Learning Lexical Features of Programming Languages from Imagery Using Convolutional Neural Networks Supplementary Materials

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March 17, 2018

Layer (type)	Output Shape	Param
input 1 (InputLayer)	(None, 500, 500, 3)	0
block1 conv1 (Conv2D)	(None, 500, 500, 64)	1792
block1 conv2 (Conv2D)	(None, 500, 500, 64)	36928
block1 pool (MaxPooling2D)	(None, 250, 250, 64)	0
block2 conv1 (Conv2D)	(None, 250, 250, 128)	73856
block2 conv2 (Conv2D)	(None, 250, 250, 128)	147584
block2 pool (MaxPooling2D)	(None, 125, 125, 128)	0
block3 conv1 (Conv2D)	(None, 125, 125, 256)	295168
block3 conv2 (Conv2D)	(None, 125, 125, 256)	590080
block3 conv3 (Conv2D)	(None, 125, 125, 256)	590080
block3 pool (MaxPooling2D)	(None, 62, 62, 256)	0
block4 conv1 (Conv2D)	(None, 62, 62, 512)	1180160
block4 conv2 (Conv2D)	(None, 62, 62, 512)	2359808
block4 conv3 (Conv2D)	(None, 62, 62, 512)	2359808
block4 pool (MaxPooling2D)	(None, 31, 31, 512)	0
block5 conv1 (Conv2D)	(None, 31, 31, 512)	2359808
block5 conv2 (Conv2D)	(None, 31, 31, 512)	2359808
block5 conv3 (Conv2D)	(None, 31, 31, 512)	2359808
block5 pool (MaxPooling2D)	(None, 15, 15, 512)	0
global average pooling2d 1	(None, 512)	0
dense 1 (Dense)	(None, 2)	1026

Table 1: Total params: 14,715,714. VGG network, commonly referred to as VGG16 due to its sixteen convolutional layers. Input images are 500x500x3 pixels. The output of the network is a binary classification for the presence of code in the input image. The global average pooling layer is required to perform class activation mapping.

