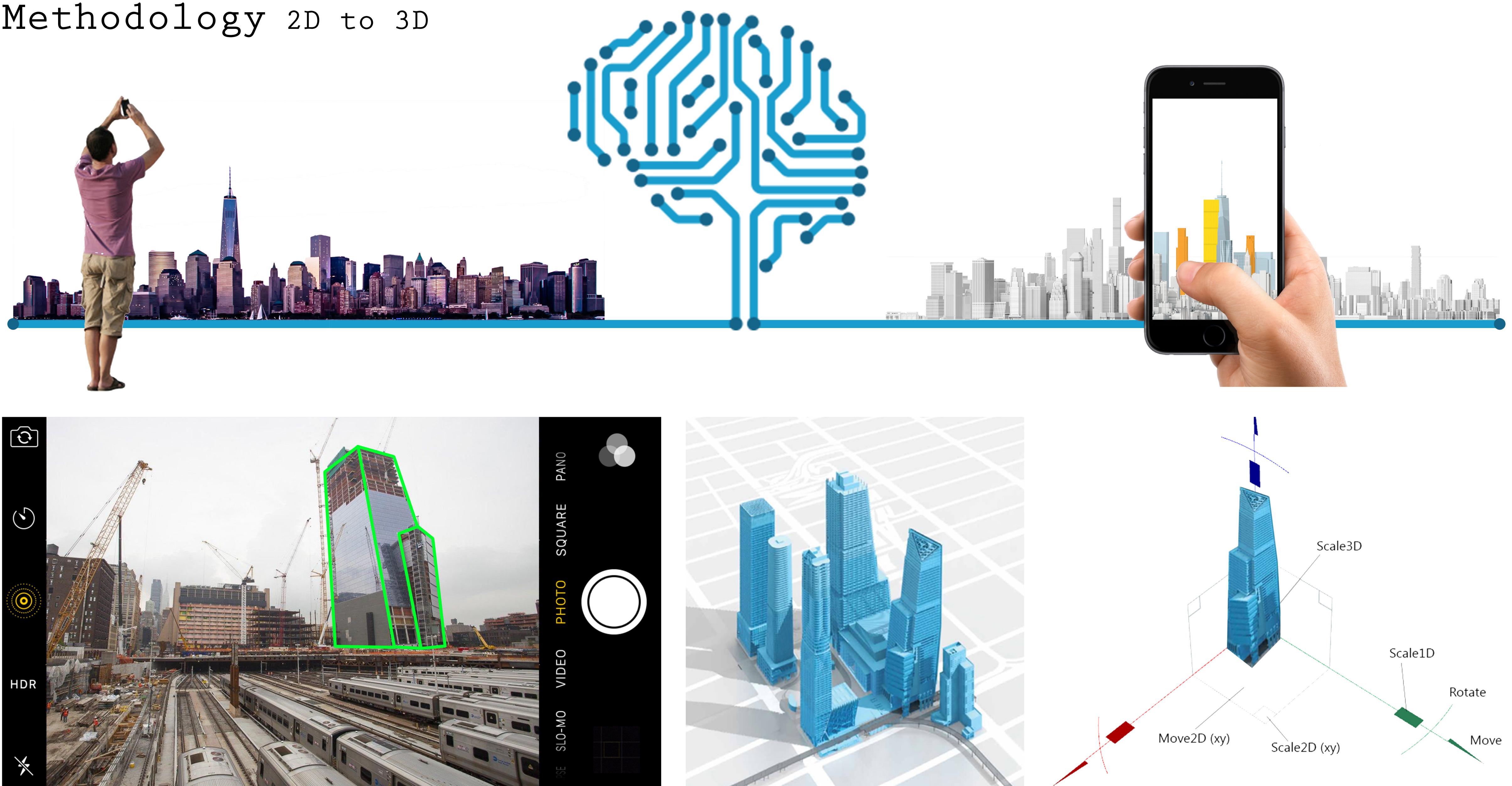


MONKEY

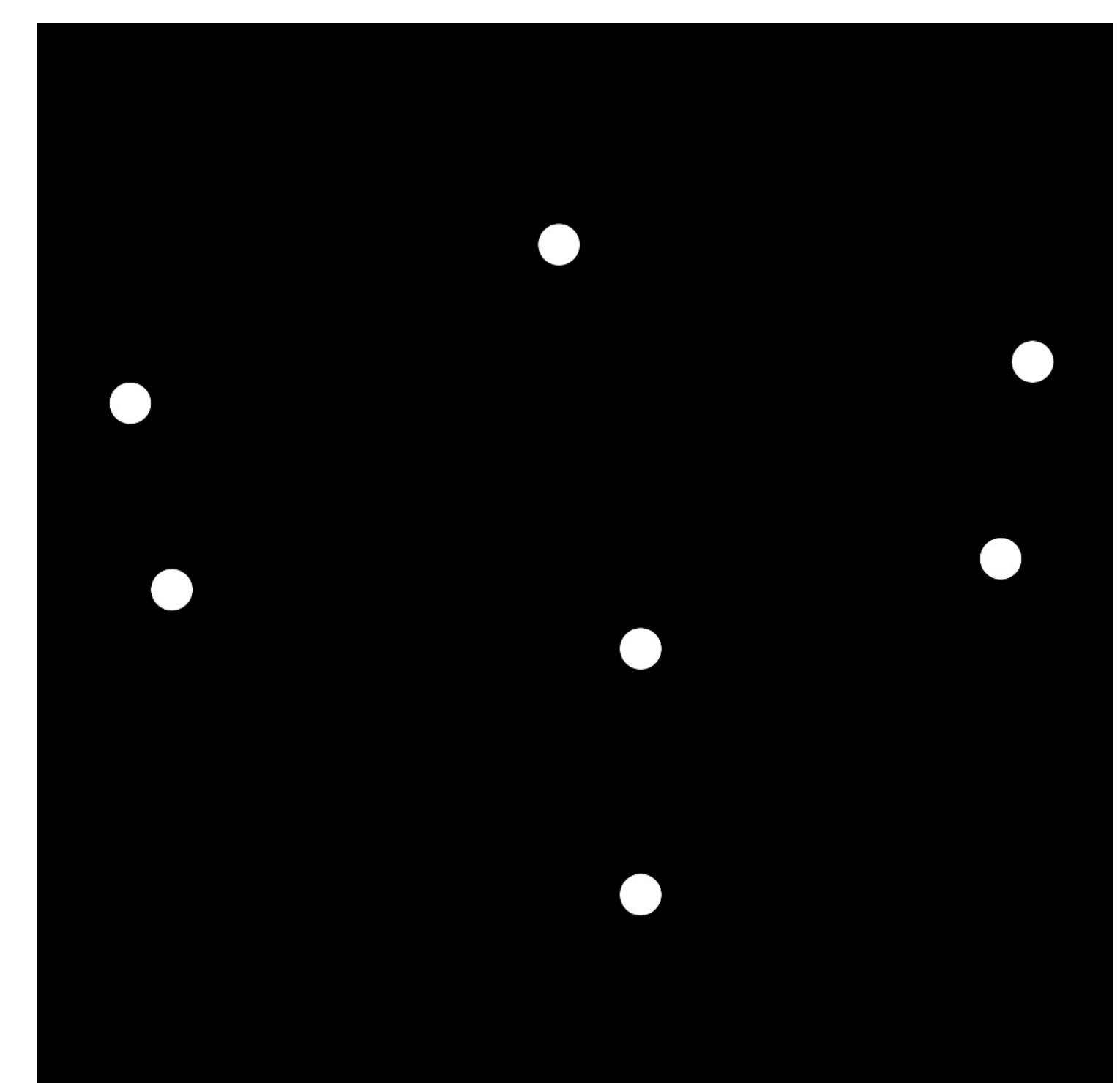
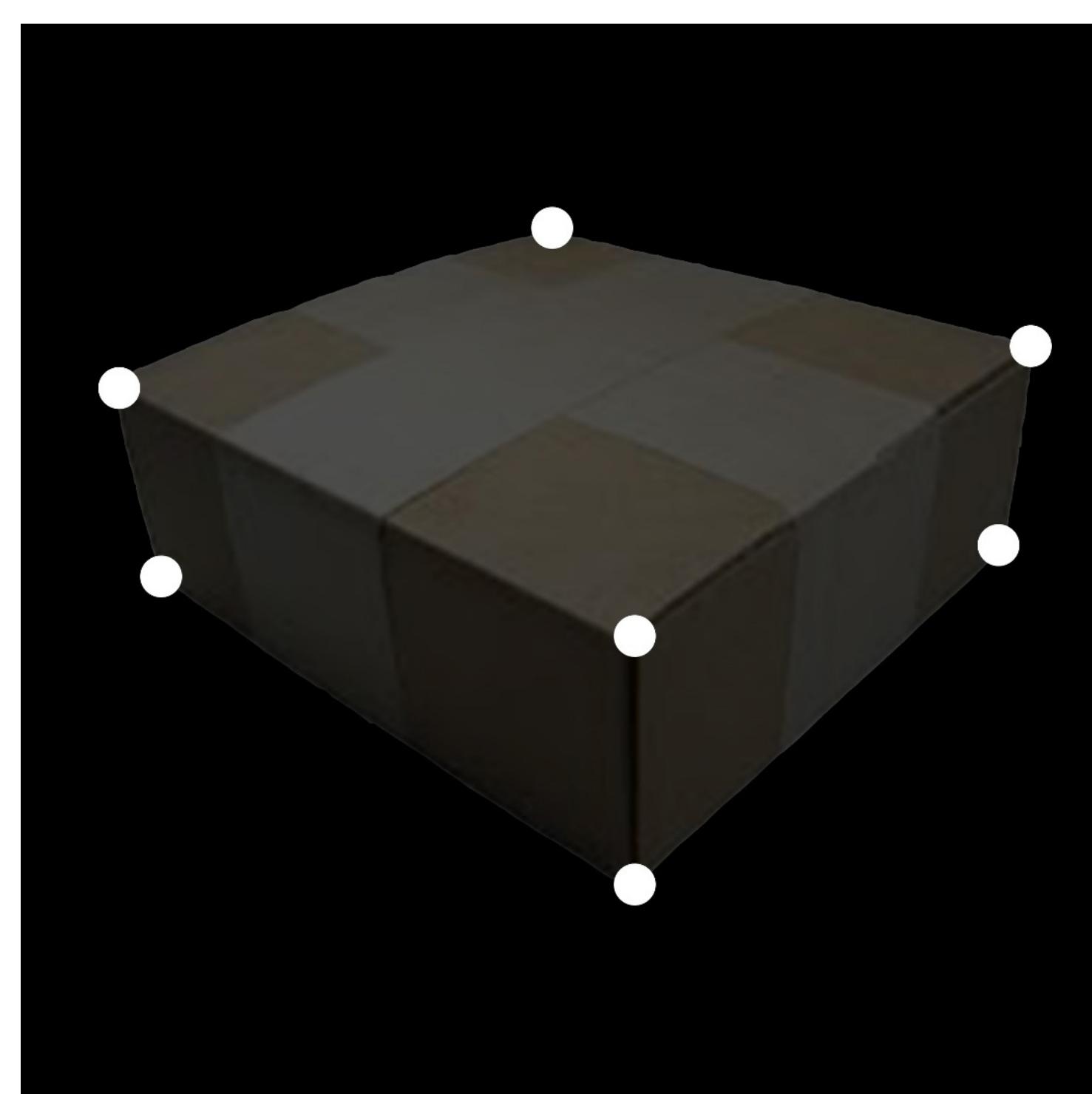
3D Model Generation by Taking Photos

