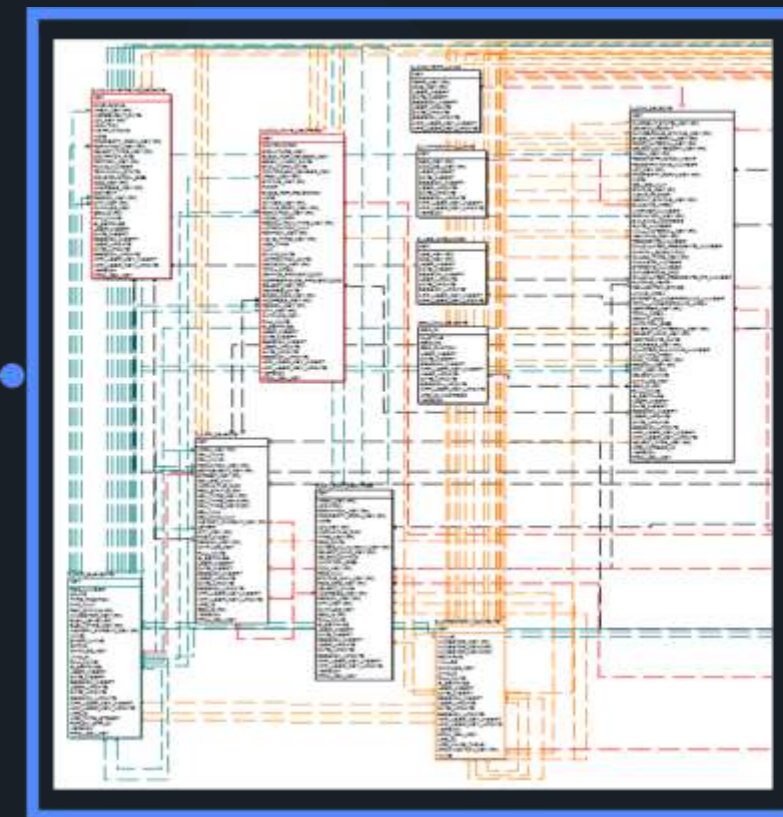
Take the best
Technologies



Low code deep configuration tools to adopt the system

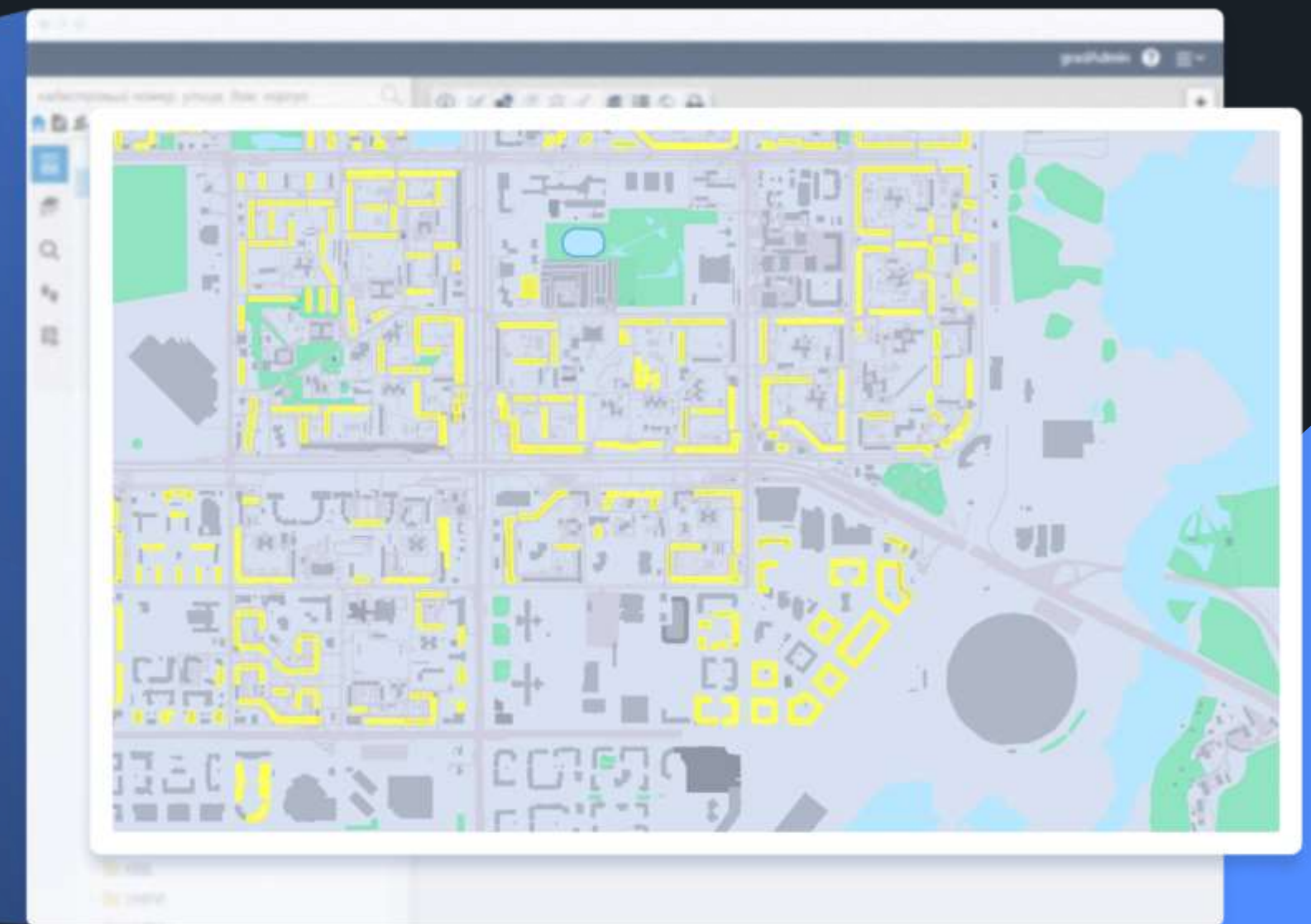
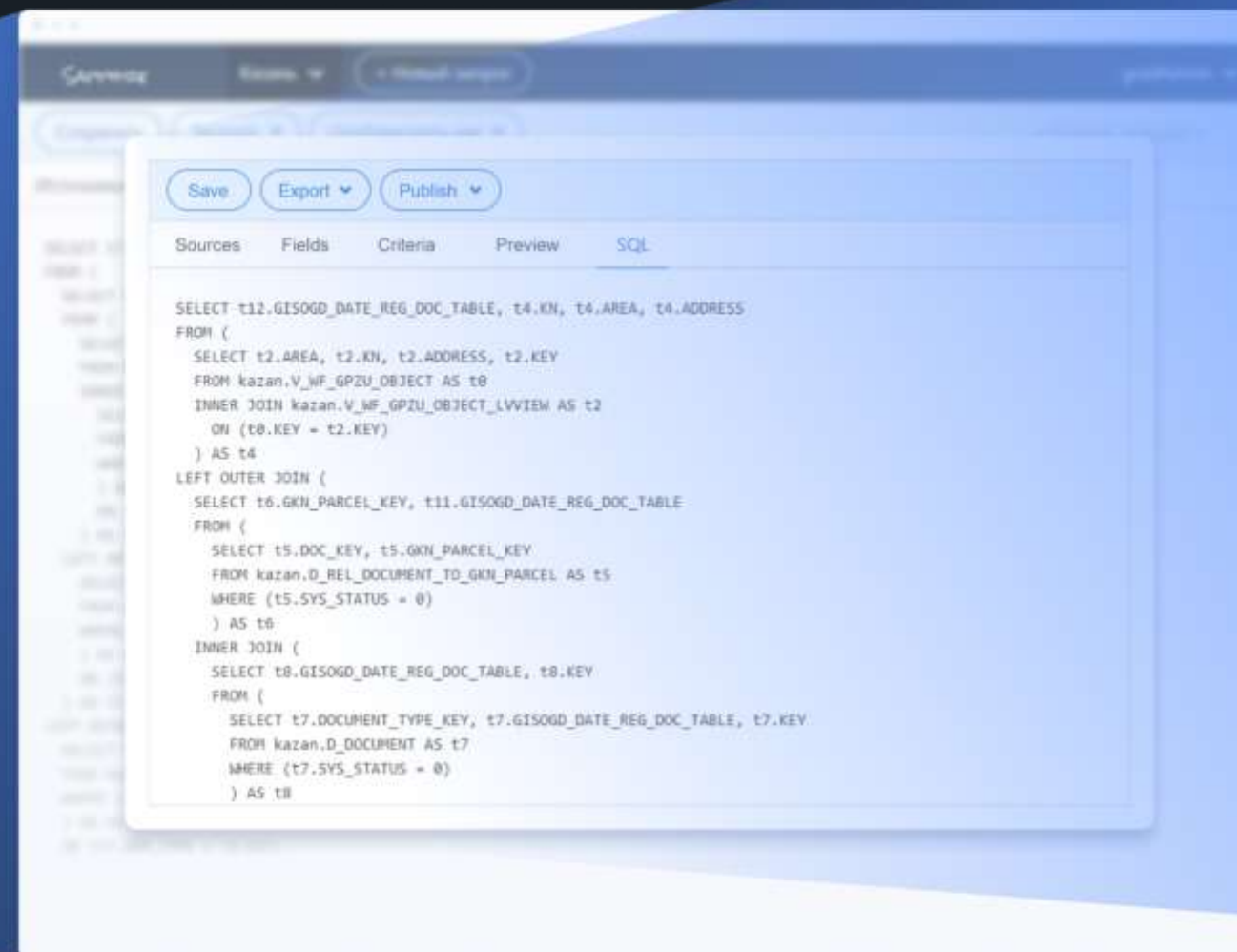
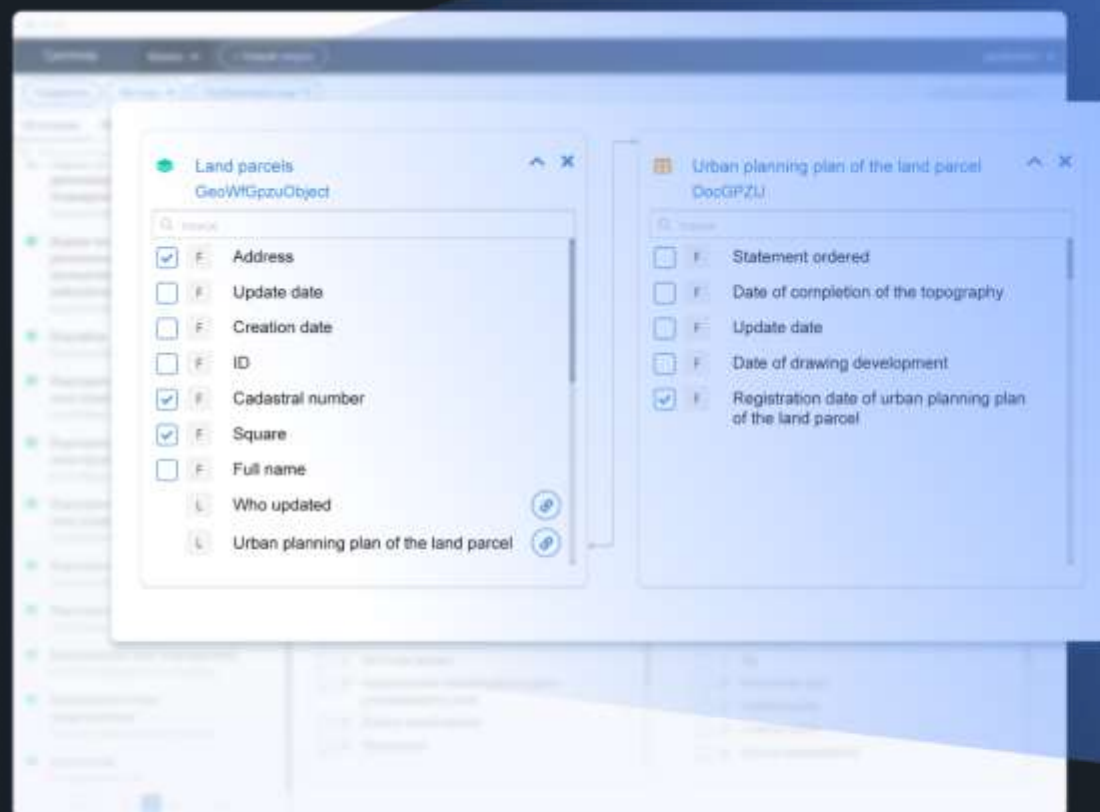
Database and UI structure based on Metadata

