PILOTNET ARCHITECTURE.

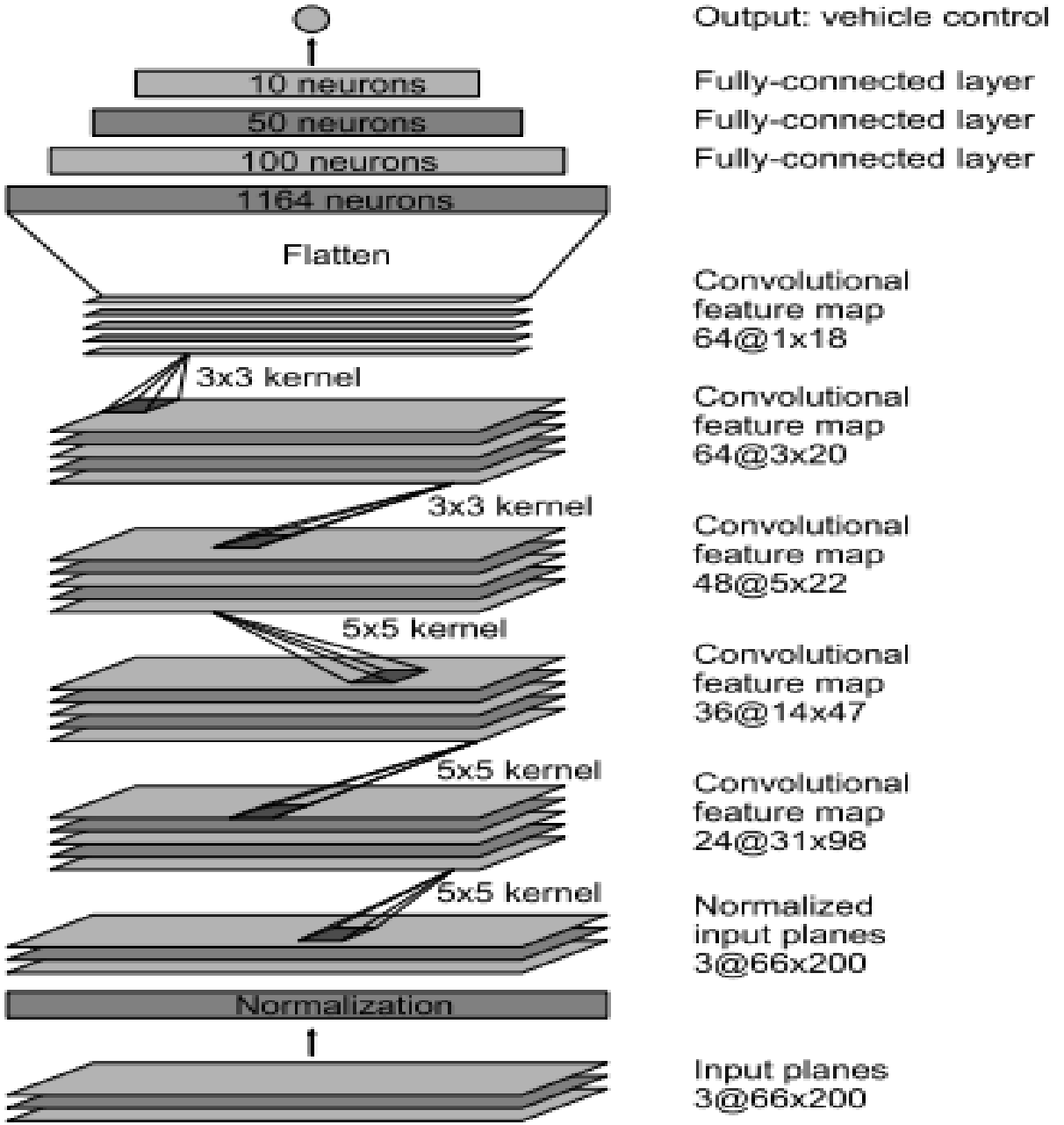


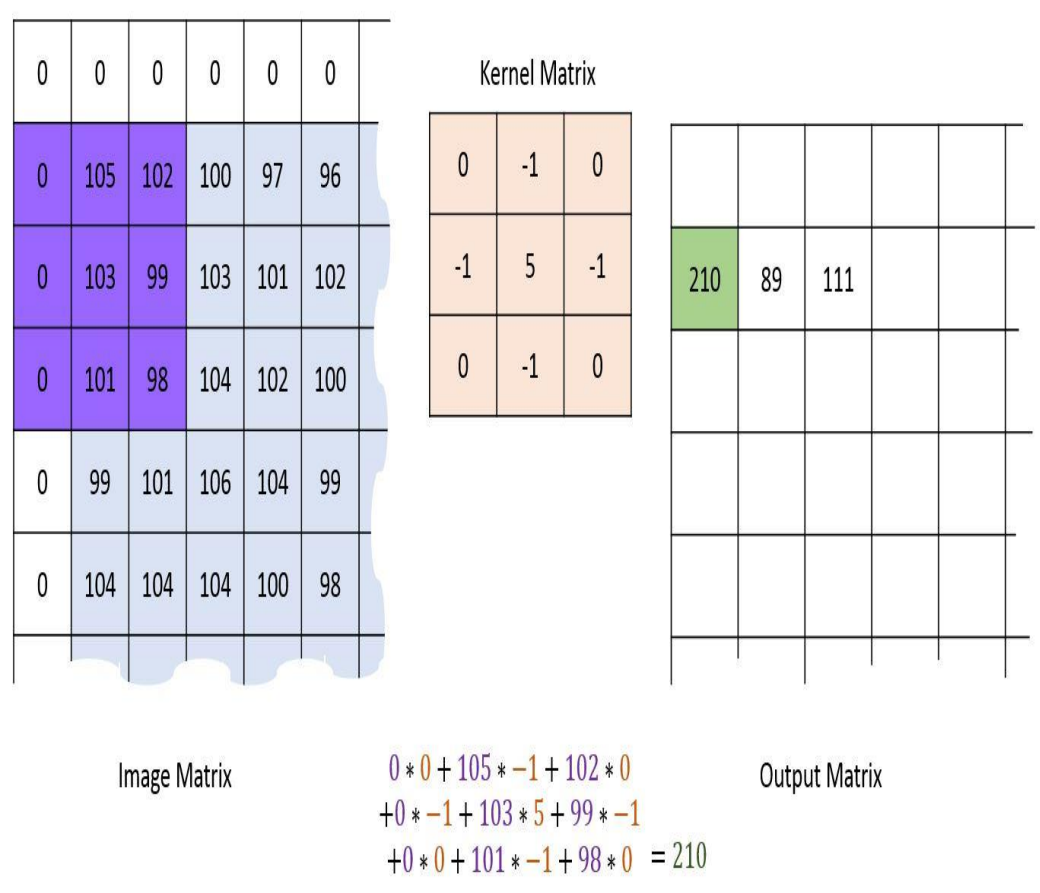
Figure 4: CNN architecture. The network has about 27 million connections and 250 thousand parameters.