Jiaqi_Sun_js4945
Ge_Zhao_gz2239
Tianyang_Xie_tx2152
Data Mining the City_GSAPP_2016

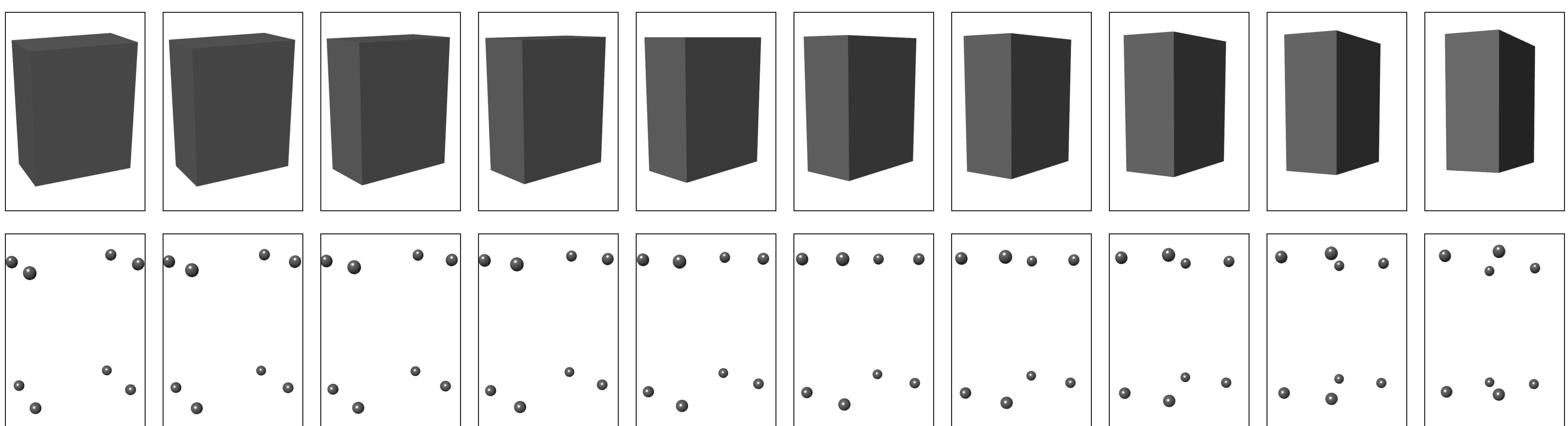
Methodology 2D to 3D



Methodology 00_Data Collection



Data Expansion



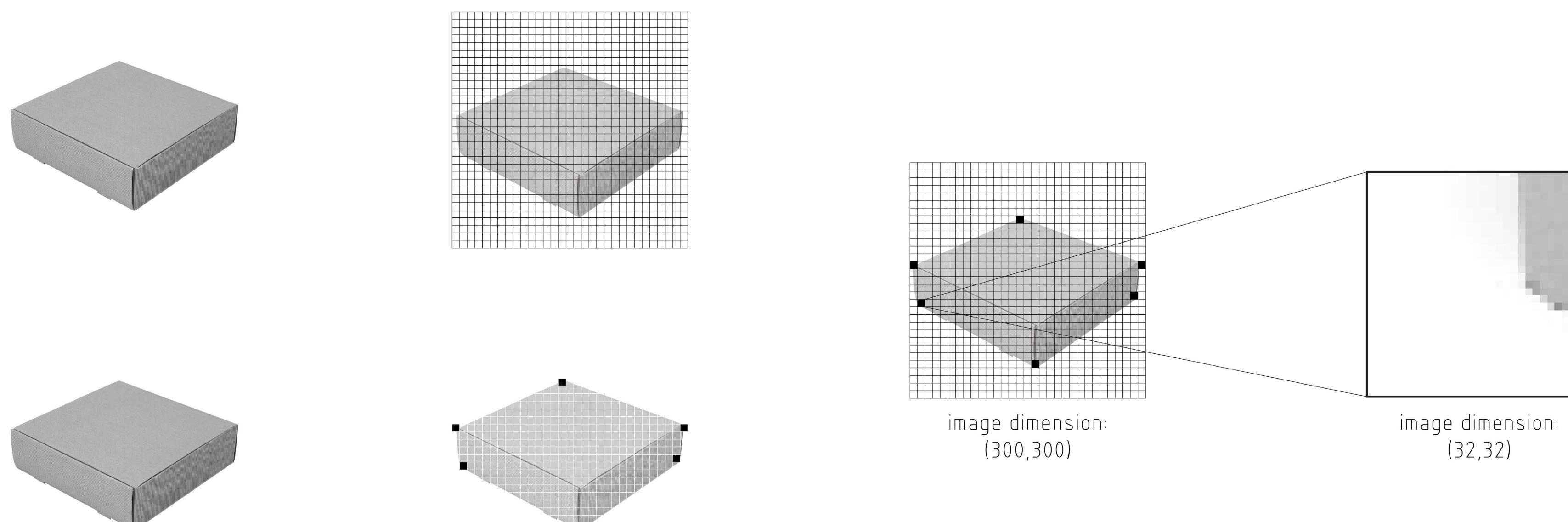
Methodology 01_Image Clip



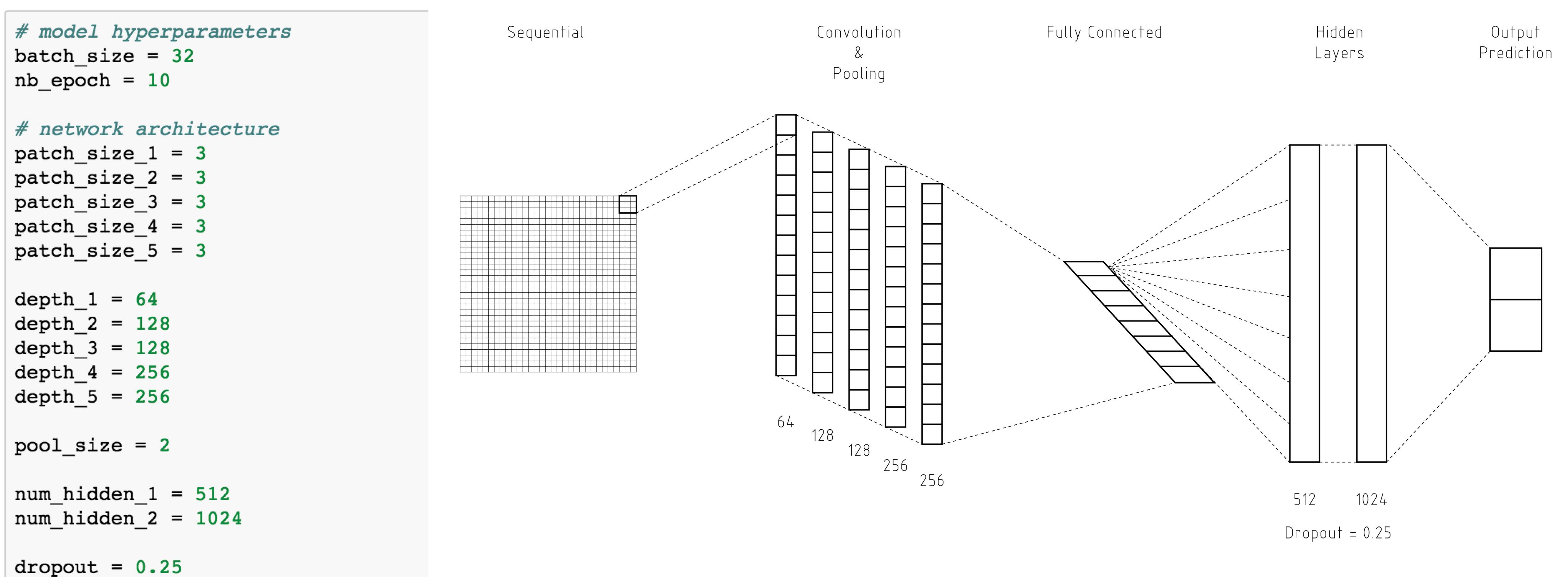
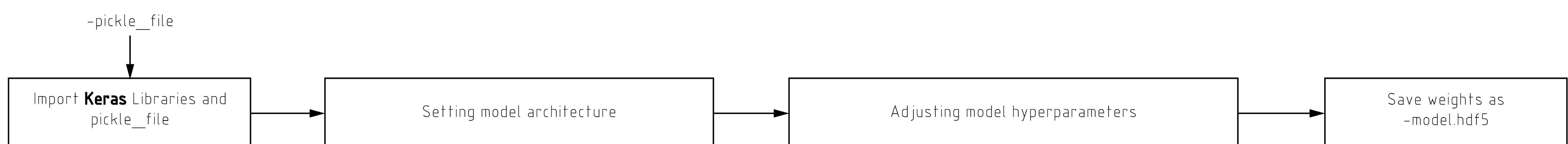
```

targetImageSize = 300.0
targetRes = 32
stride = 2
  