- platform adoption for client's needs and creating new models, processes, and web applications without coding
- compatibility of new configurations with new Geometa software releases (we provide new release every 2 weeks)
- client's data remains machine-readable



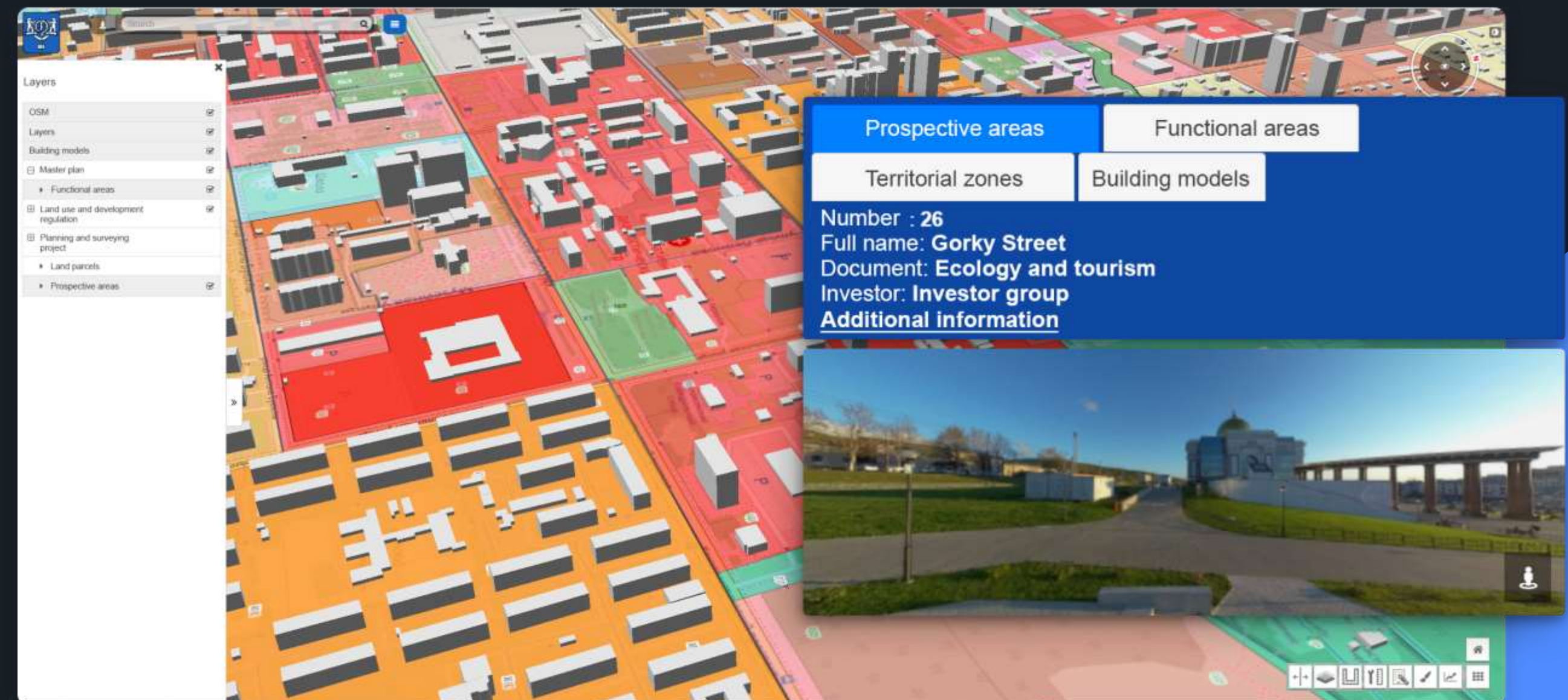
Visual query builder

- Creating queries without SQL coding
- Multilevel queries of connected tables and views
- Automatic queries analysis of speed and reliability, chains of queries
- Export the results of the queries to GIS format



3D mapping and interactive spatial layout of the territory

Geometa helps to dive natively into the details of objects located on the territory, connecting vector layers with various information, for example, the boundaries of land parcels. And also, in addition to vector layers with various information, it is possible to check out panoramas of the area, 3D models of buildings, investment assessment of the territory, and analyze various information about objects on the 3D map etc



