



Synthetic Data Generation for Machine Learning

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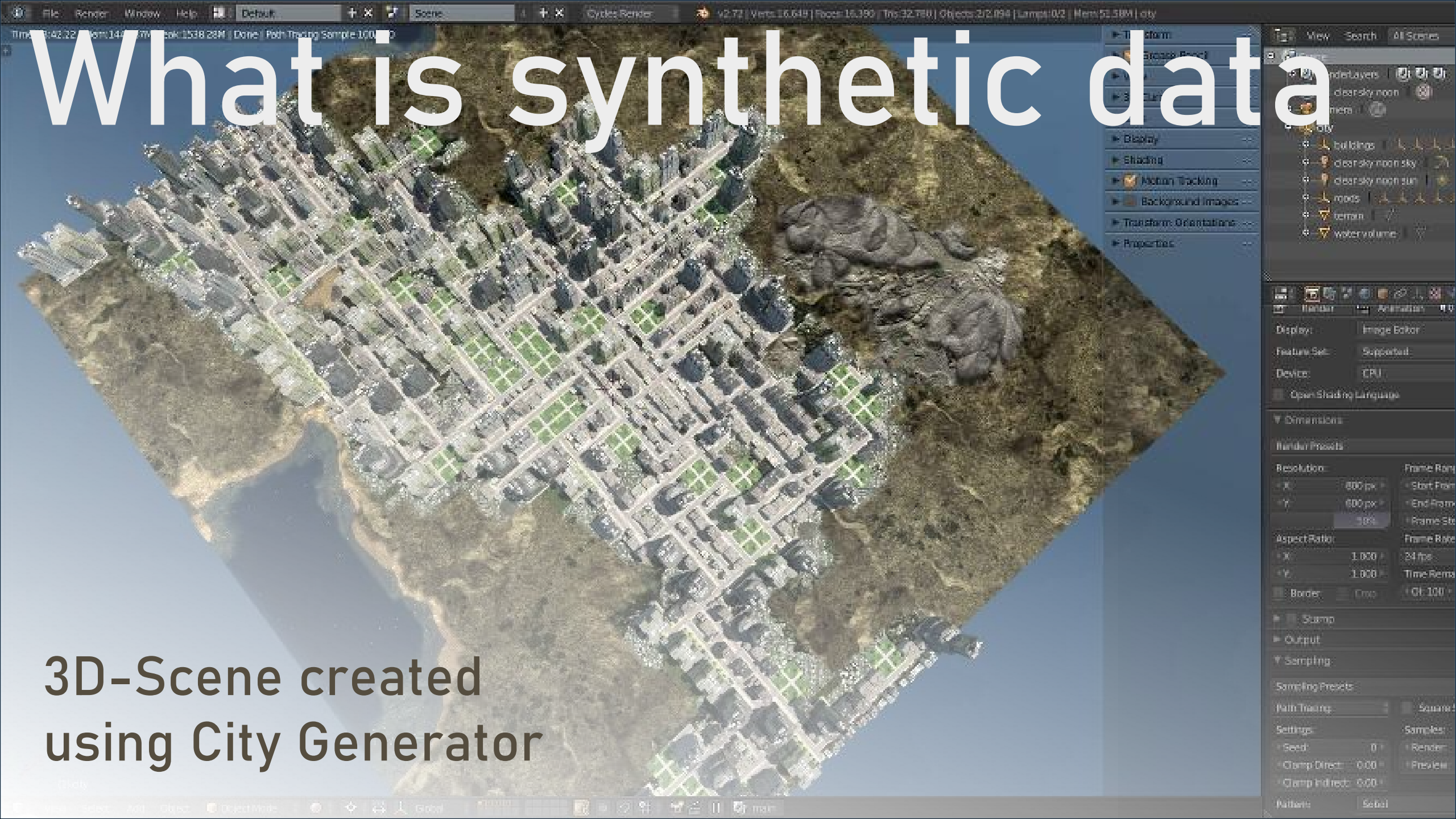
Abstract



Oh no...
We have no enough data...



Just generate it,
Bruh...



What is synthetic data

3D-Scene created
using City Generator



Types of synthetic data

- Partial Type
Background is real,
car is not



- Full type
Background and car
is not real



When and why synthetic data is used?