```

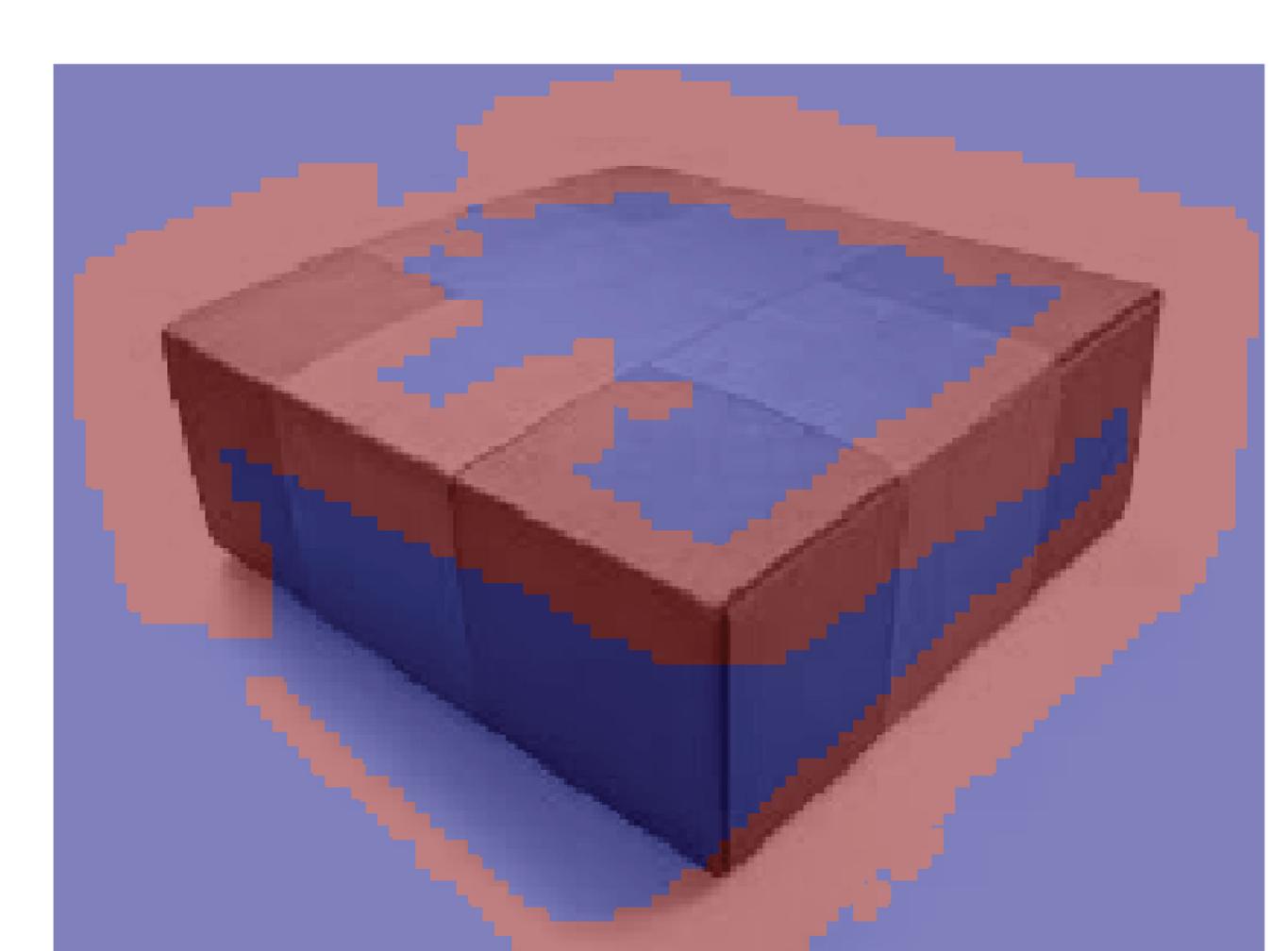
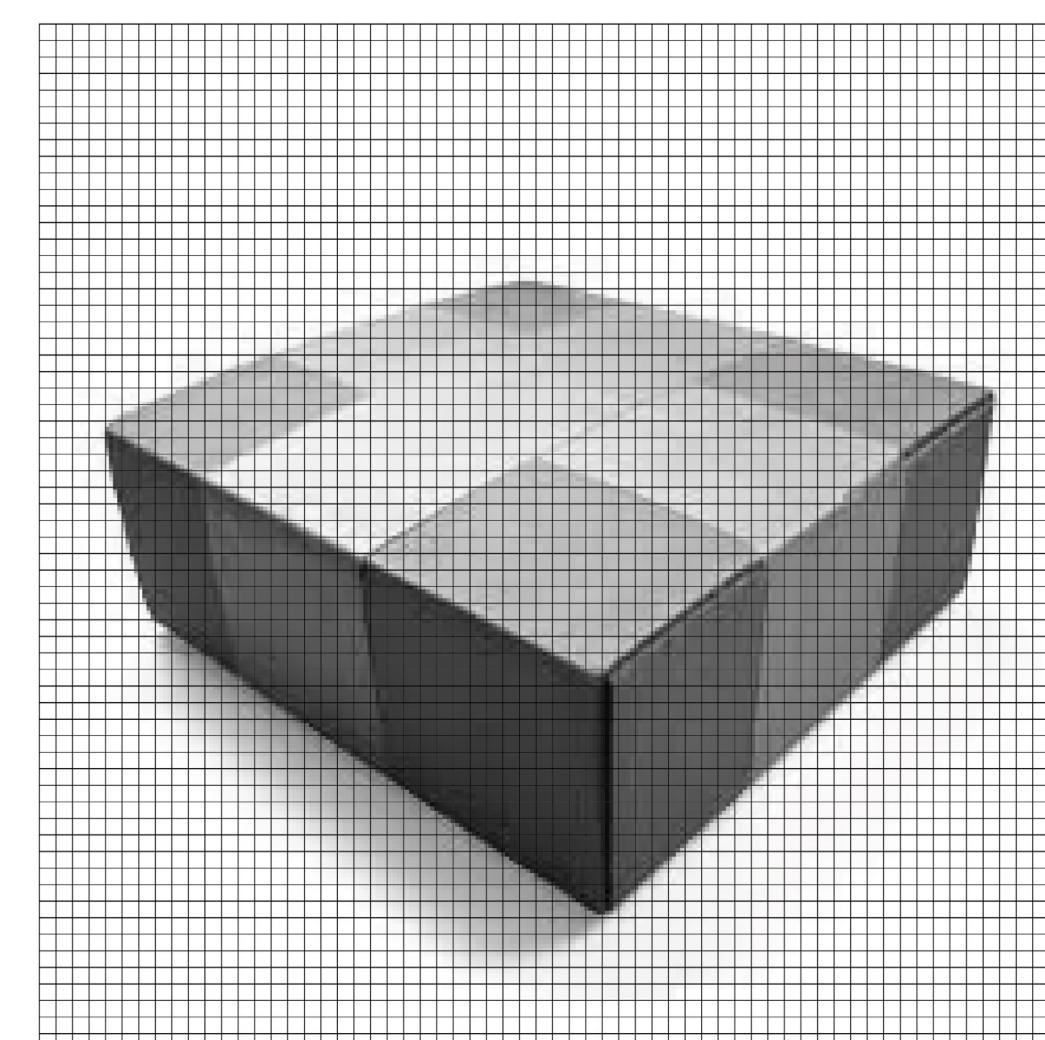
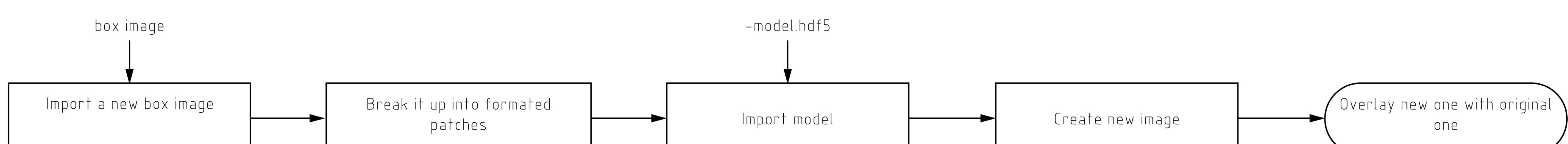
num samples:
7806