Fast dynamic geocache

all changes of data are available immediately

for 1000+ web-users with 500+ layers of 5.000.000 objects



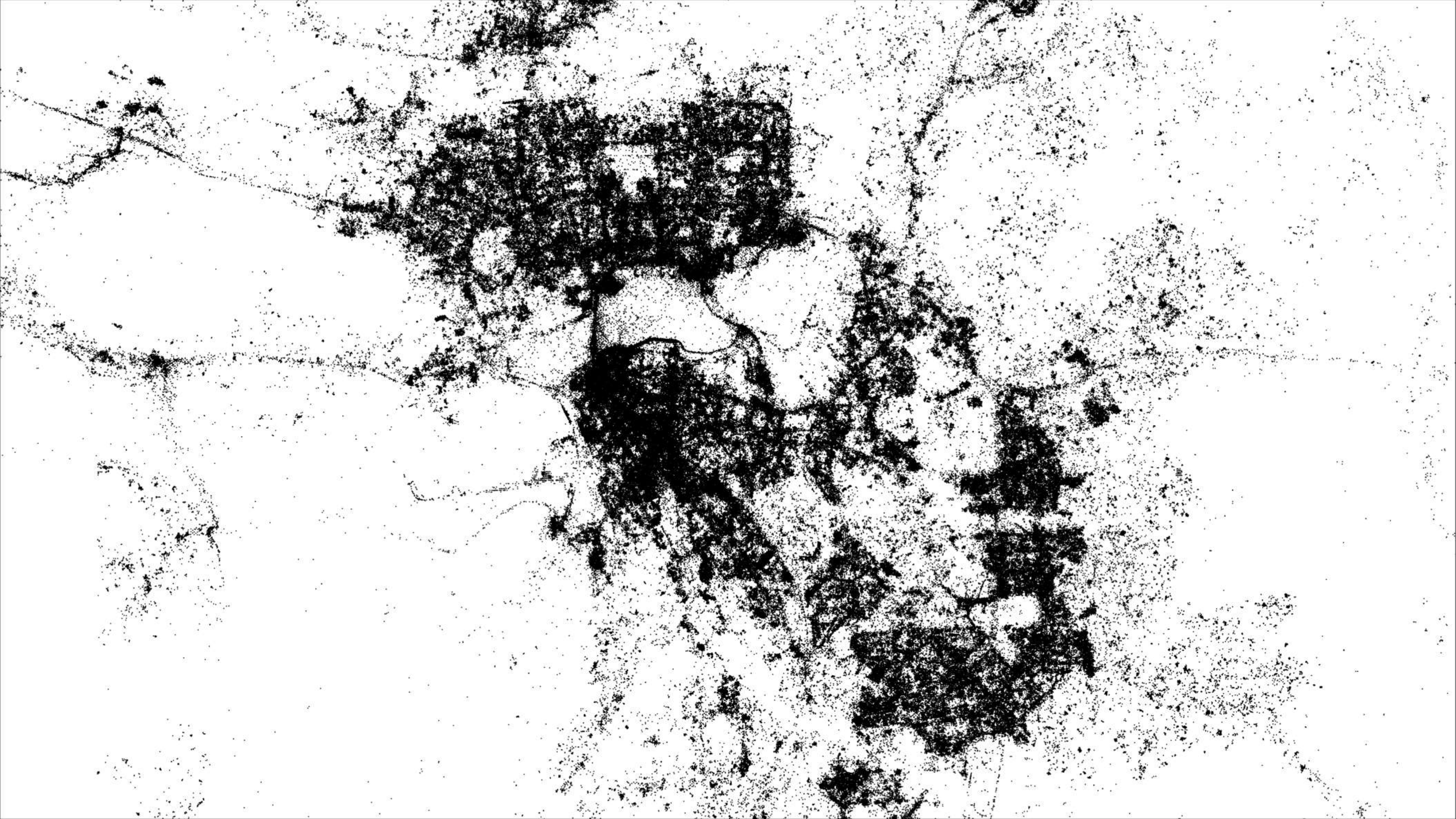


Thank you for your attention

Alexey Dudarev

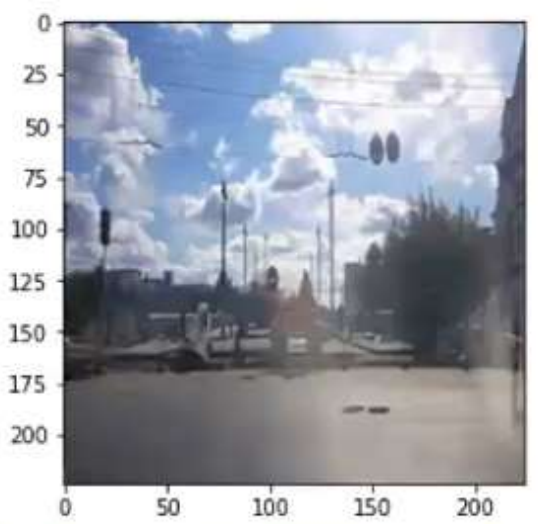
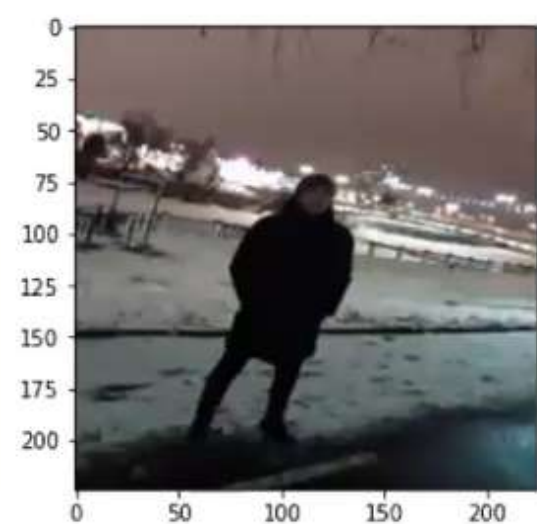
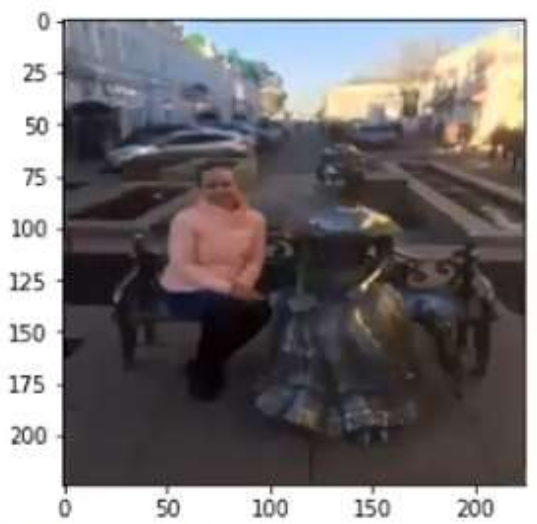
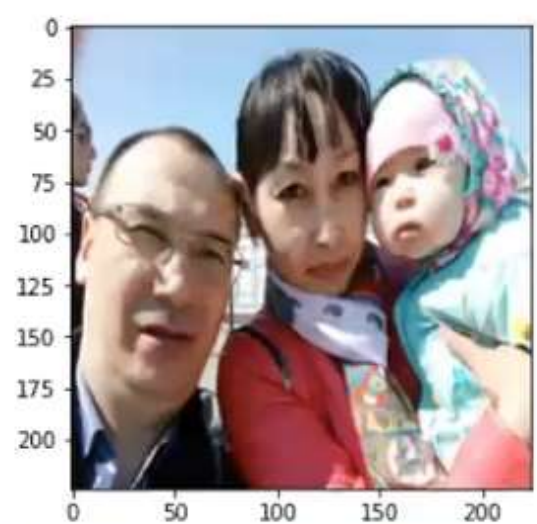
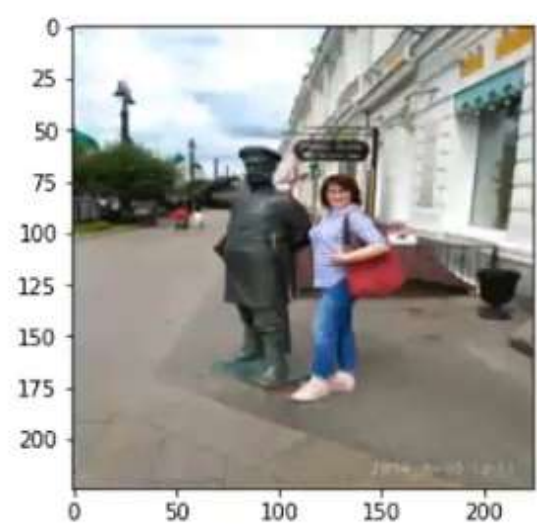
✉ adudarev@geometa.ae





Digital footprints using



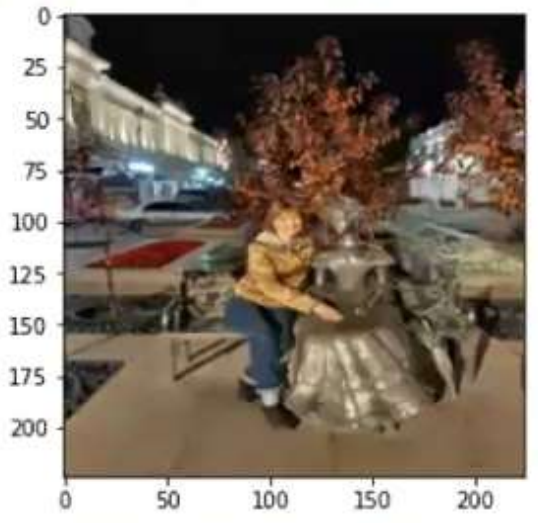
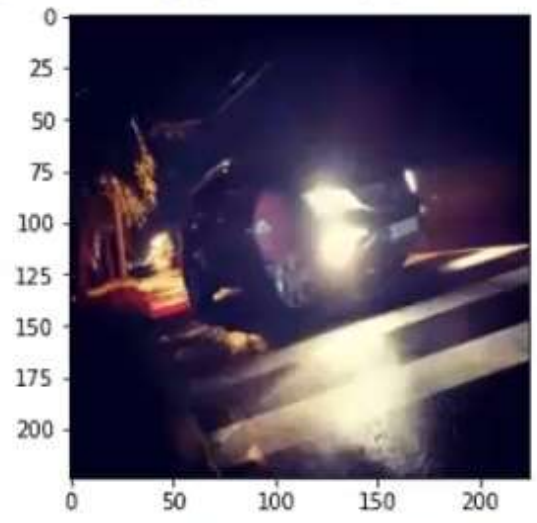
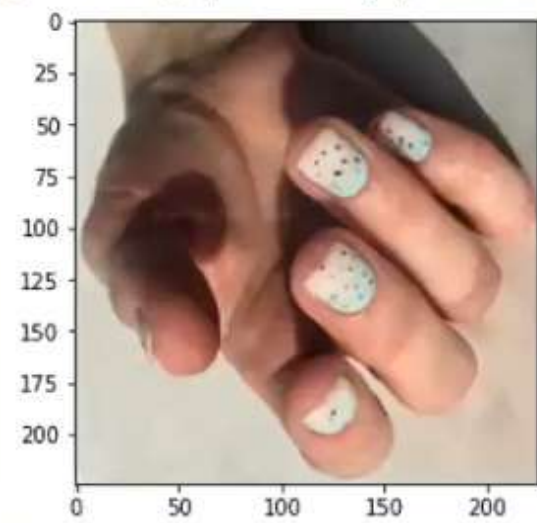
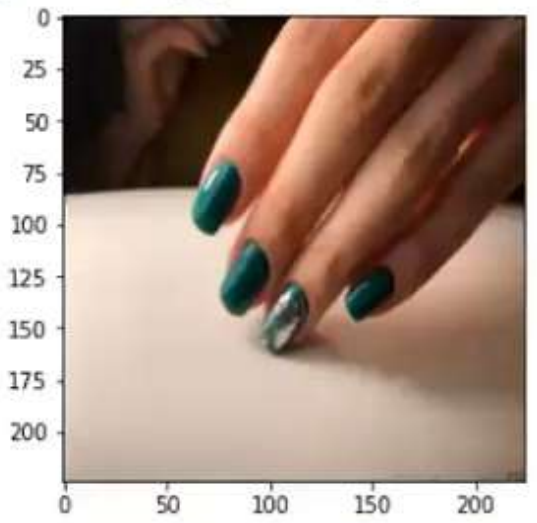
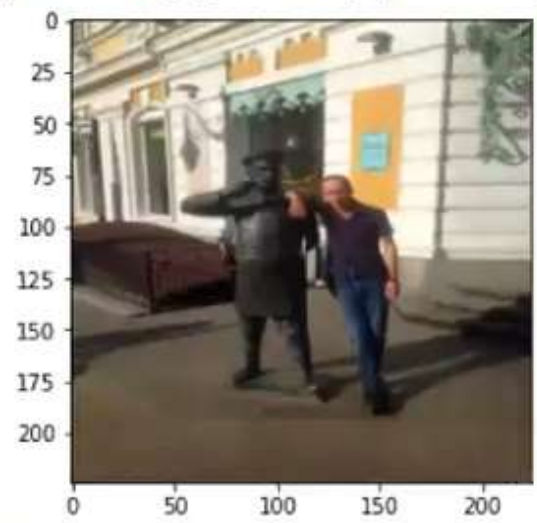
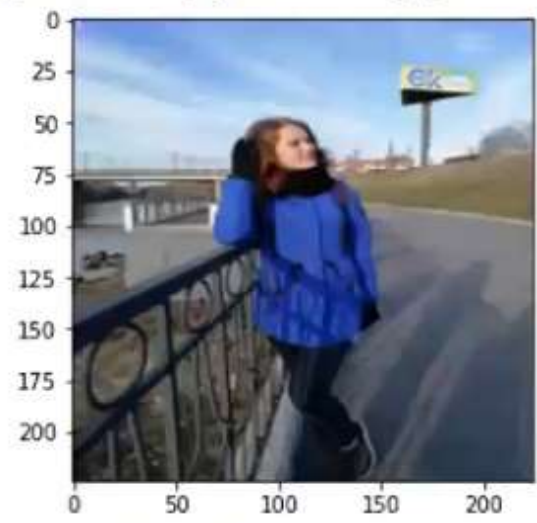


