CAS MAIN, deep learning

Finger Exercises day 5 - Solution

Topic: live CNN, Keras Syntax and CNN feature layer

Follow the first link of day 5 on our course-webpage "live cnn in browser"
https://transcranial.github.io/keras-js/#/mnist-cnn

a) Draw some digits and check out what is happening in the CNN running live in the browser.

b) Fill the gaps in the following Keras Code:

```
model = Sequential()
model.add(Convolution2D(32, 3, 3,
            border_mode='valid',
            input_shape=(28 ,28),
            dim_ordering='tf'))
model.add(Activation('relu'))
model.add(Convolution2D(32 , 3, 3,
            border_mode='valid',
            dim_ordering='tf'))
model.add(Activation('relu'))
model.add(MaxPooling2D(pool_size=(2 ,2 ),
            border_mode='valid',
            dim_ordering='tf'))
model.add(Dropout(0.25))
model.add(Flatten())
model.add(Dense(128))
model.add(Activation('relu'))
model.add(Dropout(0.5))
model.add(Dense(10))
model.add(Activation('softmax'))
```

c) Mark the layer in which the "code" can be found, that is used to decide on the digit class.

d) How long is the genertated CNN "code" - often called CNN feature representation?

The code or CNN feature vector that is used to compute the softmax probabilities has the length: 128