Methodology 02_Build Model

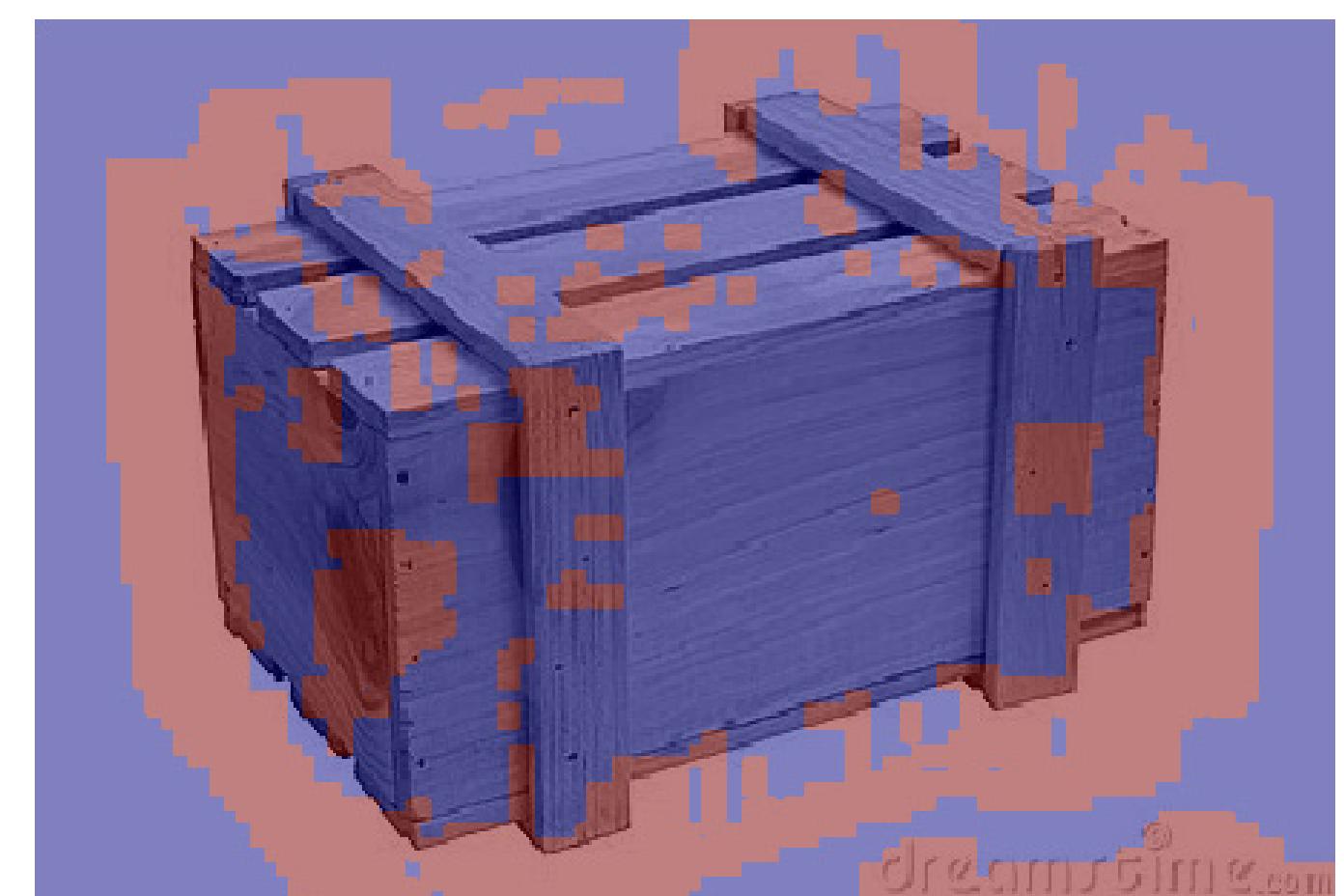
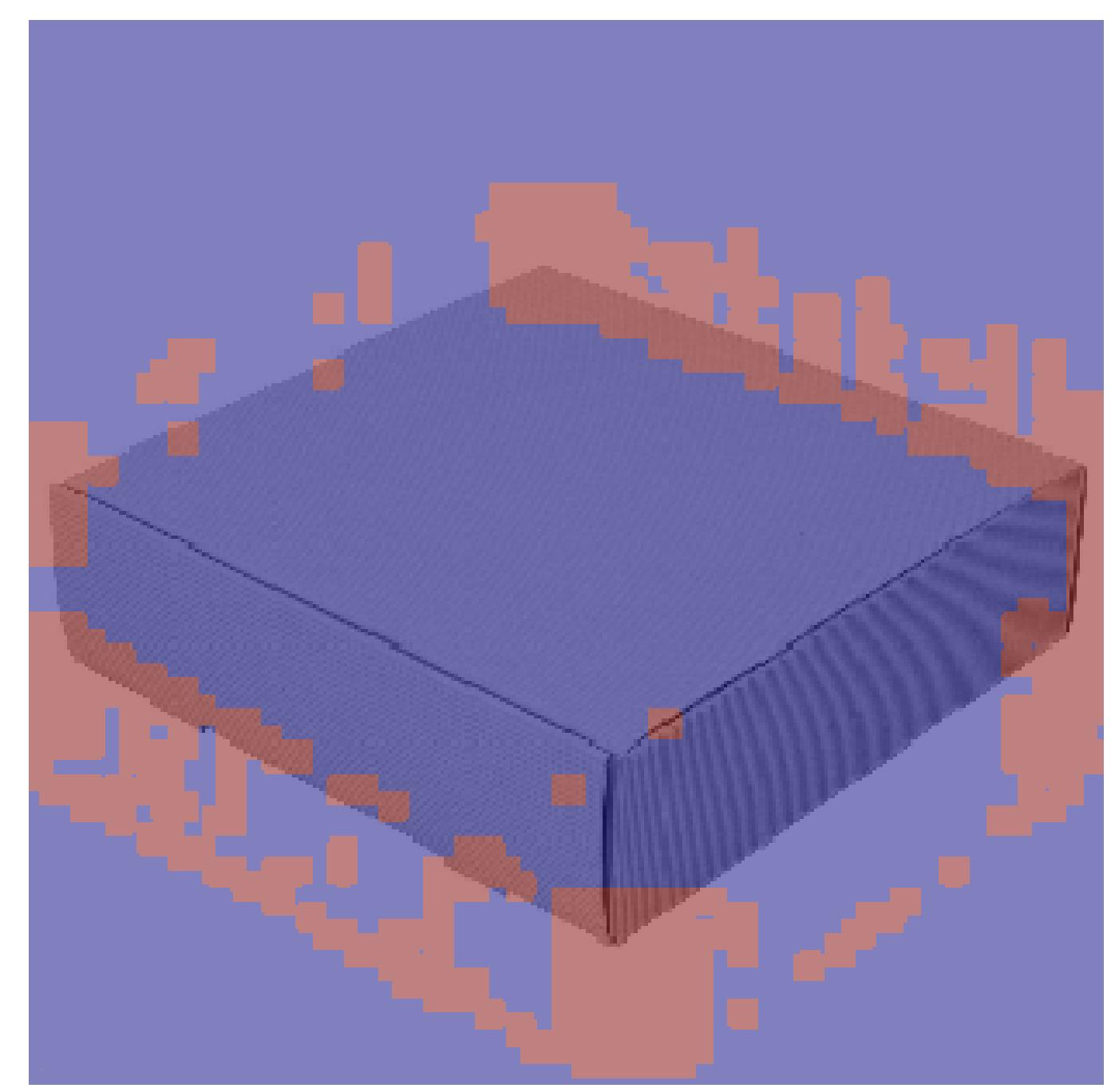