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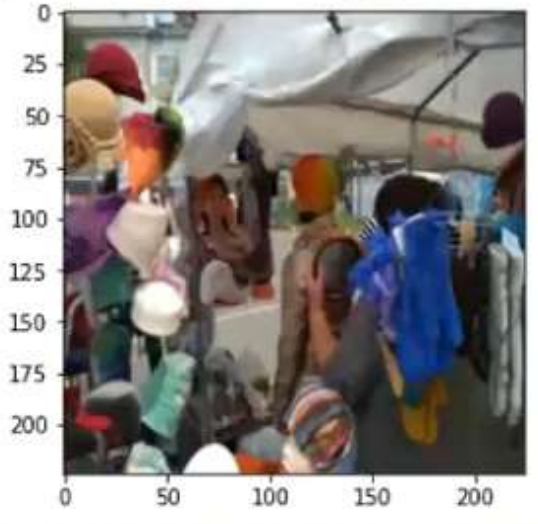
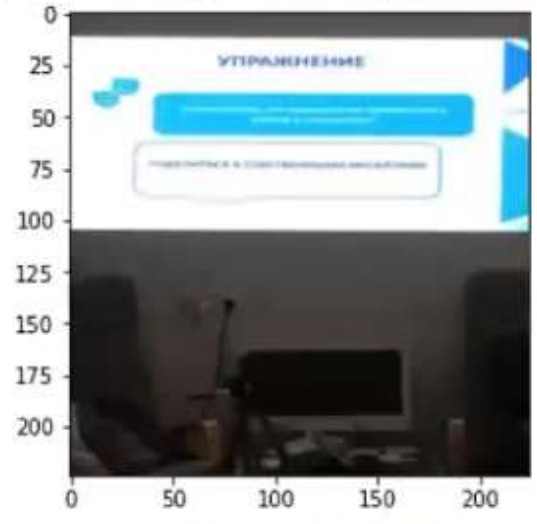
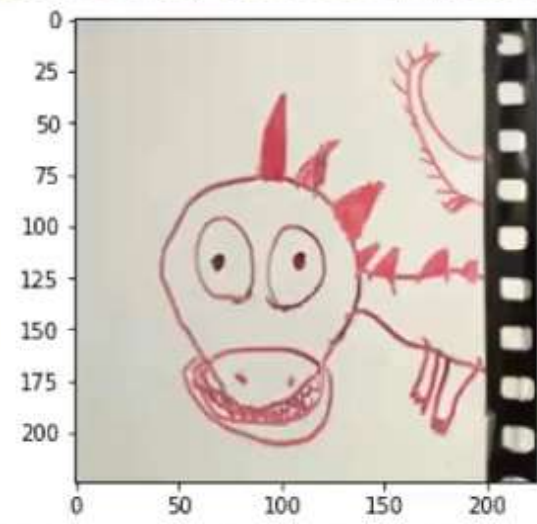
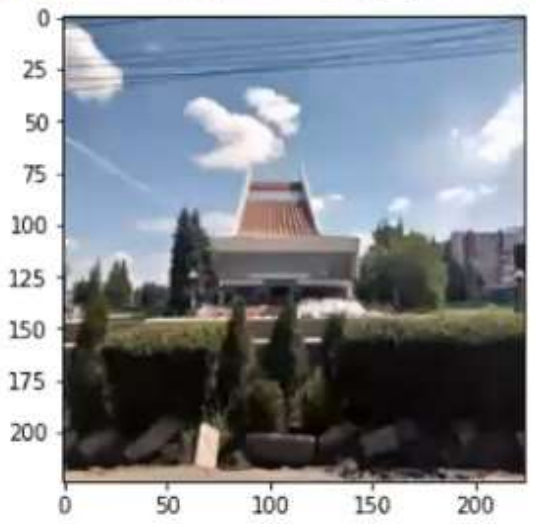
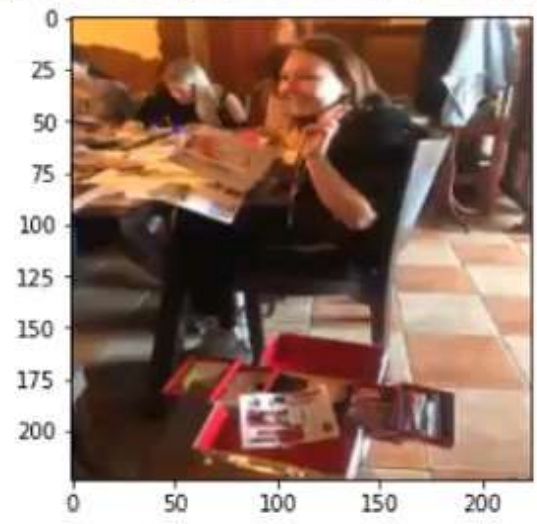
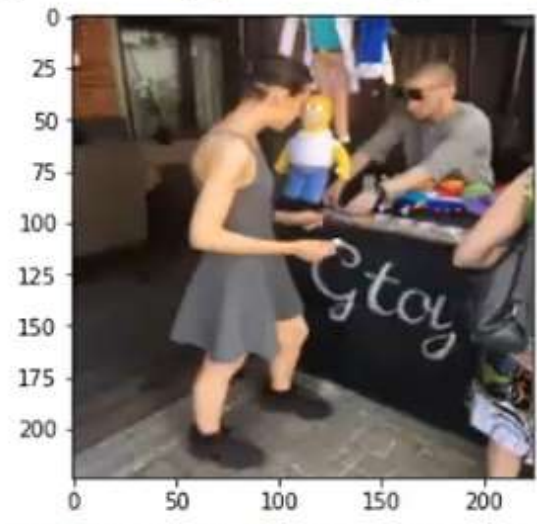