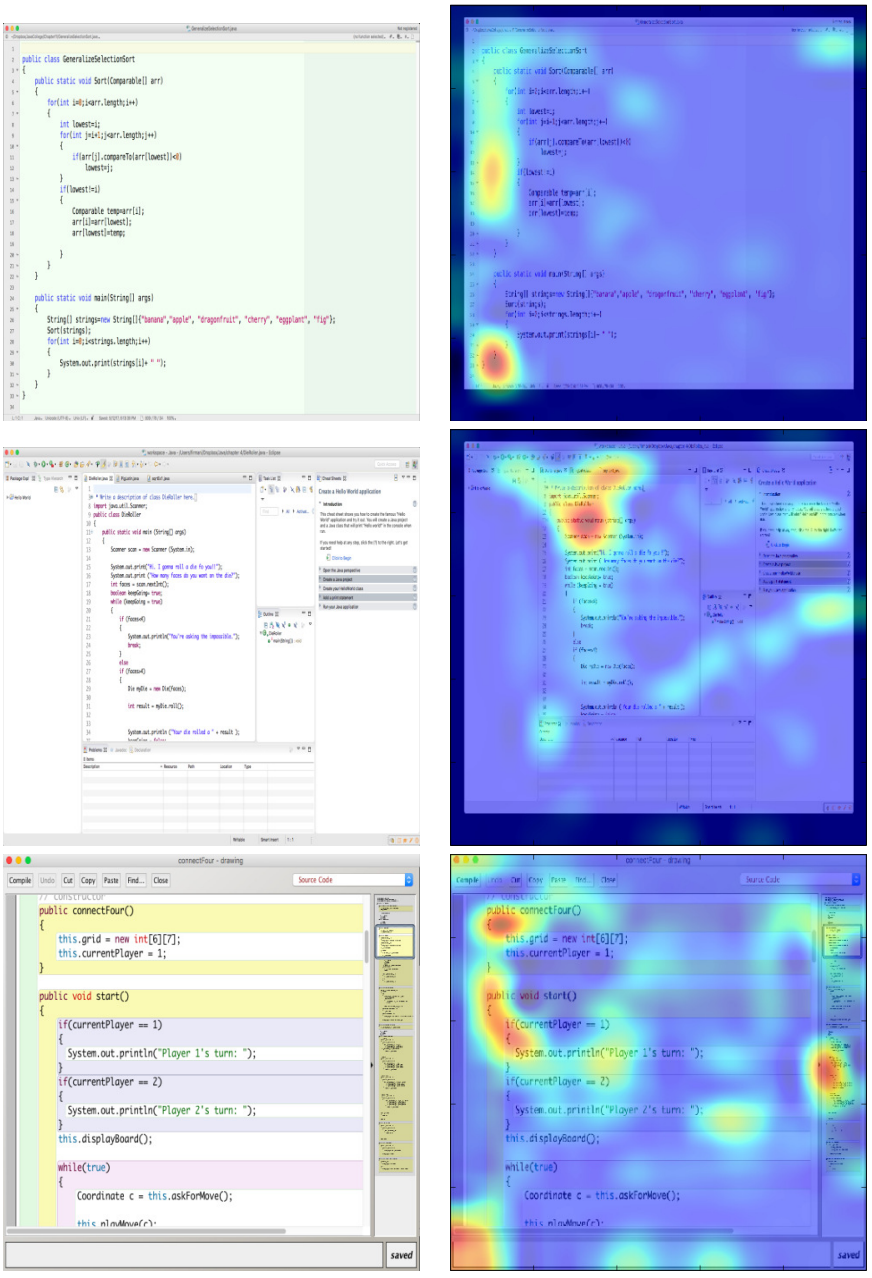

Figure 1: CAM results on correctly predicted Java code image frames. Normal test image (left column). CAM results on the test image (right column).

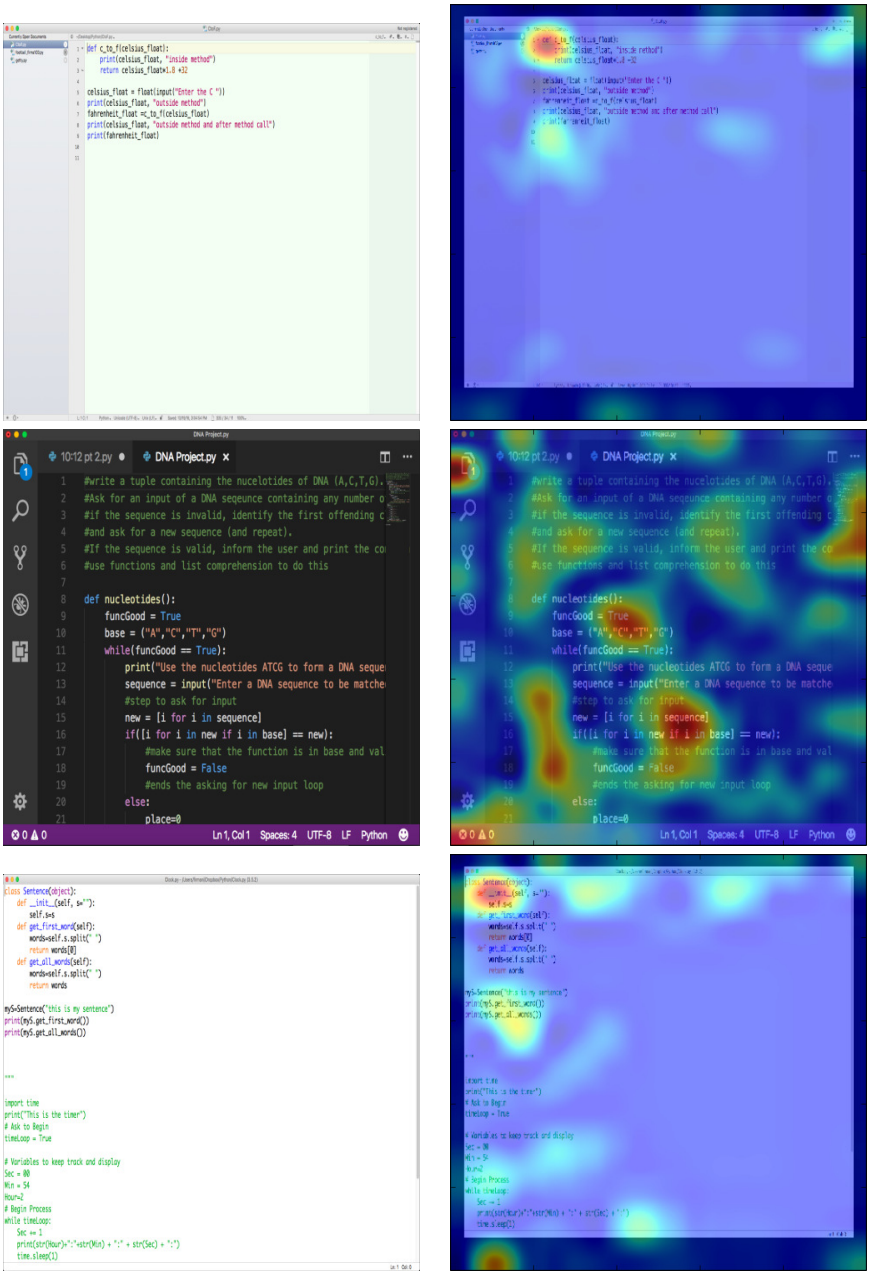

Figure 2: CAM results on correctly predicted Python code image frames. Normal test image (left column). CAM results on the test image (right column).