**Lecture 11 poll**

**Slide 29**

Select all true statements about a convolution layer.

* The number of “planes” in any filter equals the number of input maps (output maps from the previous layer)
* The number of “planes” in any filter equals the number of output maps (affine maps output by the layer)
* The number of filters equals the number of input maps
* The number of filters equals the number of output maps

**Slide 91**

In order to compute the derivative at a single affine element Y(l,m,x,y), we must consider the contributions of *every* position of *every* affine map at the next layer: True or false

* True
* False

The derivative for an single affine element Y(l,m,x,y) will require summing over every position of every Z map in the next layer: True of false

* True
* False

**Slide 161**

Select all statements that are true about how to compute the derivative of the divergence w.r.t lth layer activation maps by backpropagation

* To compute the derivative w.r.t. the mth activation map of the lth convolutional layer, we must select the mth “planes” of all the (l+1)th layer filters
* The selected filter planes must be flipped left-right and up-down
* They must convolve the derivative (maps) for the (l+1)th layer affine values
* The output of the convolution must be flipped back left-right and up-down
* If the forward convolution has a stride S, the derivative maps must be upsampled by S prior to convolution
* If the forward convolution has stride S, the backpropagtion convolution must also have a stride S

**Slide 213**

Select all statements that are true about how to compute the derivative of the divergence w.r.t lth layer filters using backpropagation

* The mth plane of the nth filter is computed by convolving the mth input (l-1th) layer map with the nth output (lth) layer affine derivative map
* The output map must be flipped left-right/up-down before convolution
* If the forward convolution has a stride S, the derivative maps must be upsampled by S prior to convolution
* If the forward convolution has stride S, the backpropagtion convolution must also have a stride S