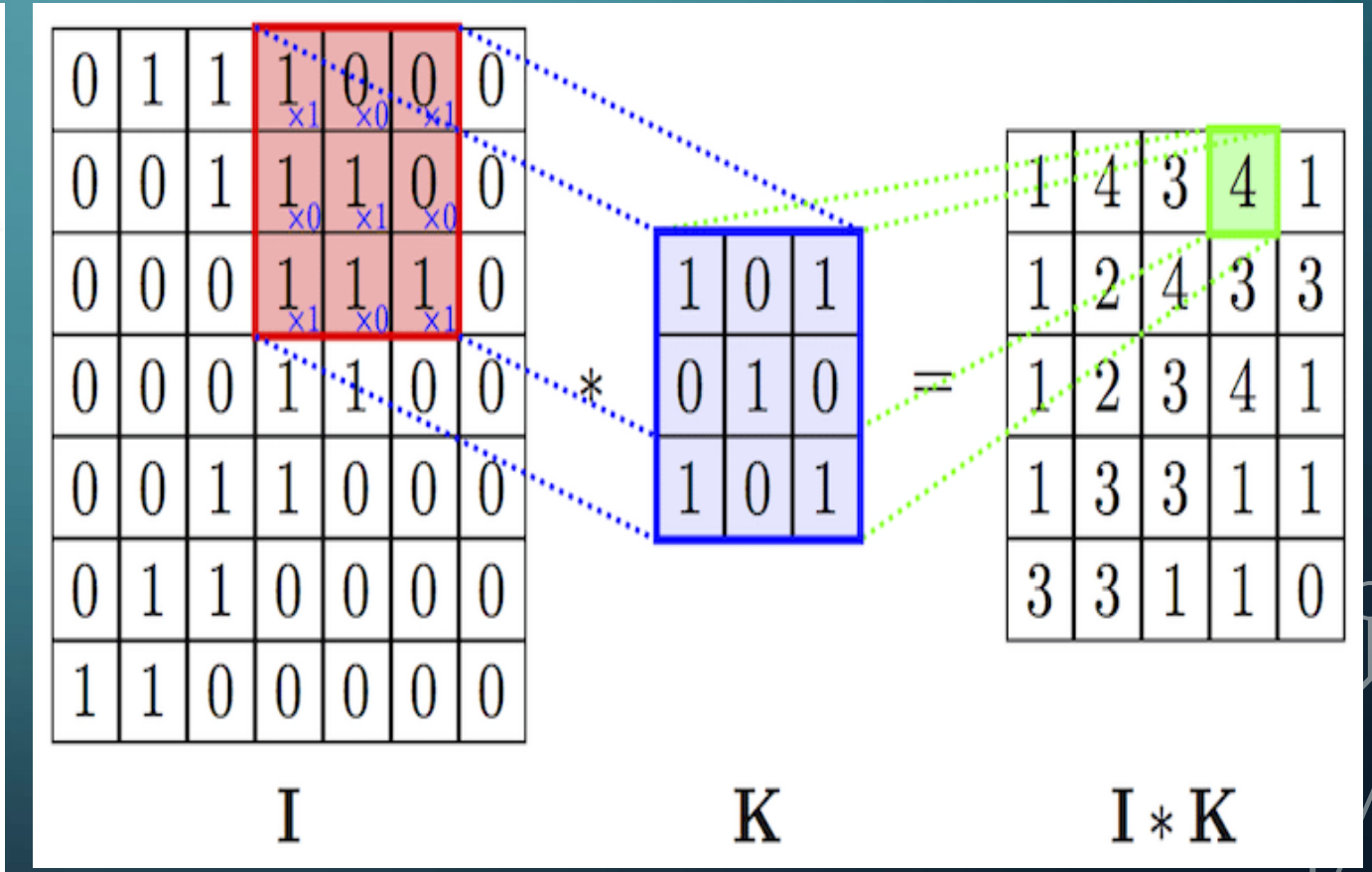
CONVOLUTIONAL LAYERS

- We have 4 convolution layer
- **Convolutional layer:** A layer that consists of a set of “filters”. The filters take a subset of the input data at a time, but are applied across the full input (by sweeping over the input). The operations performed by this layer are still linear/matrix multiplications, but they go through an activation function at the output, which is usually a non-linear operation.

filters: integer, the dimensionality of the output space (i.e. the number of output filters in the convolution).

kernel_size: an integer or tuple/list of 2 integers, specifying the height and width of the 2d convolution window. can be a single integer to specify the same value for all spatial dimensions (example:first convolution layer in the figure has 24 filter has a kernel size 3*3)