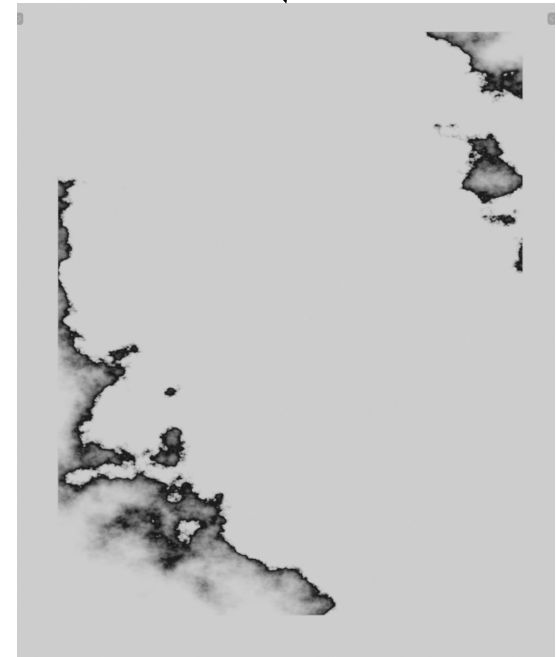
When and why synthetic data is used?



Unlabeled image

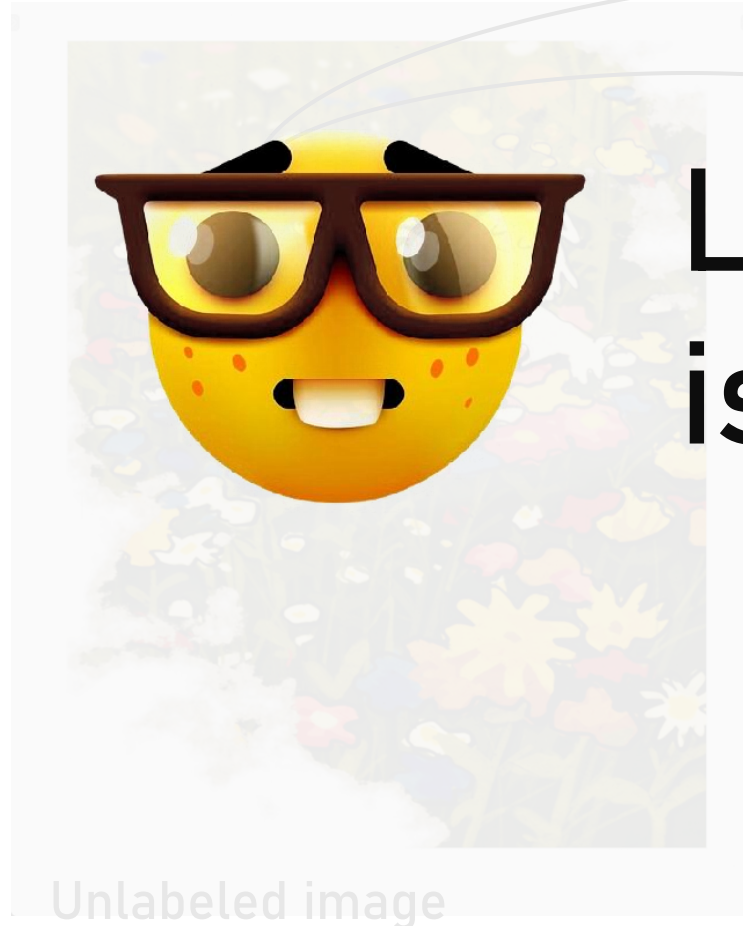


Labeled Alpha



Labeled Interlayer

When and why synthetic data is used?