Methodology 03_Use Model



Methodology 04_Training Result

```
Train on 5854 samples, validate on 1952 samples
Epoch 1/20
5854/5854 [=====] - 92s - loss: 0.6931 - acc: 0.5091 - val_loss: 0.6920 - val_acc: 0.5149
Epoch 2/20
5854/5854 [=====] - 97s - loss: 0.6916 - acc: 0.5318 - val_loss: 0.7628 - val_acc: 0.4851
Epoch 3/20
5854/5854 [=====] - 101s - loss: 0.6602 - acc: 0.6109 - val_loss: 0.6136 - val_acc: 0.6783
Epoch 4/20
5854/5854 [=====] - 101s - loss: 0.5947 - acc: 0.7007 - val_loss: 0.5687 - val_acc: 0.7275
Epoch 5/20
5854/5854 [=====] - 101s - loss: 0.5301 - acc: 0.7480 - val_loss: 0.5174 - val_acc: 0.7669
Epoch 6/20
5854/5854 [=====] - 100s - loss: 0.4727 - acc: 0.7798 - val_loss: 0.4391 - val_acc: 0.8069
Epoch 7/20
5854/5854 [=====] - 100s - loss: 0.4390 - acc: 0.8066 - val_loss: 0.4077 - val_acc: 0.8212
Epoch 8/20
5854/5854 [=====] - 101s - loss: 0.4071 - acc: 0.8182 - val_loss: 0.5034 - val_acc: 0.8017
Epoch 9/20
5854/5854 [=====] - 101s - loss: 0.3832 - acc: 0.8328 - val_loss: 0.3650 - val_acc: 0.8386
Epoch 10/20
5854/5854 [=====] - 101s - loss: 0.3617 - acc: 0.8389 - val_loss: 0.4008 - val_acc: 0.8243
Epoch 11/20
5854/5854 [=====] - 101s - loss: 0.3415 - acc: 0.8504 - val_loss: 0.3491 - val_acc: 0.8366
Epoch 12/20
5854/5854 [=====] - 103s - loss: 0.3212 - acc: 0.8574 - val_loss: 0.3284 - val_acc: 0.8530
Epoch 13/20
5854/5854 [=====] - 101s - loss: 0.3109 - acc: 0.8668 - val_loss: 0.3354 - val_acc: 0.8489
Epoch 14/20
5854/5854 [=====] - 103s - loss: 0.2883 - acc: 0.8789 - val_loss: 0.3082 - val_acc: 0.8678
Epoch 15/20
5854/5854 [=====] - 108s - loss: 0.2744 - acc: 0.8866 - val_loss: 0.2883 - val_acc: 0.8791
Epoch 16/20
5854/5854 [=====] - 103s - loss: 0.2758 - acc: 0.8867 - val_loss: 0.2803 - val_acc: 0.8842
Epoch 17/20
5854/5854 [=====] - 102s - loss: 0.2551 - acc: 0.8978 - val_loss: 0.2993 - val_acc: 0.8786
Epoch 18/20
5854/5854 [=====] - 102s - loss: 0.2450 - acc: 0.8999 - val_loss: 0.3579 - val_acc: 0.8704
Epoch 19/20
5854/5854 [=====] - 96s - loss: 0.2406 - acc: 0.9033 - val_loss: 0.2303 - val_acc: 0.9068
Epoch 20/20
5854/5854 [=====] - 100s - loss: 0.2362 - acc: 0.9038 - val_loss: 0.2587 - val_acc: 0.8914
```

