CST 463 - Advanced Machine Learning

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# Lab: Image segmentation

Please work with your team.

The code Chollet provides as an example for segmentation takes about 2 days to run on a decent GPU. So, we cannot play with the model in lab.

1. Here is [a notebook with a couple of simple CNN models for CIFAR](https://drive.google.com/file/d/1Hz3-rAmTeaNcLkfLm3dhSMxqrI9MATdW/view?usp=sharing). Copy one of the models and replace some or all of the pooling layers with strided convolutional layers. Does the accuracy improve? How does the model size change?

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### Hints:

1. For the make\_batch() function, a simple approach is like this:

def make\_batch(X, y, batch\_size):

rows = np.random.choice(X.shape[0], batch\_size)

return X[rows], y[rows]

You can choose to use replace=True or replace=Fase in the random.choice() call.

For the batch\_generator() function, this works:

def batch\_generator(X, y, batch\_size=32):

while True:

yield make\_batch(X, y, batch\_size)

For the .fit() call, you can do something like:

.fit(batch\_generator(X\_train, y\_train), steps\_per\_epoch=32, …)