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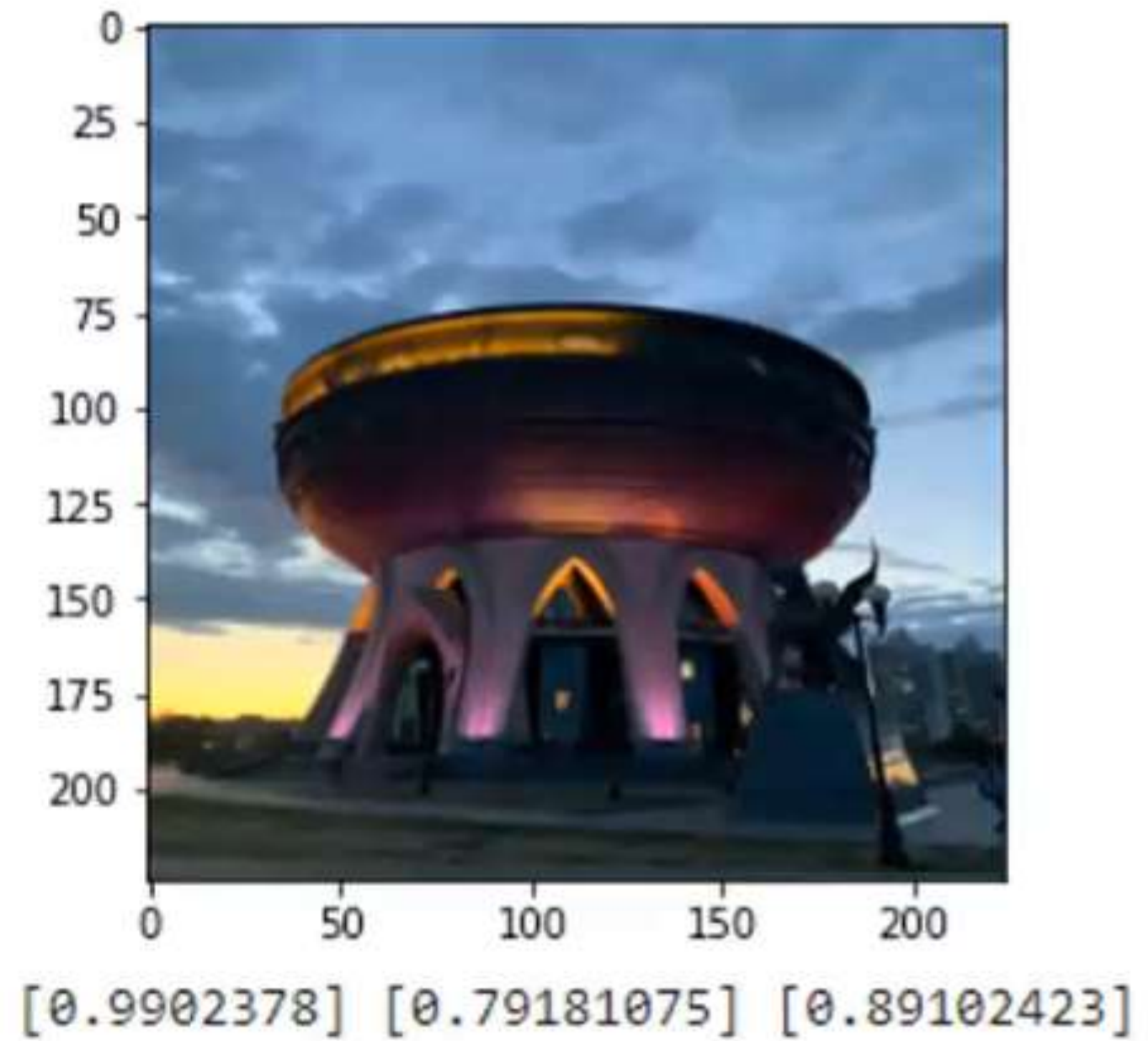
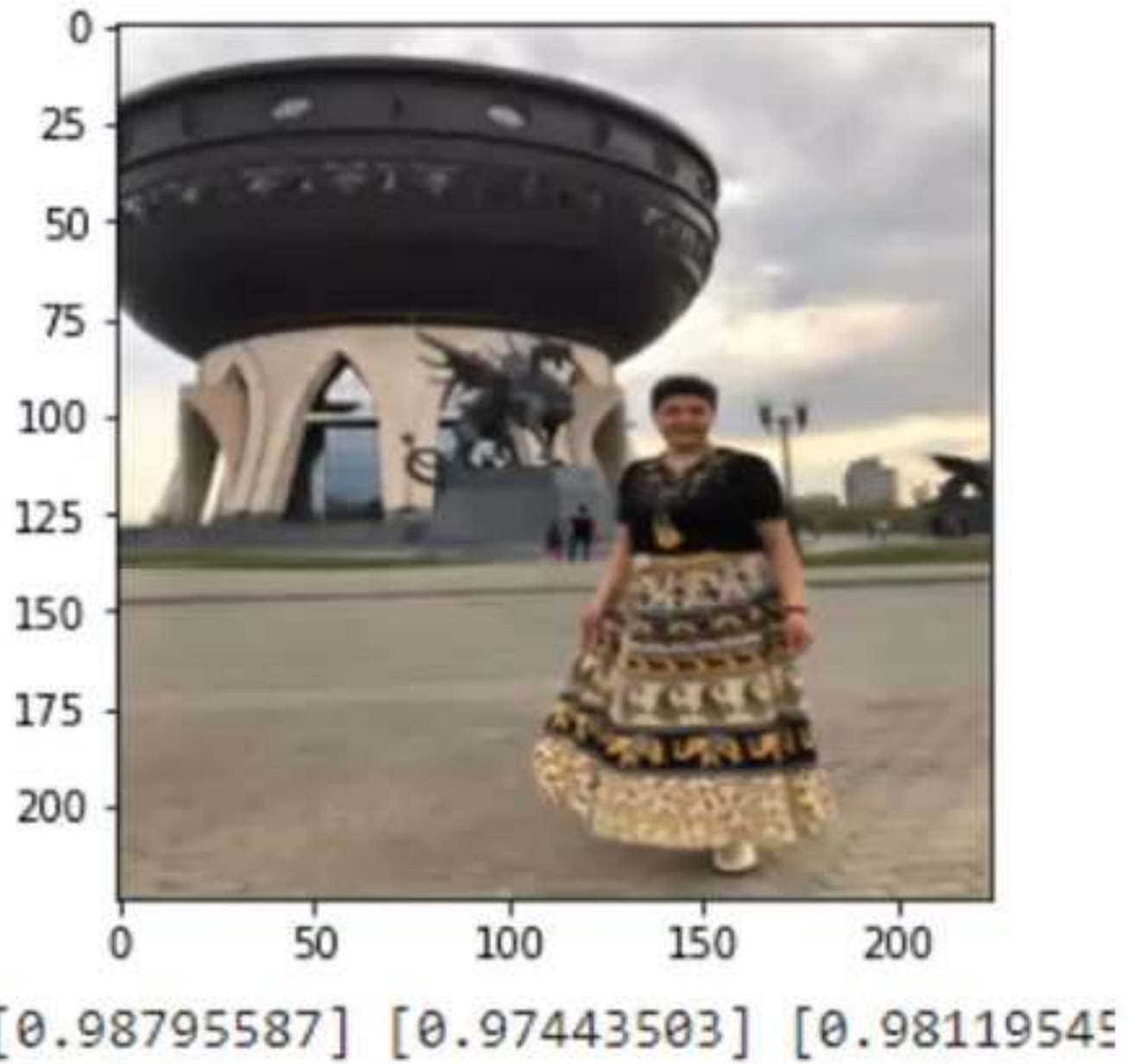
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[0.9792819] [0.9994448] [0.9893633]

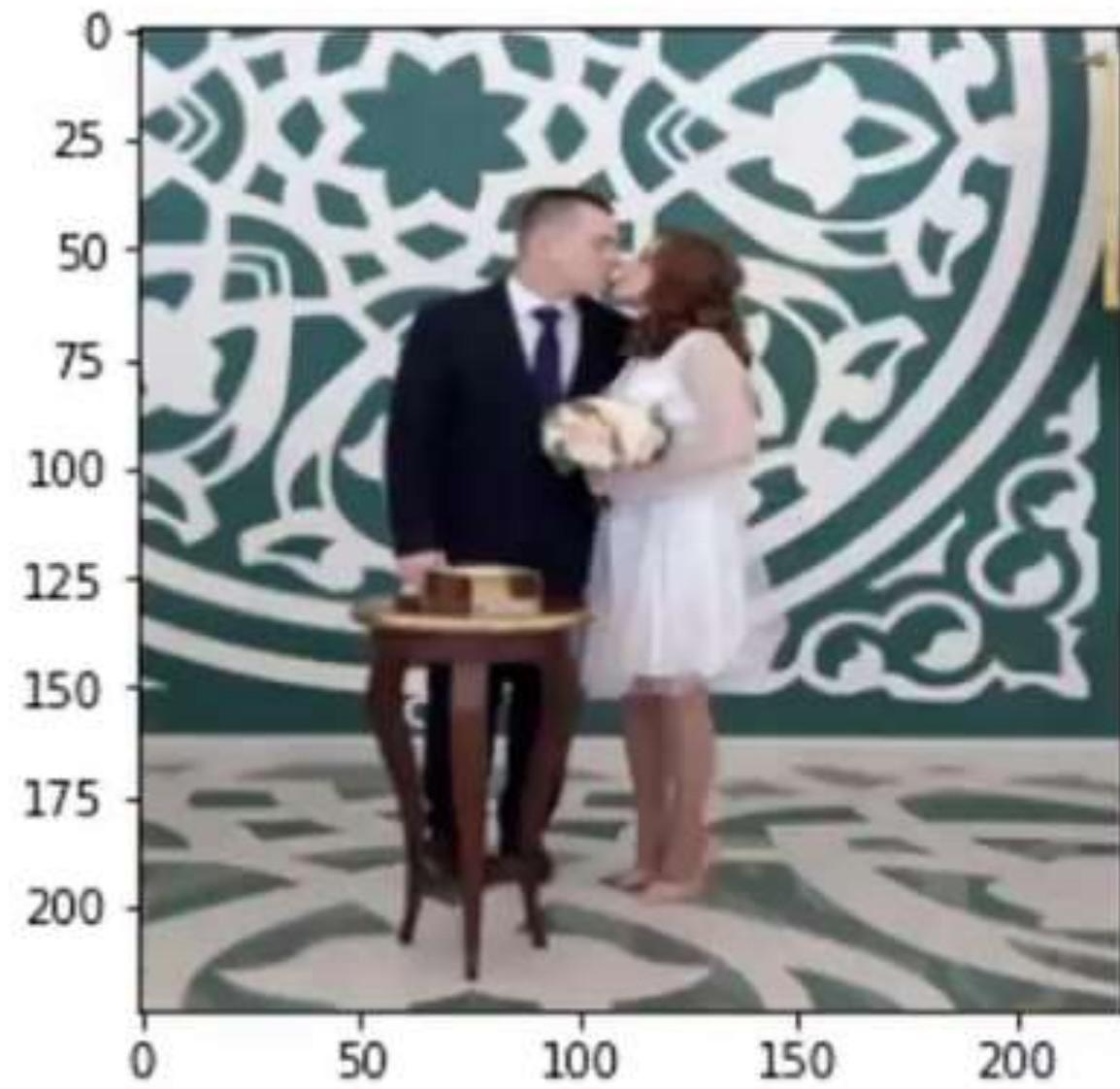


[0.0114669] [0.7926516] [0.40205926] [0.00282073] [0.10589096] [0.05435584] [0.98597217] [0.9992186] [0.9925954] [0.01434579] [0.00085748] [0.00760164] [0.00817514] [3.3461027e-05] [0.0041043] [0.22069064] [0.00317918] [0.11193491]