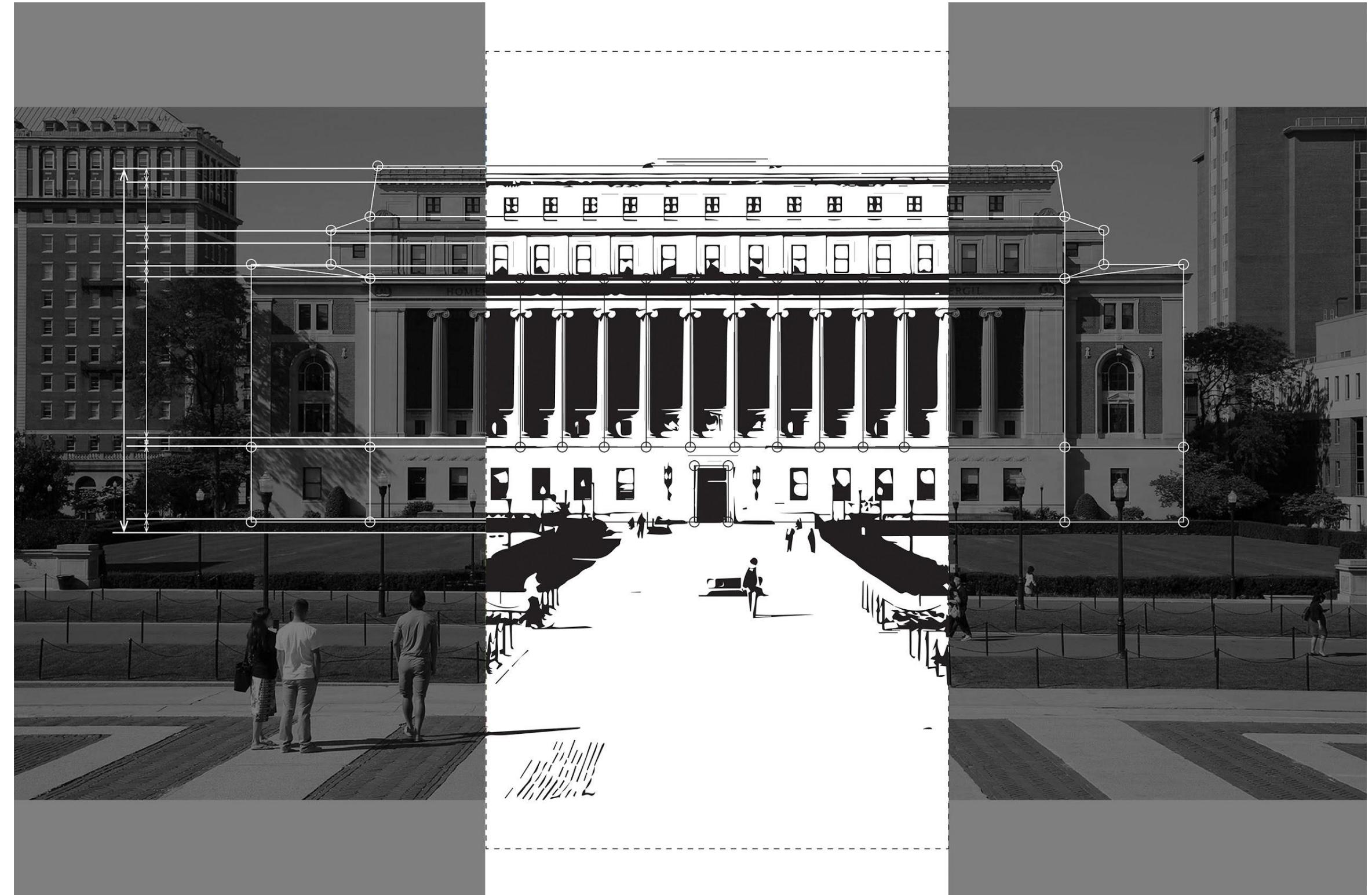


Future Version 01 Measuring and Experiment Tool

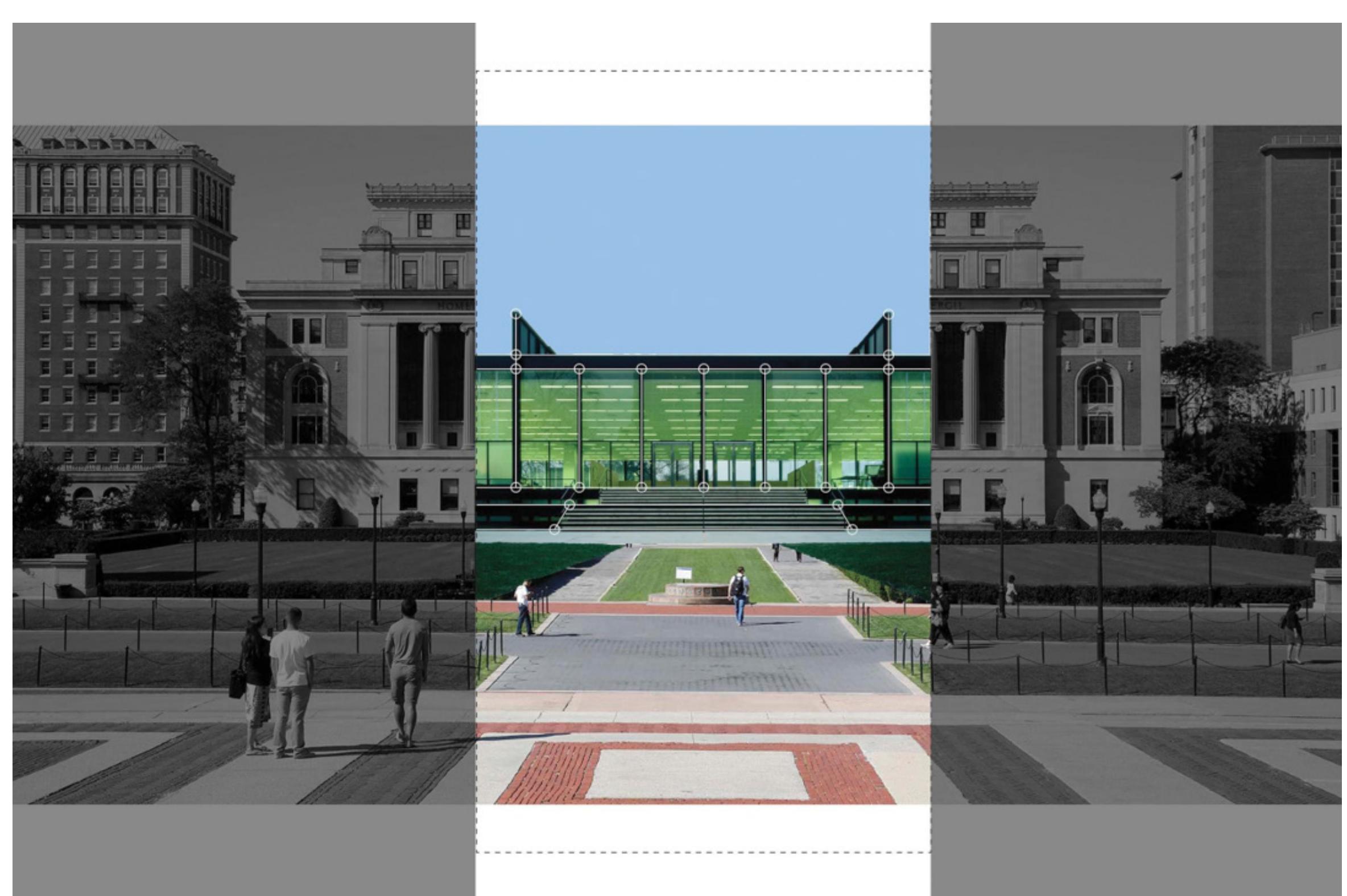
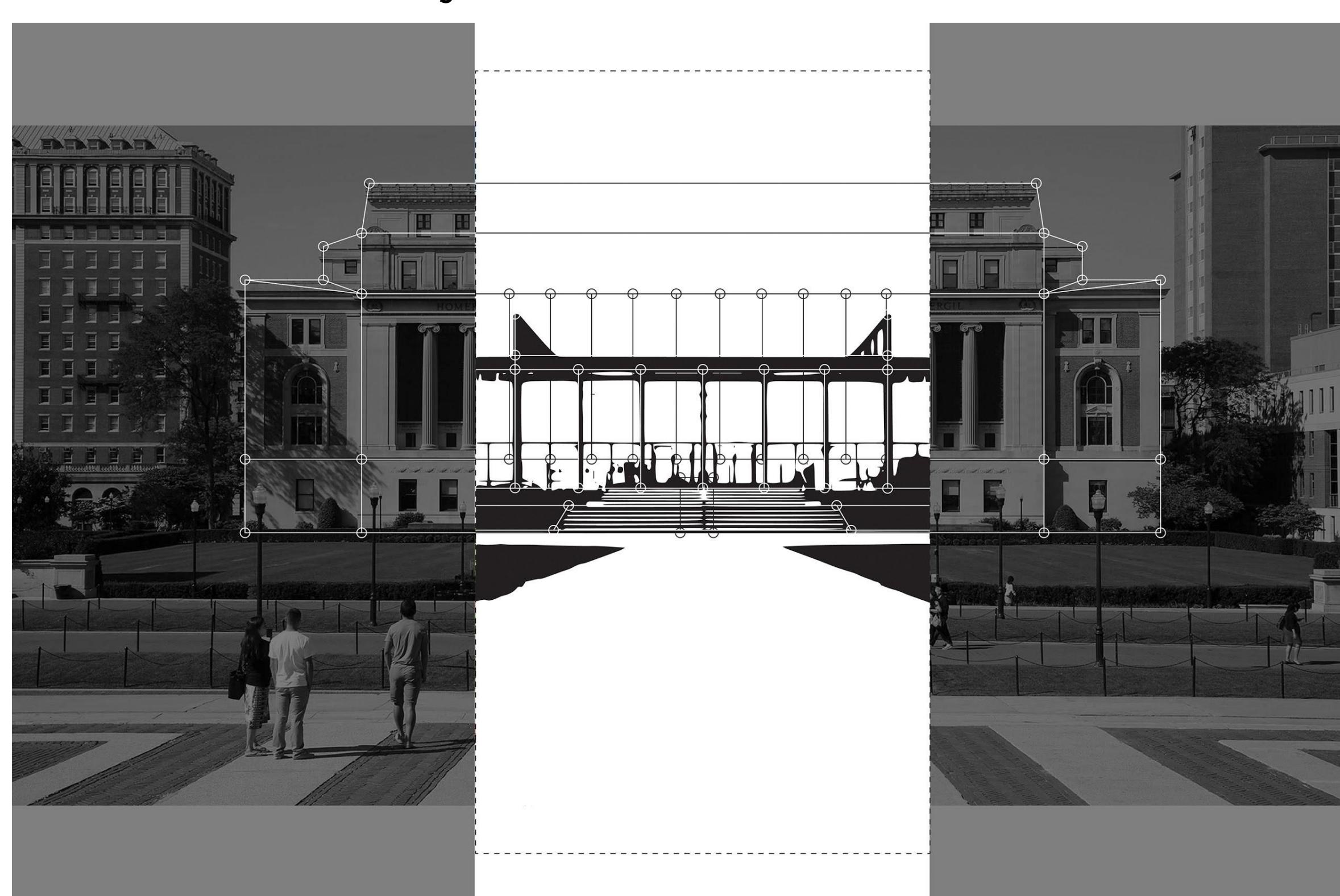
Based on the 3D model generator, we can create a tool to get the building dimensions just from a photo. At the same time this tool can also replace the building in the photo to other buildings. In the way, designers can predict the future of their designs.