**Labeling like this
is so hard**



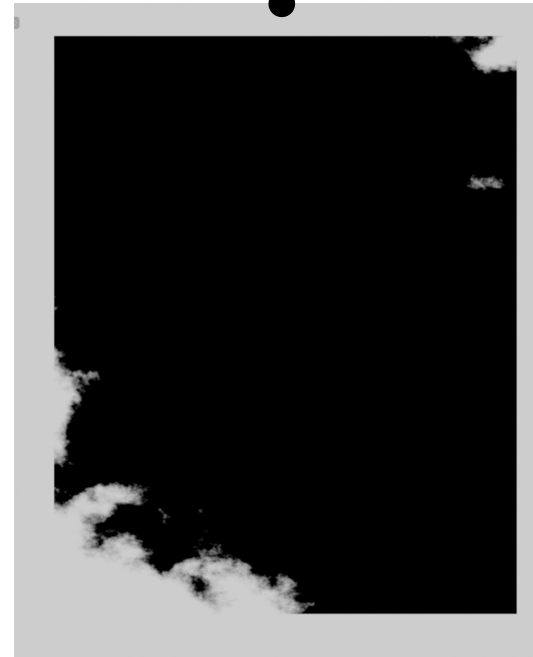
When and why synthetic data is used?



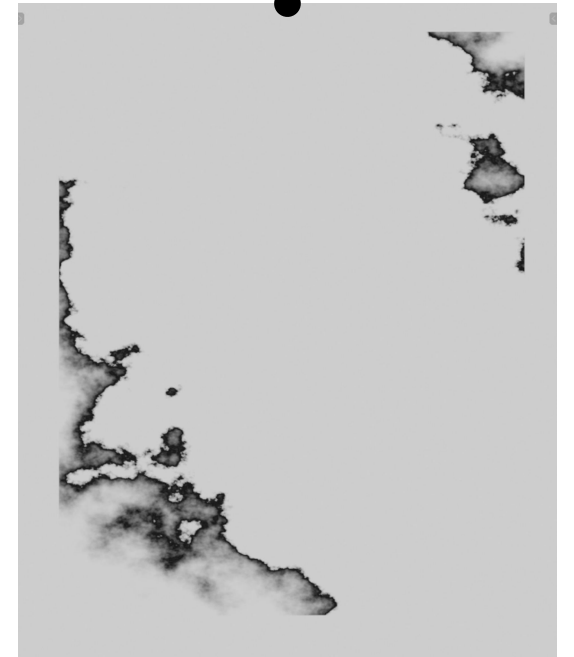
Generated image



Original image



Generated Alpha /
Automatically labeled



Generated Interlayer /
Automatically labeled

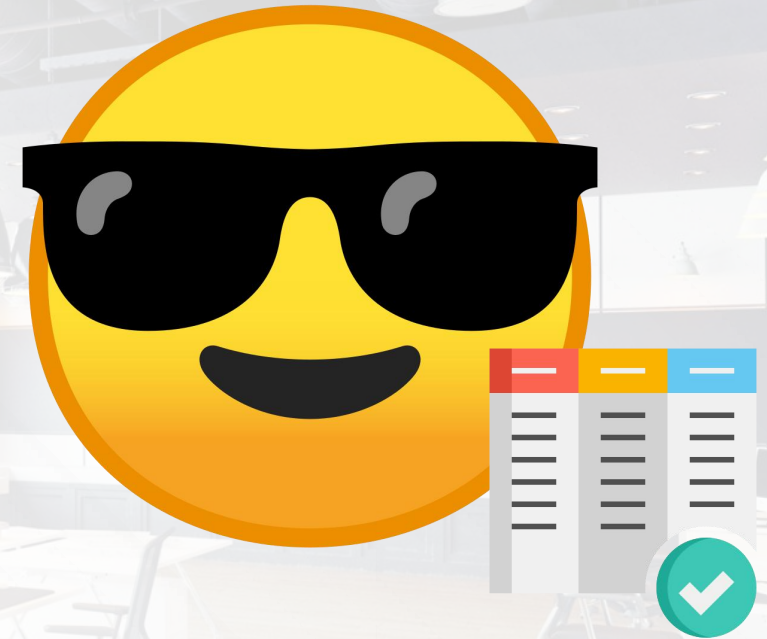
When and why synthetic data is used?



Tabular synthetic data



Im a person and
my data is pesonal!