FULLY CONNECTED LAYERS (OR DENSE LAYER)

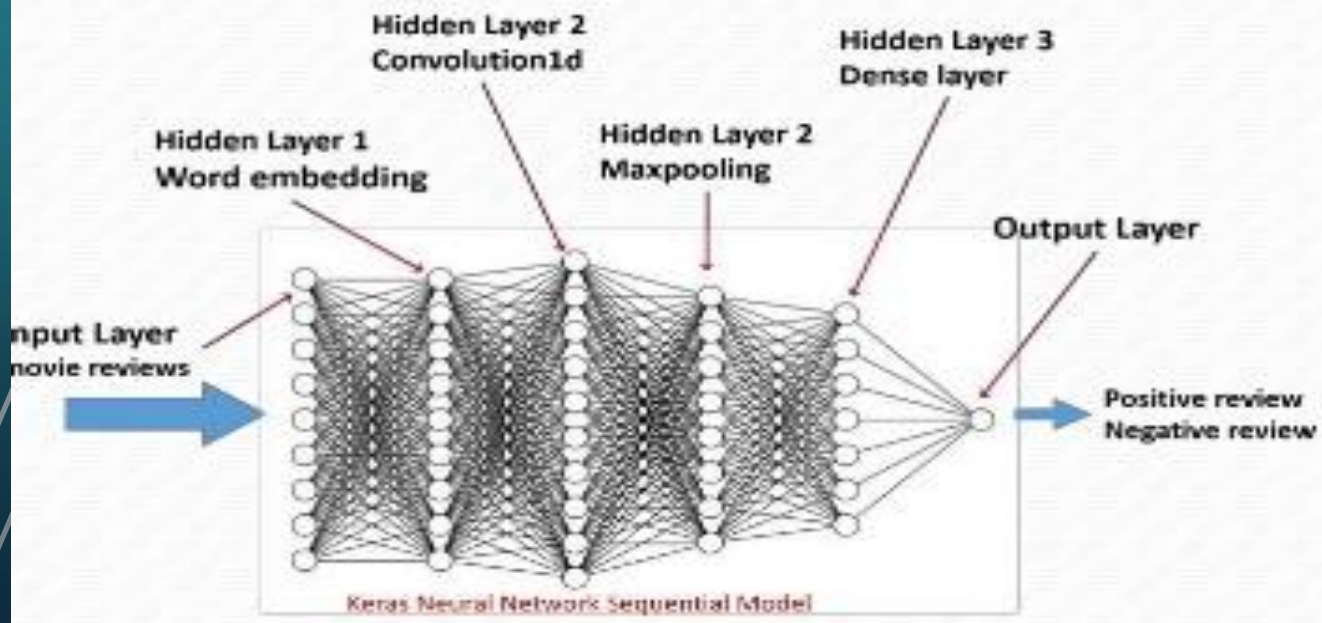
- we have 3 fully connected layers (or Dense layer)
- A linear operation in which every input is connected to every output by a weight (so there are n_inputs * n_outputs weights)Generally followed by a non-linear activation function
- First fully connected layer has 100 neuron we apply on their net matrix an activation function (ex: relu) the output is an input to another layer consist of 50 neuron then the final output will be the vehicle control.

SUGGESTED MODEL :

We can use keras sequential model

And we can use ADAM optimizer

Keras-Sequential Model




```
model = Sequential()
model.add(Layer1(..., input) )
....
model.add(LayerN(...) )
model.add(Dense(output))
model.add(Activation(...))
model.compile(...)
model.fit(...)
```