Sunshine Analysis



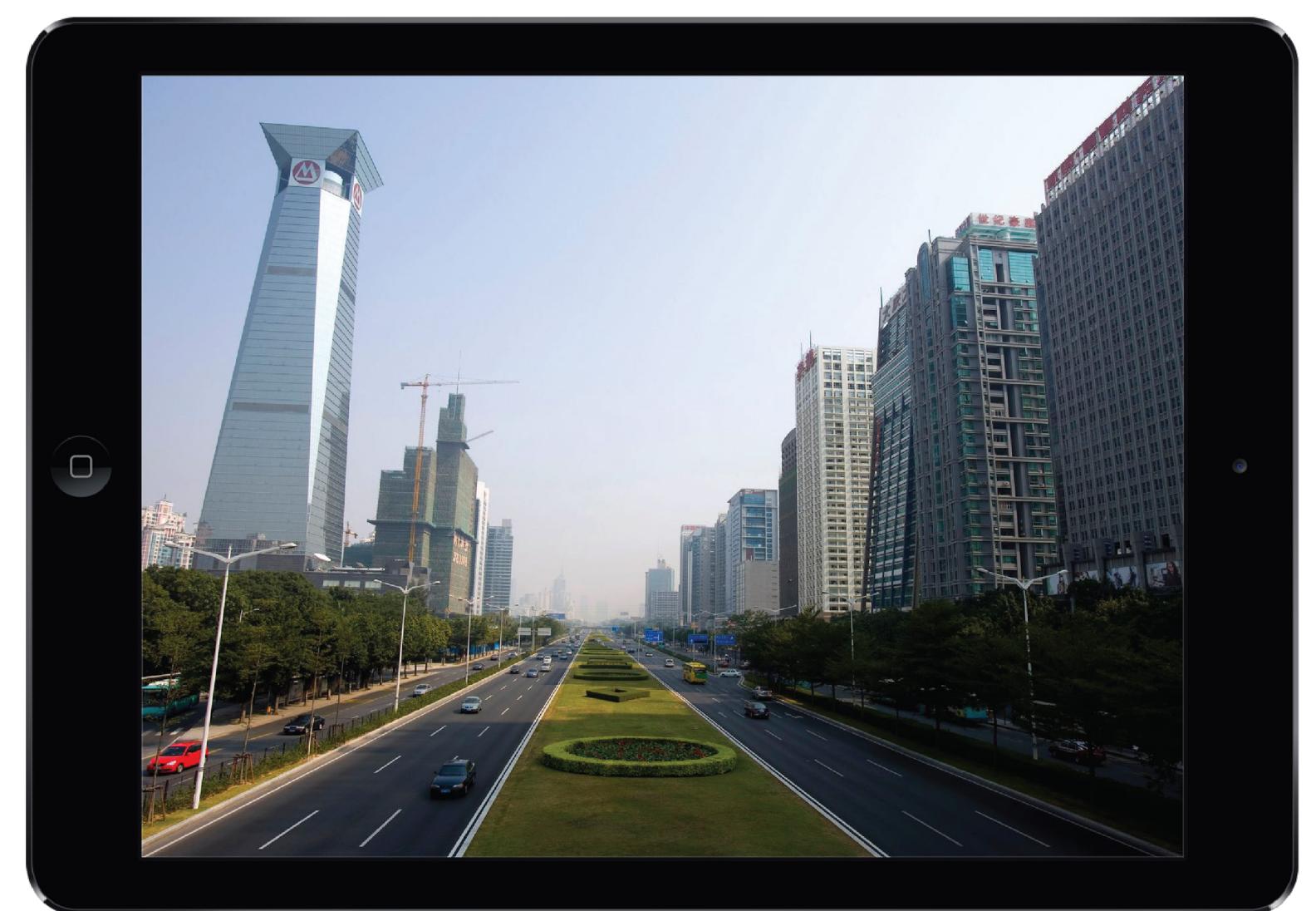
Sunshine Analysis



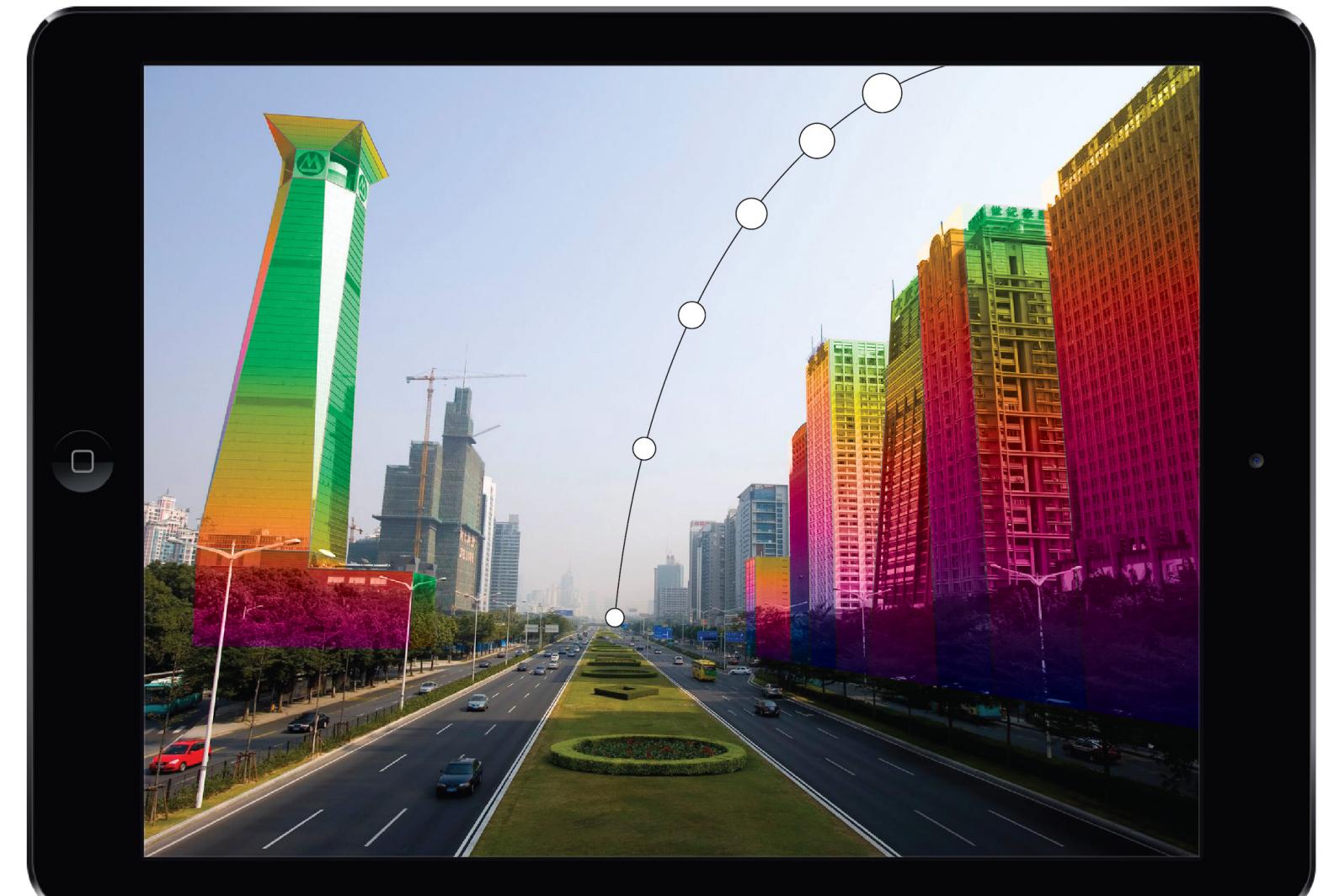
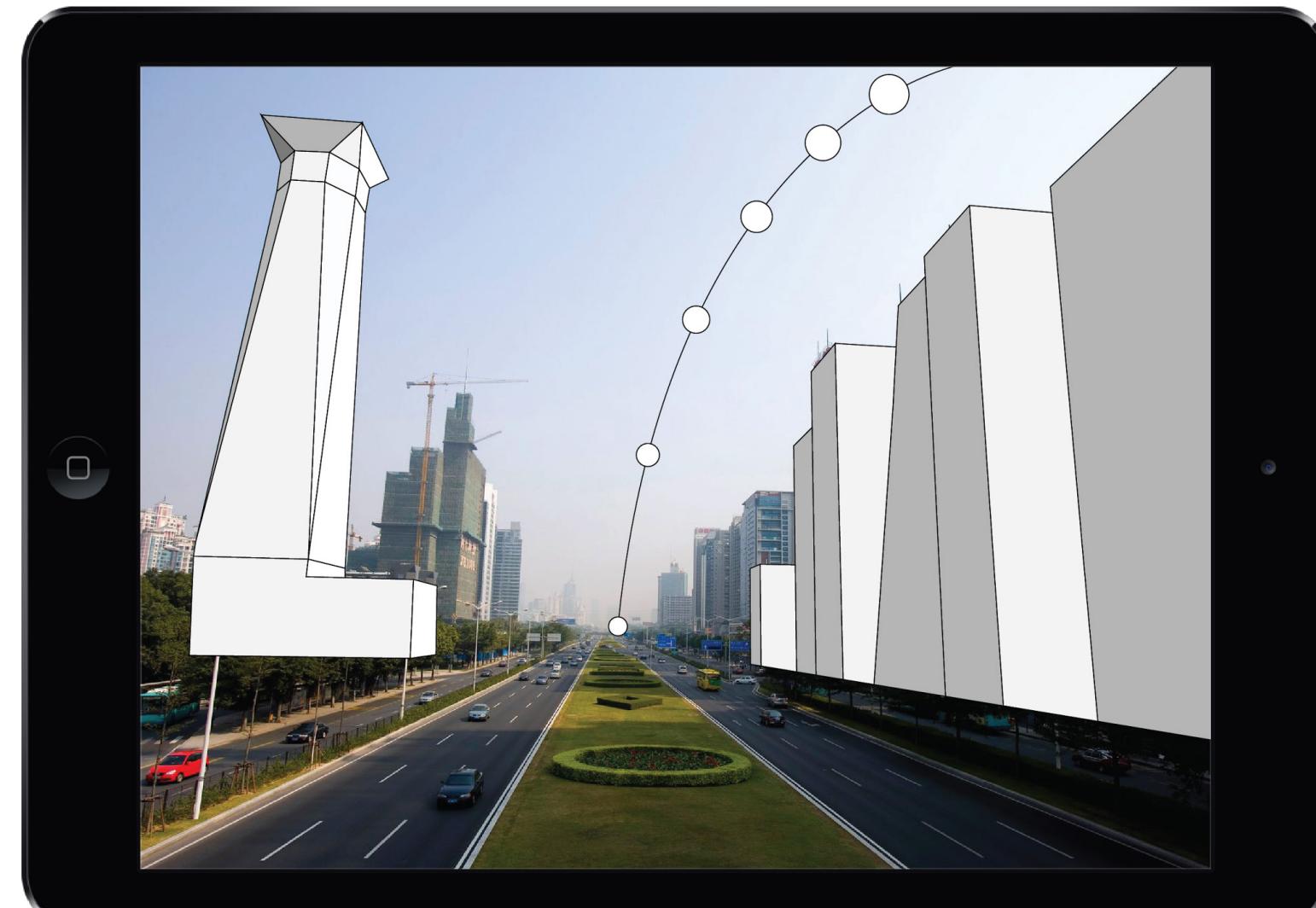
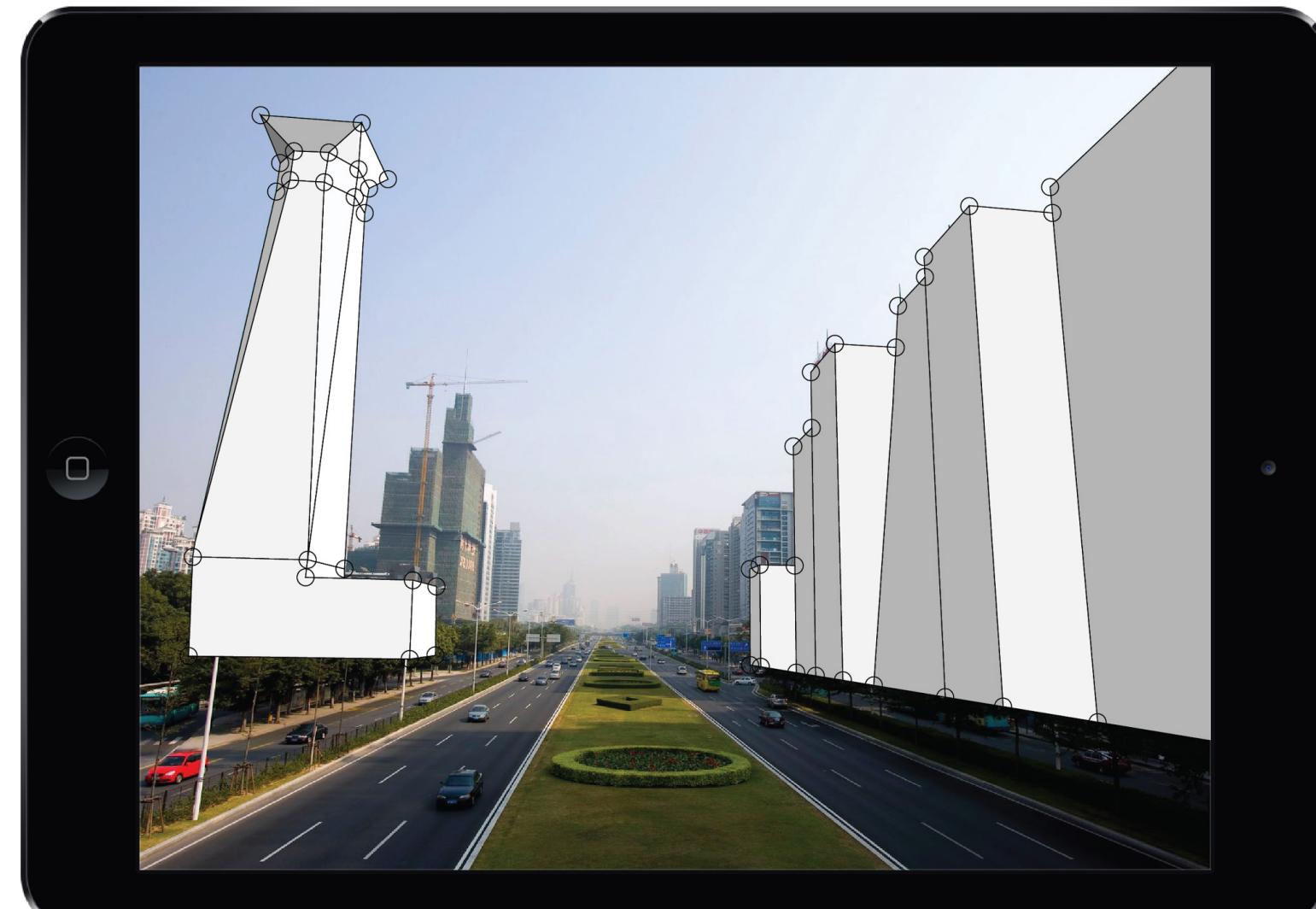
Future Version 02