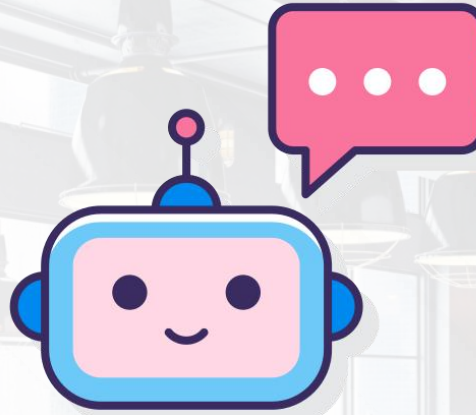


No problem, we use
tabular data generator


Text synthetic data



This Chatbot
is so cool



We trained him
on synthetic text data

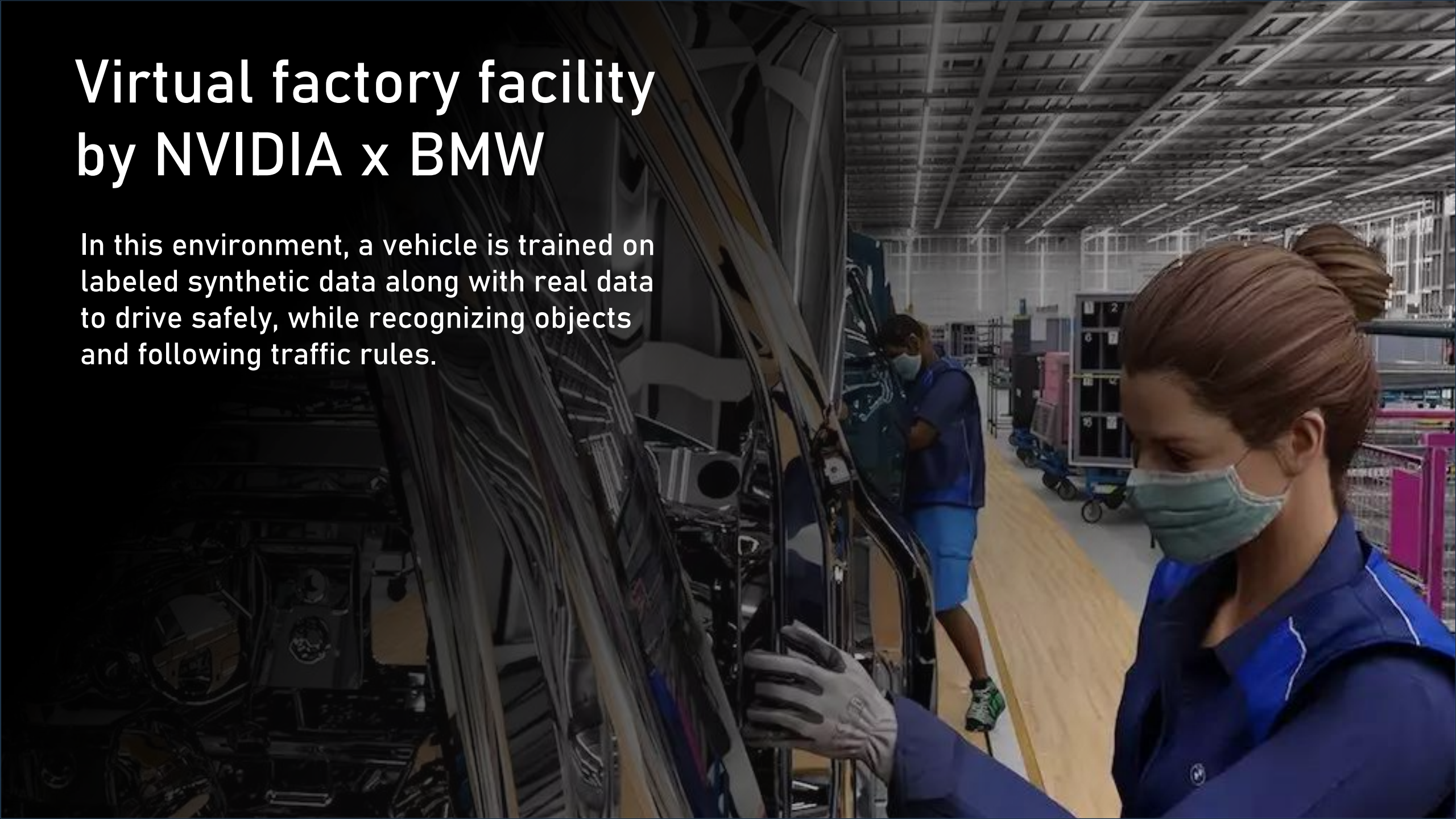
An aerial, top-down view of a multi-lane highway. Several vehicles are visible, each enclosed in a bright green rectangular bounding box. The vehicles include a large white semi-truck in the center lane and several smaller cars in the adjacent lanes. The road surface is dark gray, and the surrounding areas are lighter gray, representing shoulders and possibly other roads or terrain. The perspective is from directly above, looking down the length of the highway.

