

Sprint 1

By: Kasper, Reindert & Sander

The background is a grayscale electron micrograph showing various cellular structures, including numerous mitochondria with visible internal cristae. A large, white, irregularly shaped circle is positioned on the left side of the image. The word "Intro" is centered within this circle in a bold, black, sans-serif font. A thin, dark diagonal line runs from the top right towards the bottom left, passing behind the circle.

Intro

Summary

1. Image to dataset
2. Image augmentation
3. Google Maps as intro to machine learning
4. Research
5. Future goals

Image to dataset

CSV file

Resulting files are huge

Not workable

Not userfriendly



Numpy
array

Smaller file size (in memory)

Faster

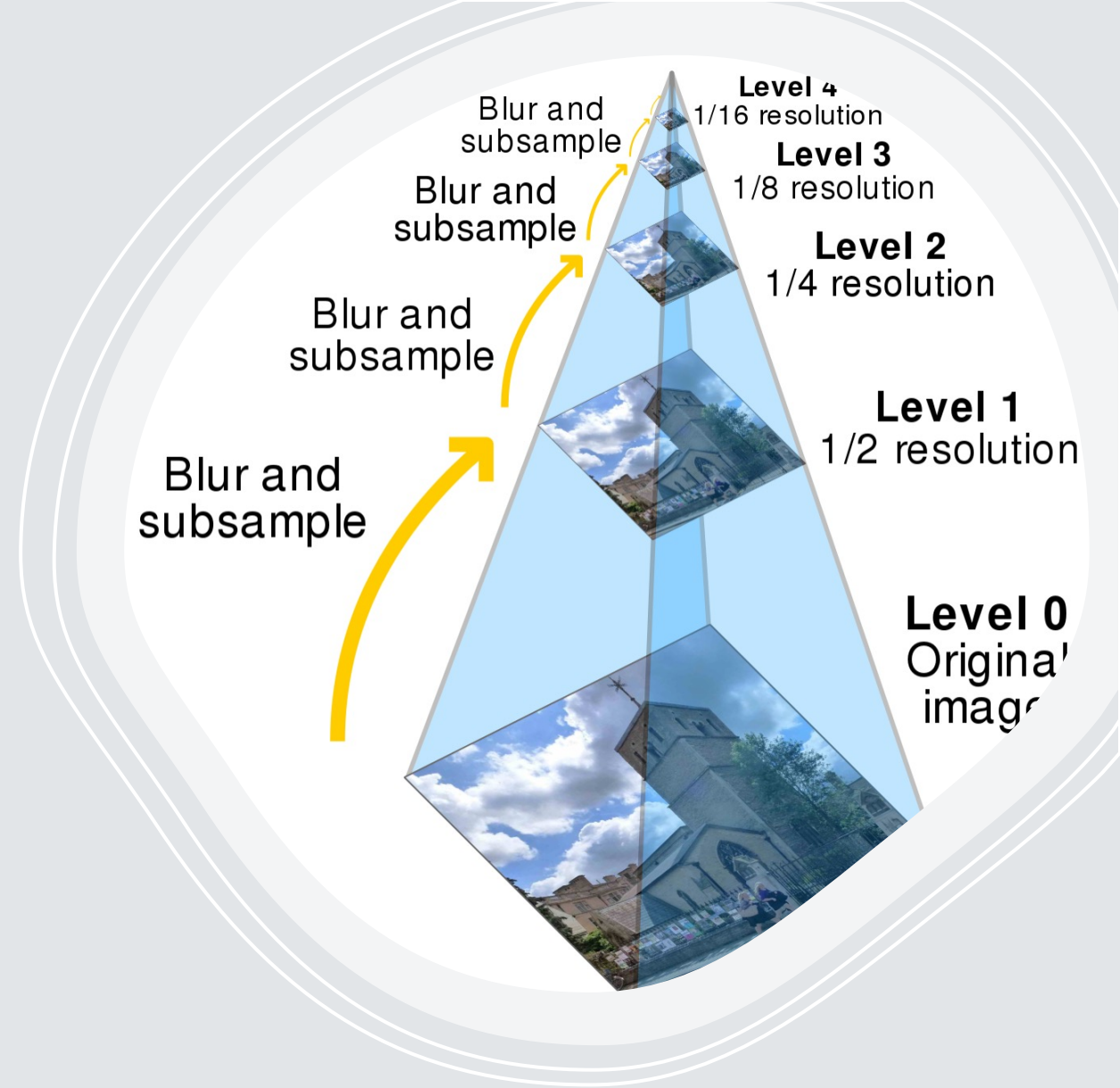
User friendly

Image augmentation

Final model has a very small dataset for training. As user will colour region of interest by hand.

Image augmentation is necessary:

- **Gaussian pyramid**
- *Zoom in/out and rotation*
- *Embossing*



Google Maps as intro to machine learning



Google Maps

Research

Earlier research with similar goals:

- Red Blood Cell Classification Based on **Attention Residual Feature Pyramid Network**
- **Keras R-CNN**: Cell detection in biological images using deep neural networks
- EM Cell organelle **masking** (3d)



Future Goals

Start using basic machine learning algorithms

Explore various ML libraries (Pytorch, Tensorflow)