Building Environmental Monitoring

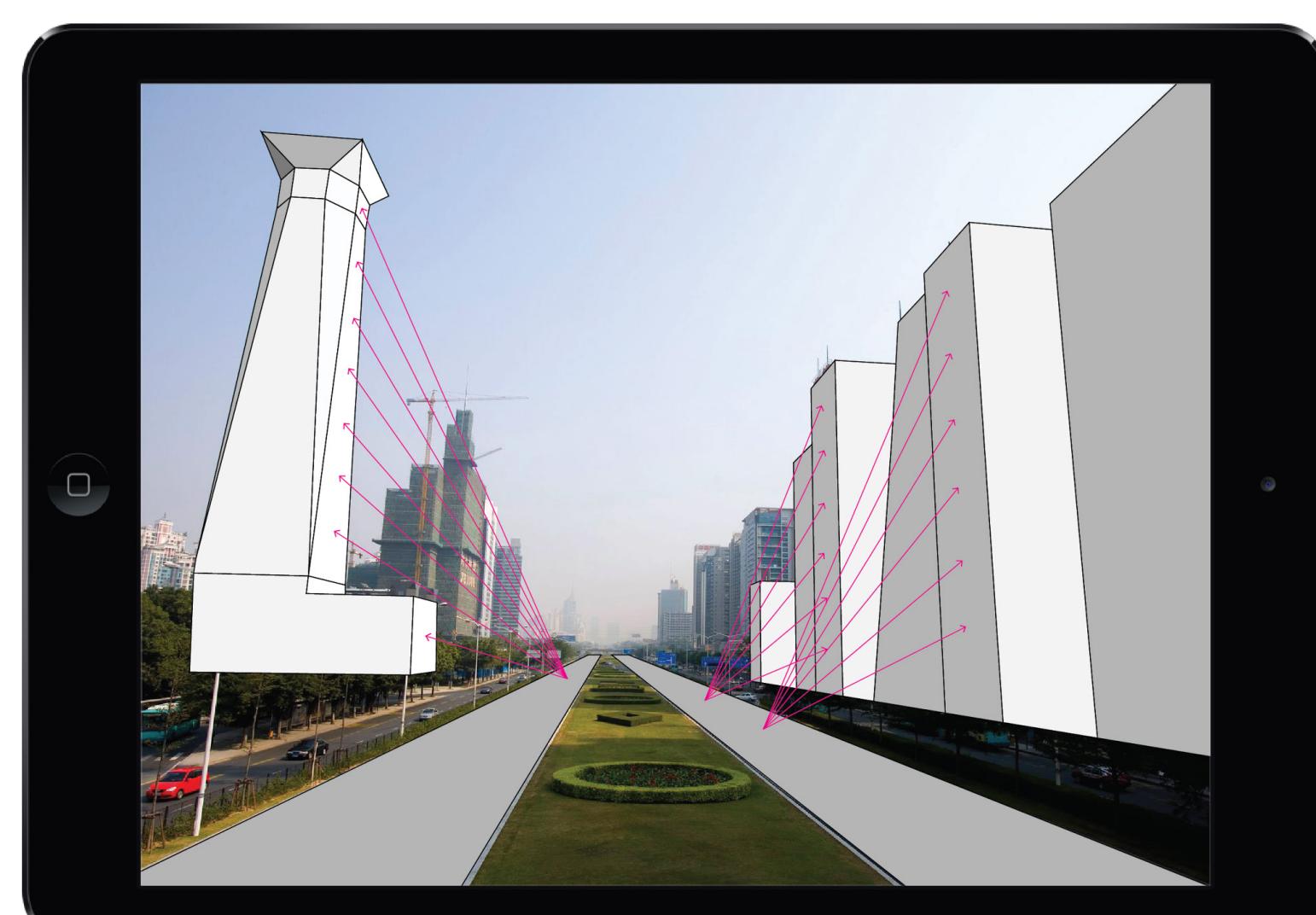
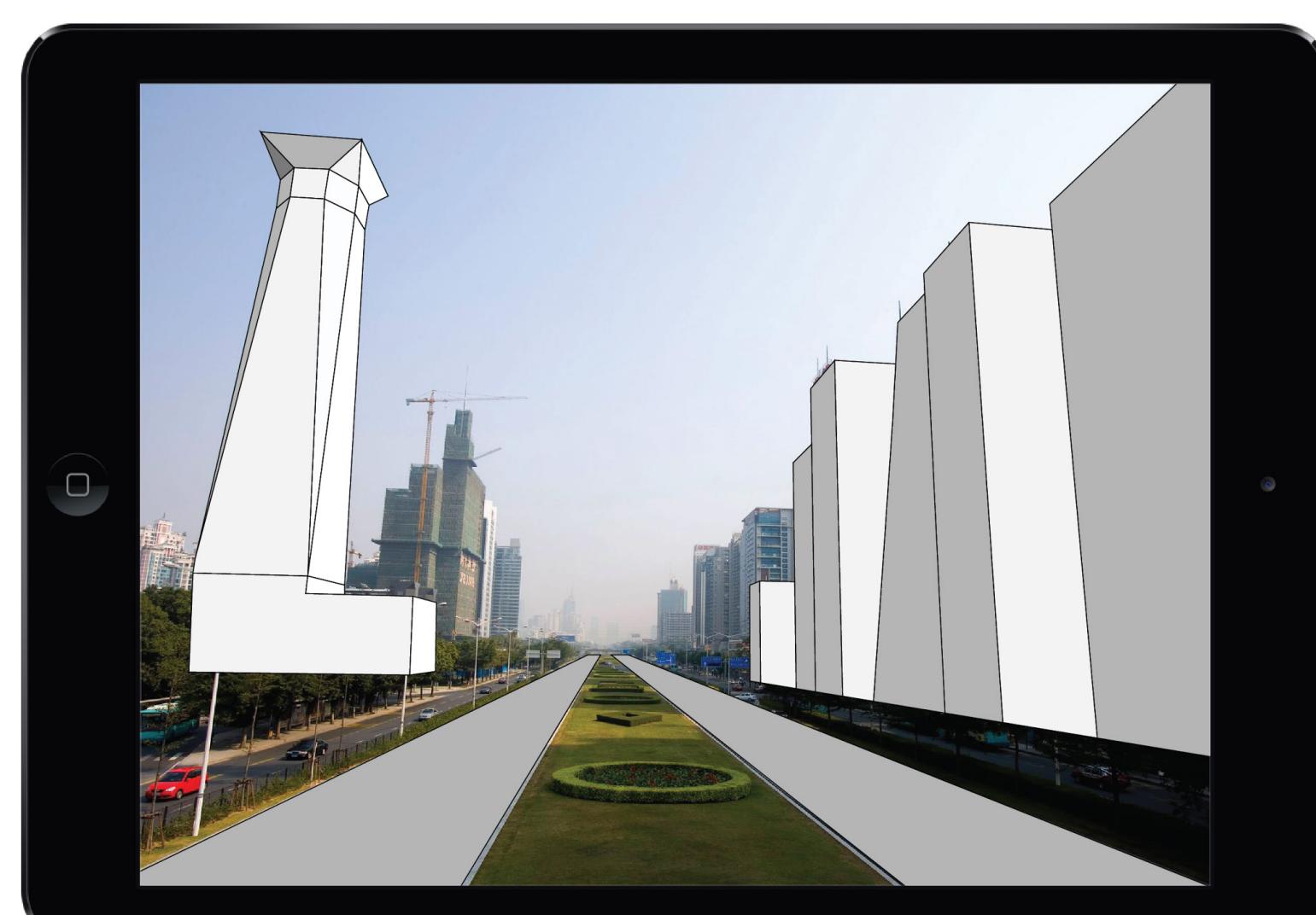
By using the 3D model generator and GIS data from the photo, the environmental data can be got from GIS data base. So that, we can build a tool for building environmental monitoring. For example, use sun path to analyze the sunshine, and use traffic data to estimate the noise.



Sunshine Analysis



Noise Analysis



Future Version 03

Urban Cinema