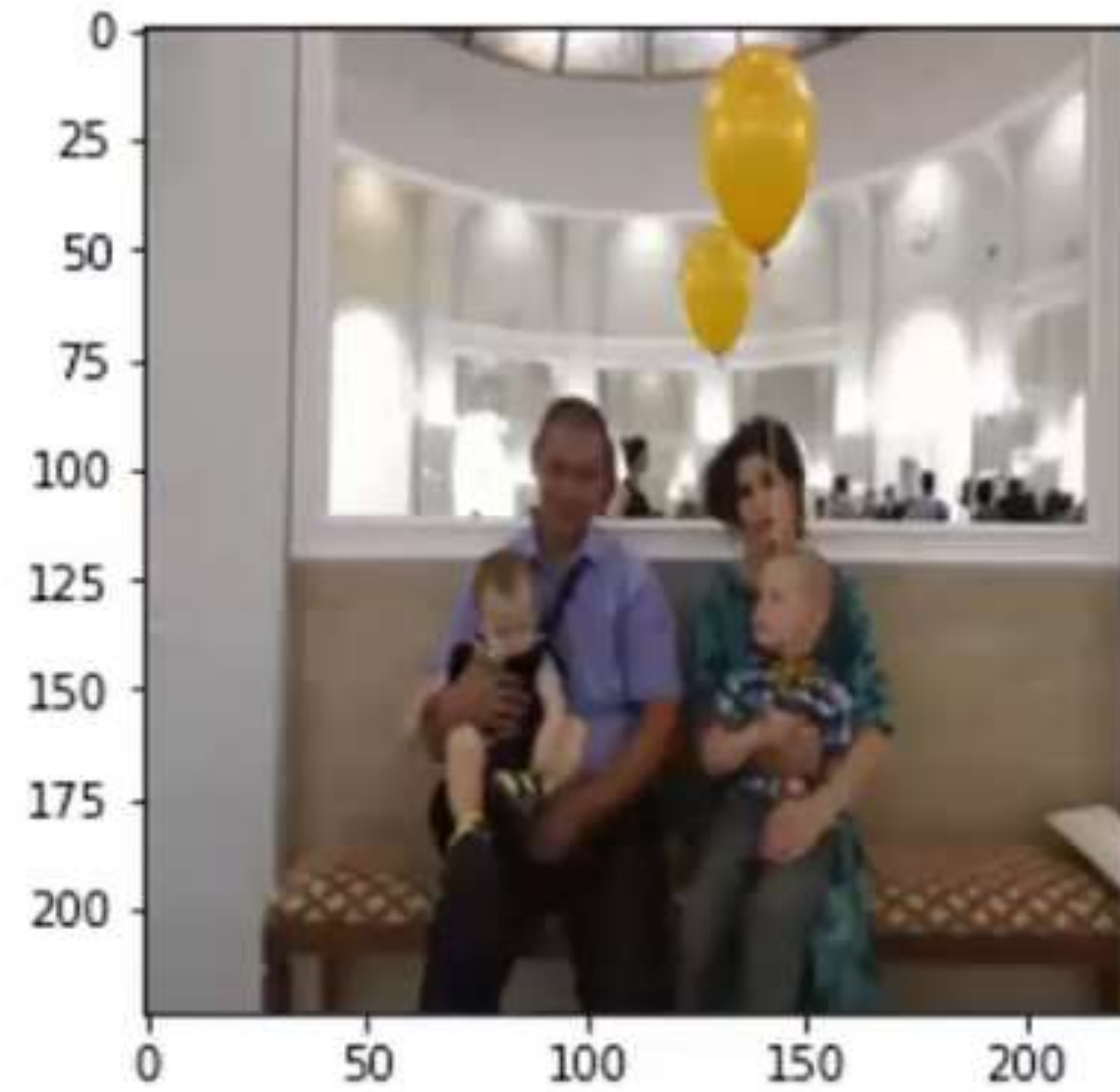
Outdoor



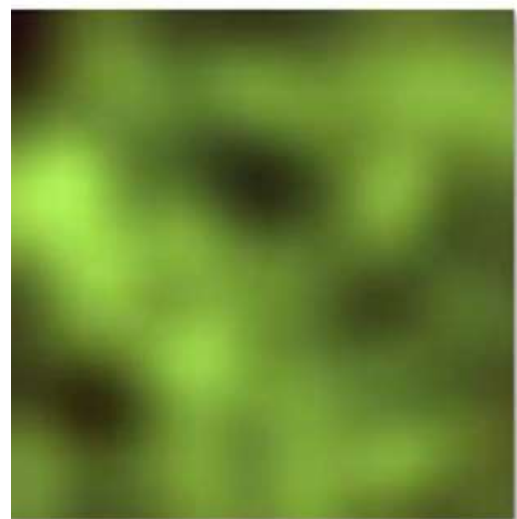
Indoor



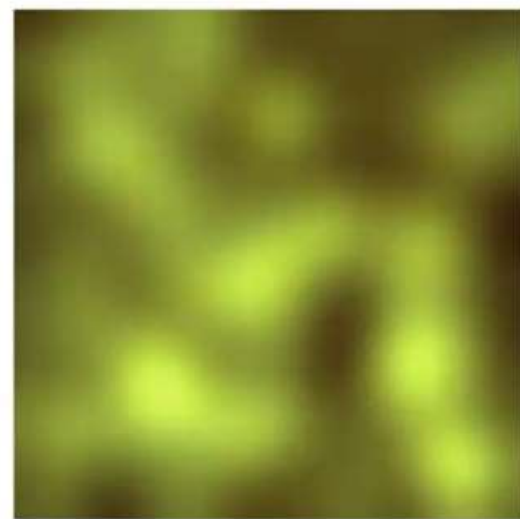
[0.00412067] [0.44132438] [0.22272253]



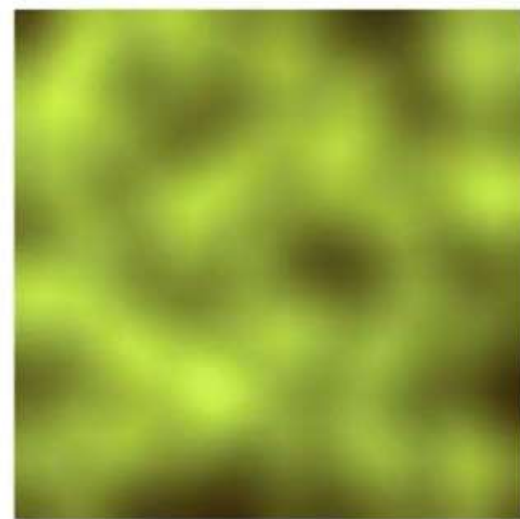
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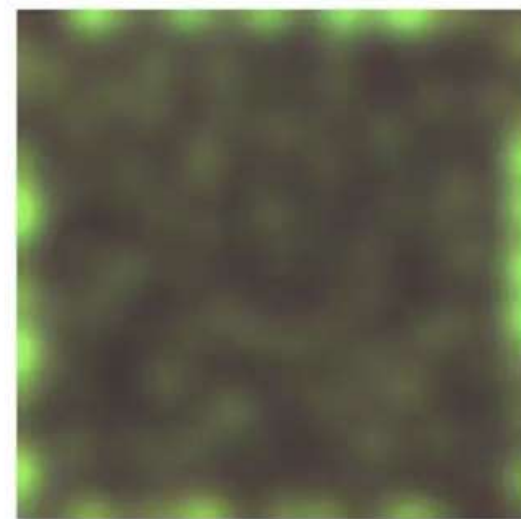
all_block1_conv1.png