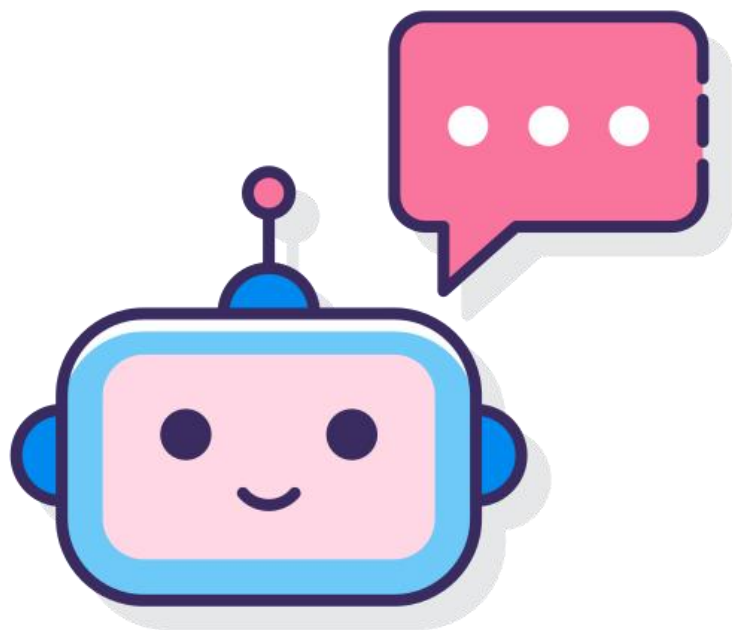
Self-driving vehicles by Waymo

In this environment, a vehicle is trained on labeled synthetic data along with real data to drive safely, while recognizing objects and following traffic rules.

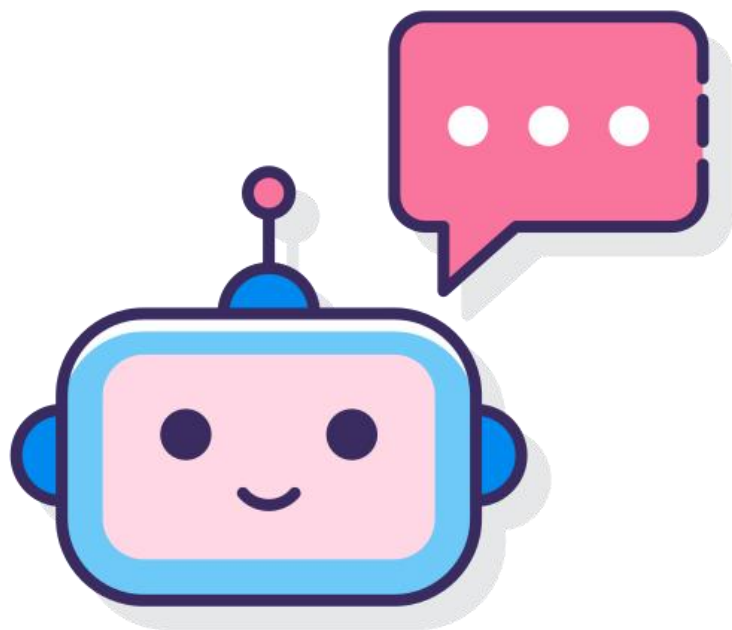
Virtual factory facility by NVIDIA x BMW

In this environment, a vehicle is trained on labeled synthetic data along with real data to drive safely, while recognizing objects and following traffic rules.





Synthetic data is cool



Thanks for your attention