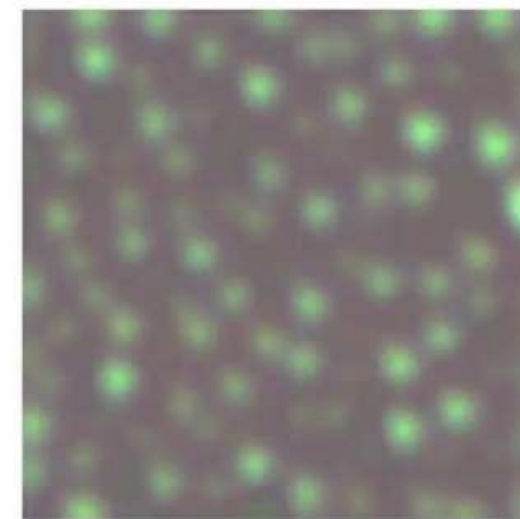
all_block1_conv2.png



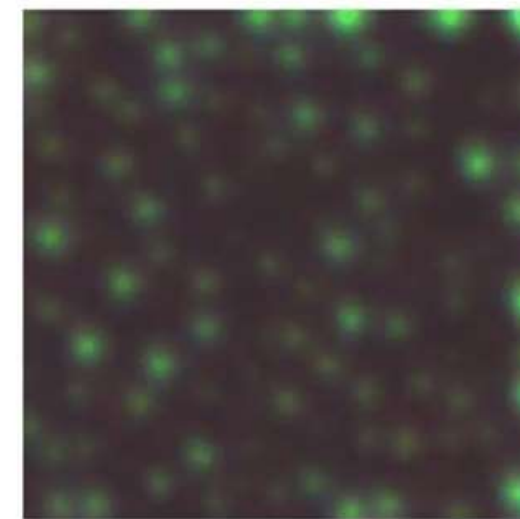
all_block1_pool.png



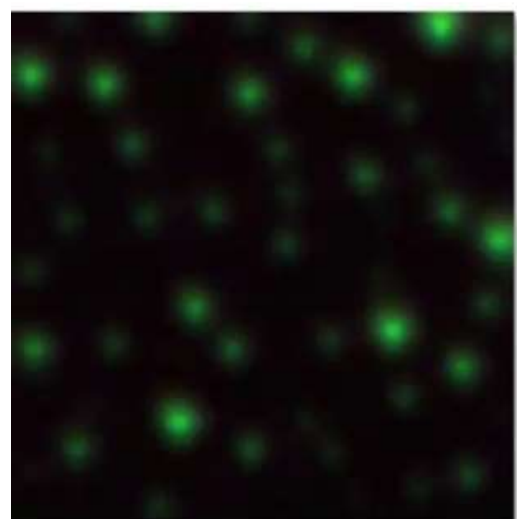
all_block2_conv1.png



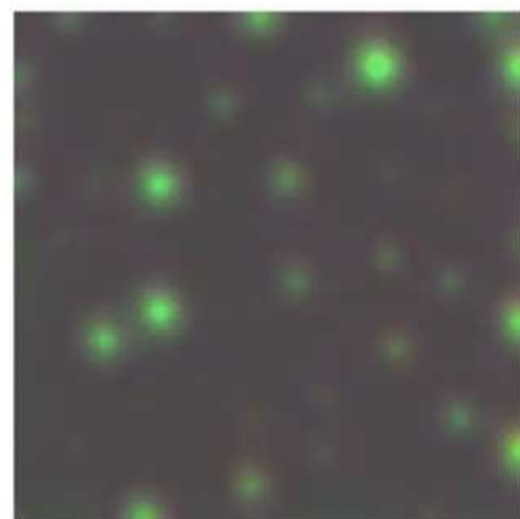
all_block2_conv2.png



all_block2_pool.png



all_block3_conv1.png



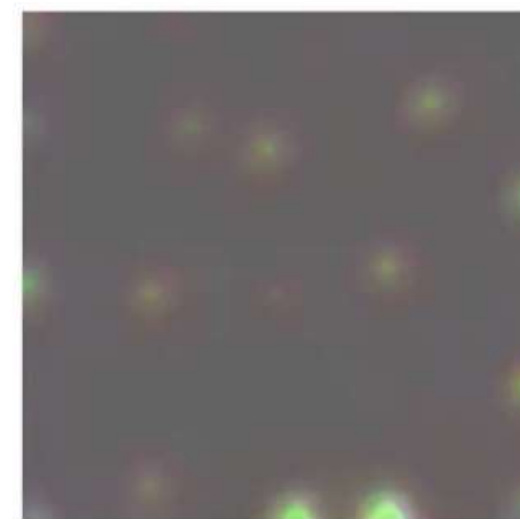
all_block3_conv2.png



all_block3_conv3.png



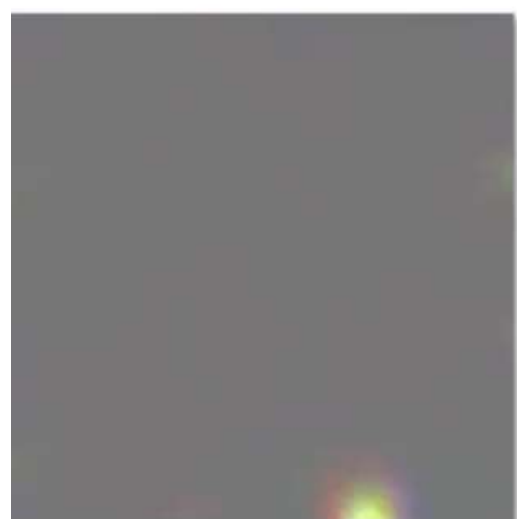
all_block3_pool.png



all_block4_conv1.png



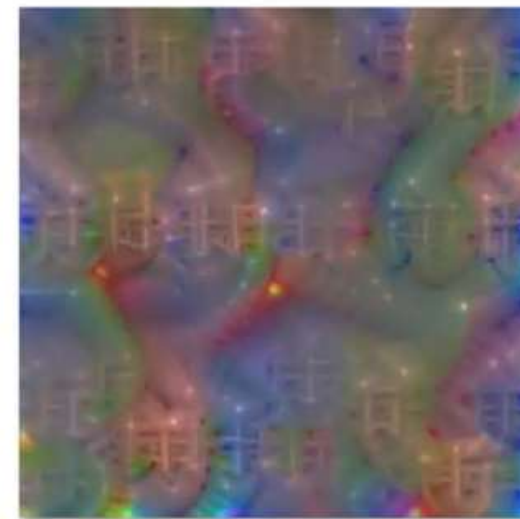
all_block4_conv2.png



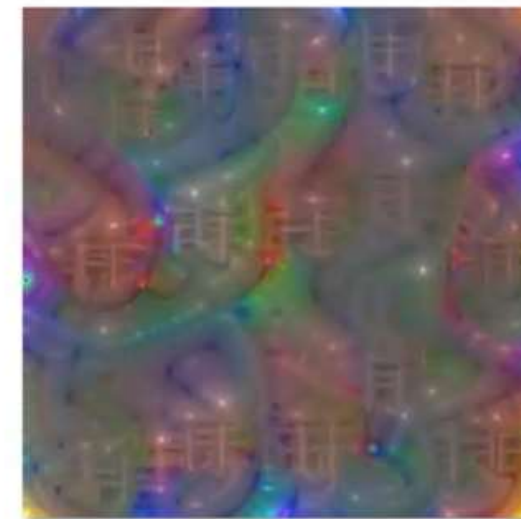
all_block4_conv3.png



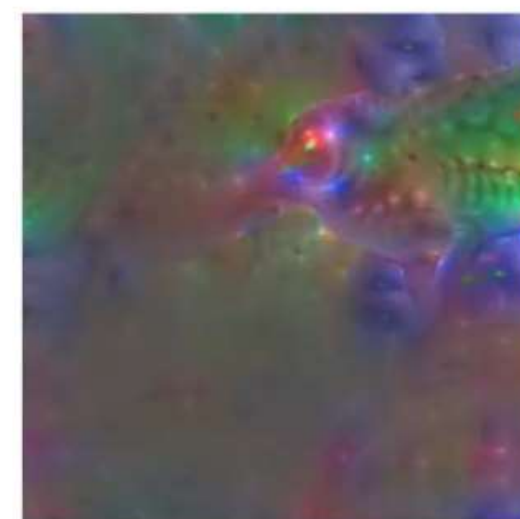
all_block4_pool.png



all_fc1 (1).png



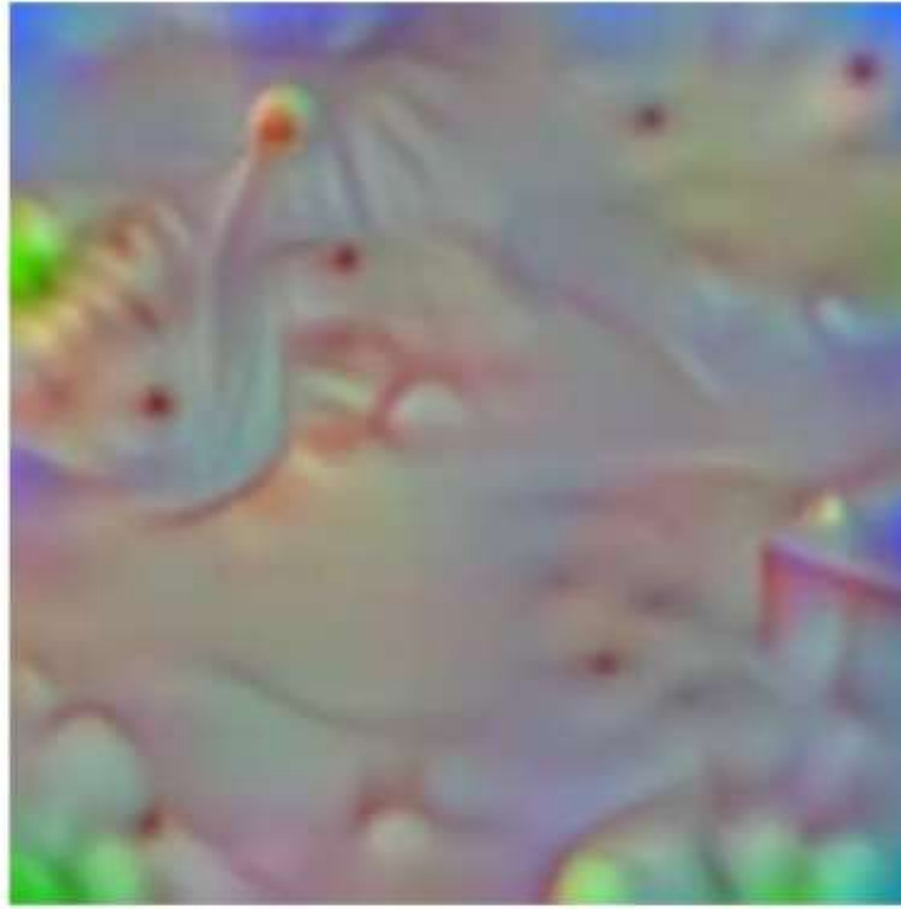
all_fc2 (2).png



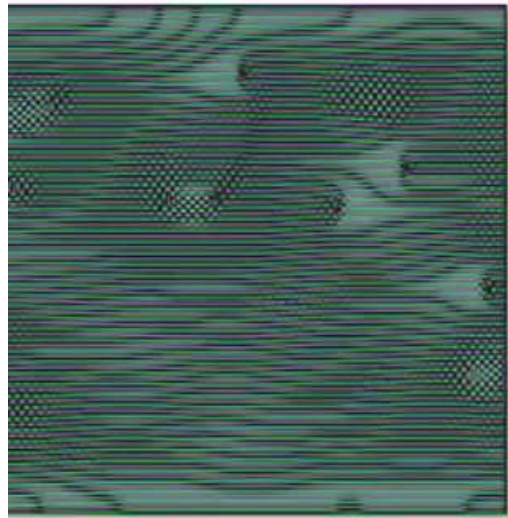
all_block5_conv3.png



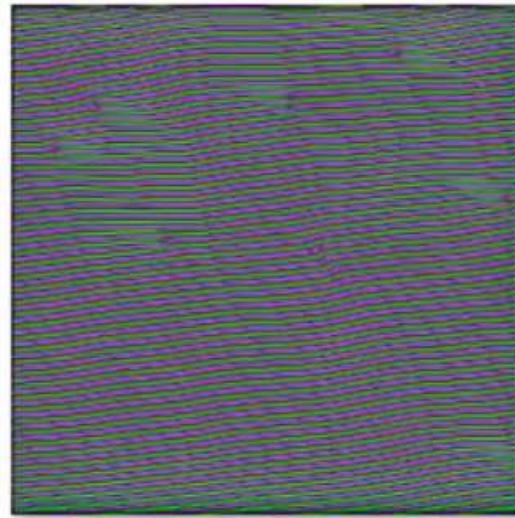
all_block5_pool (2).png



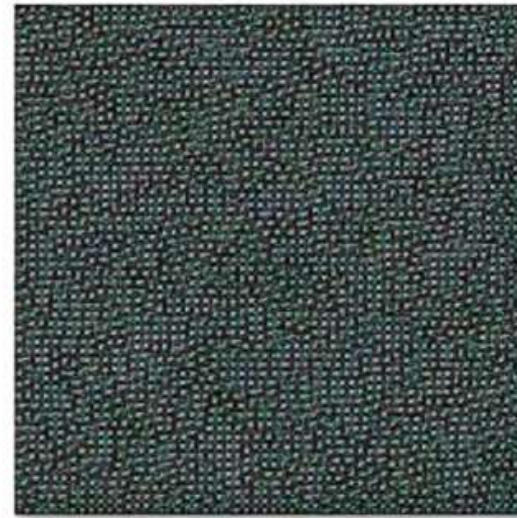
max street



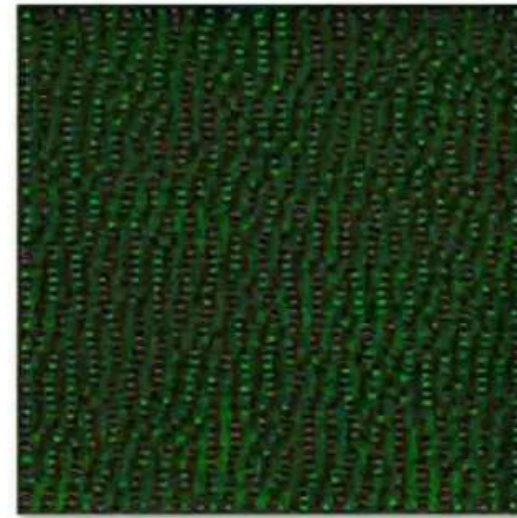
min_all_block1_conv1.png



min_all_block1_conv2.png



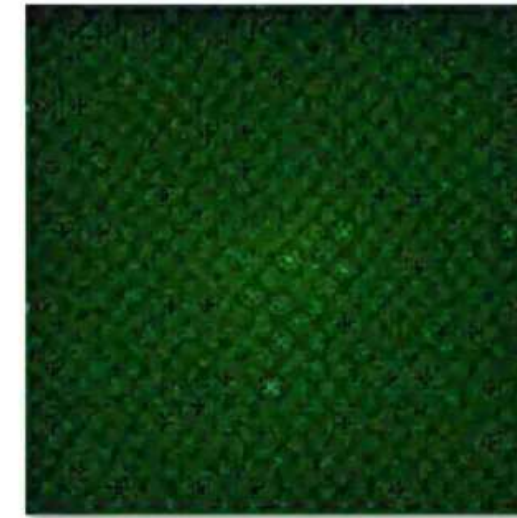
min_all_block1_pool.png



min_all_block2_conv1.png



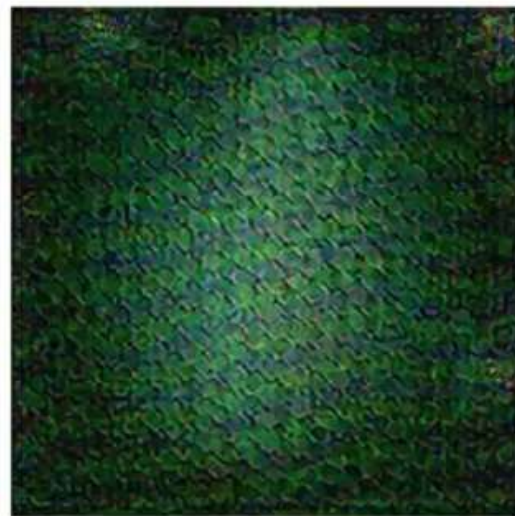
min_all_block2_conv2.png



min_all_block2_pool.png



min_all_block3_conv1.png



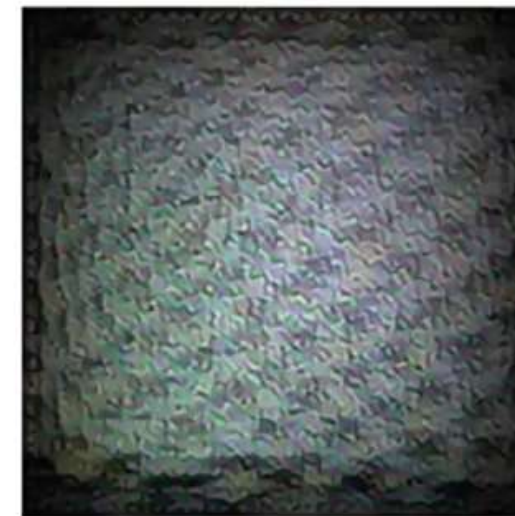
min_all_block3_conv2.png



min_all_block3_conv3.png



min_all_block3_pool.png



min_all_block4_conv1.png



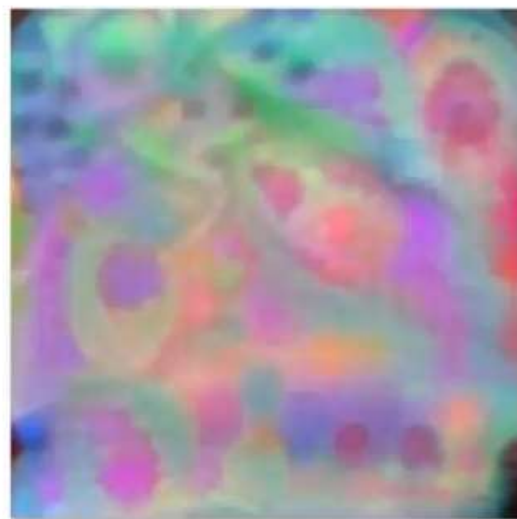
min_all_block4_conv2.png



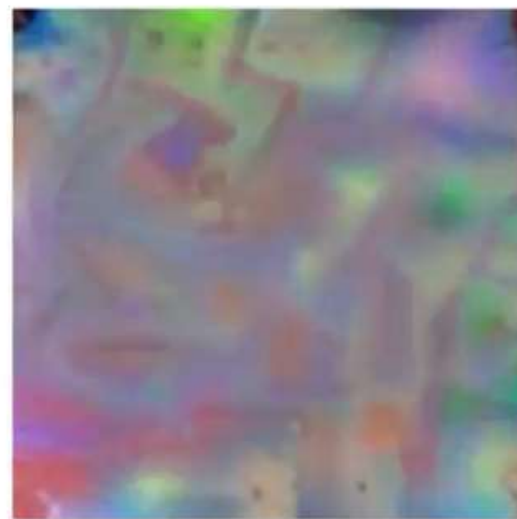
min_all_block4_conv3.png



min_all_block4_pool.png



min_all_fc1.png



min_all_fc2 (1).png



min_all_block5_conv3.png



min_all_block5_pool.png

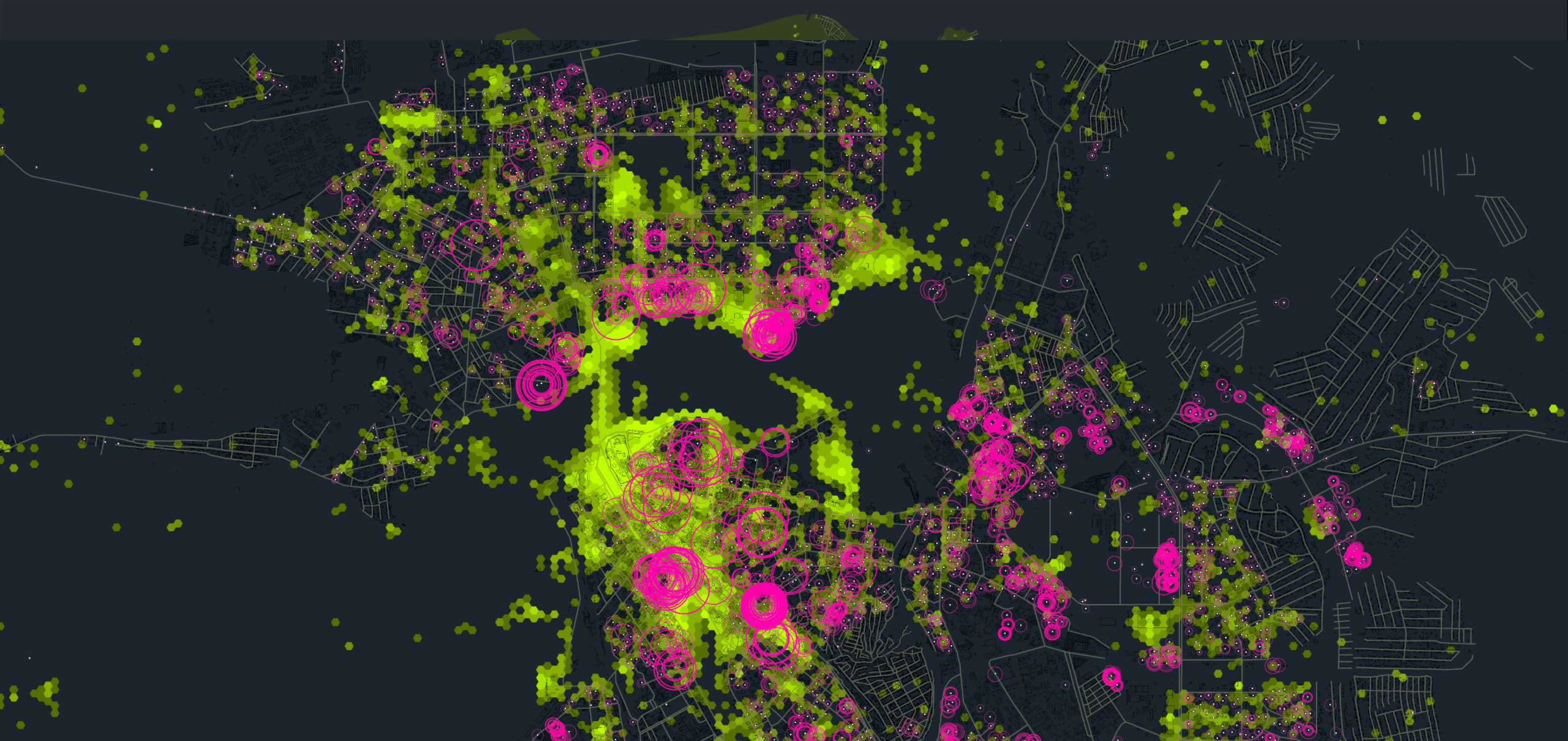


min street

Digital footprint – city photos



Environment rating calculation



Comparing the property prices and environment rating