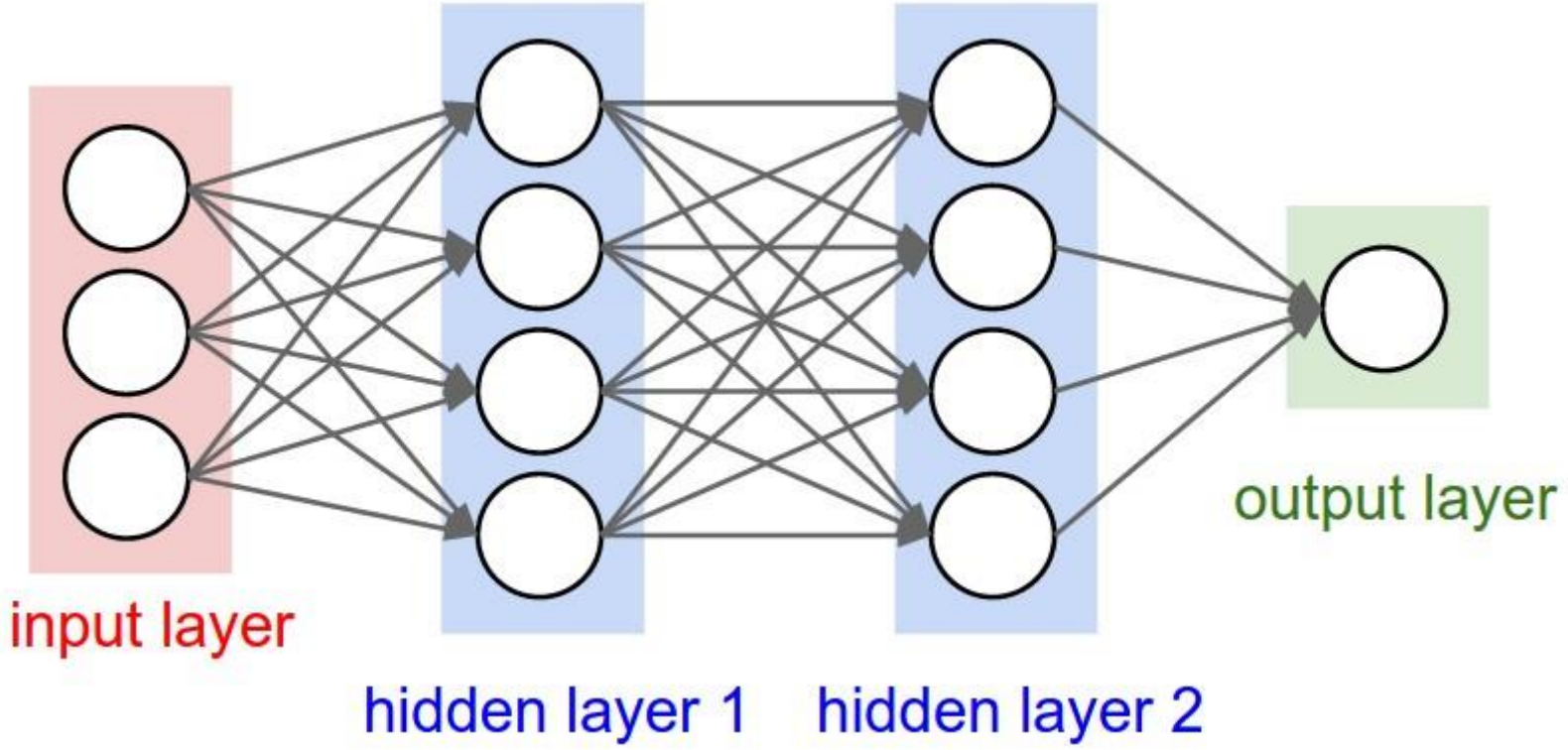
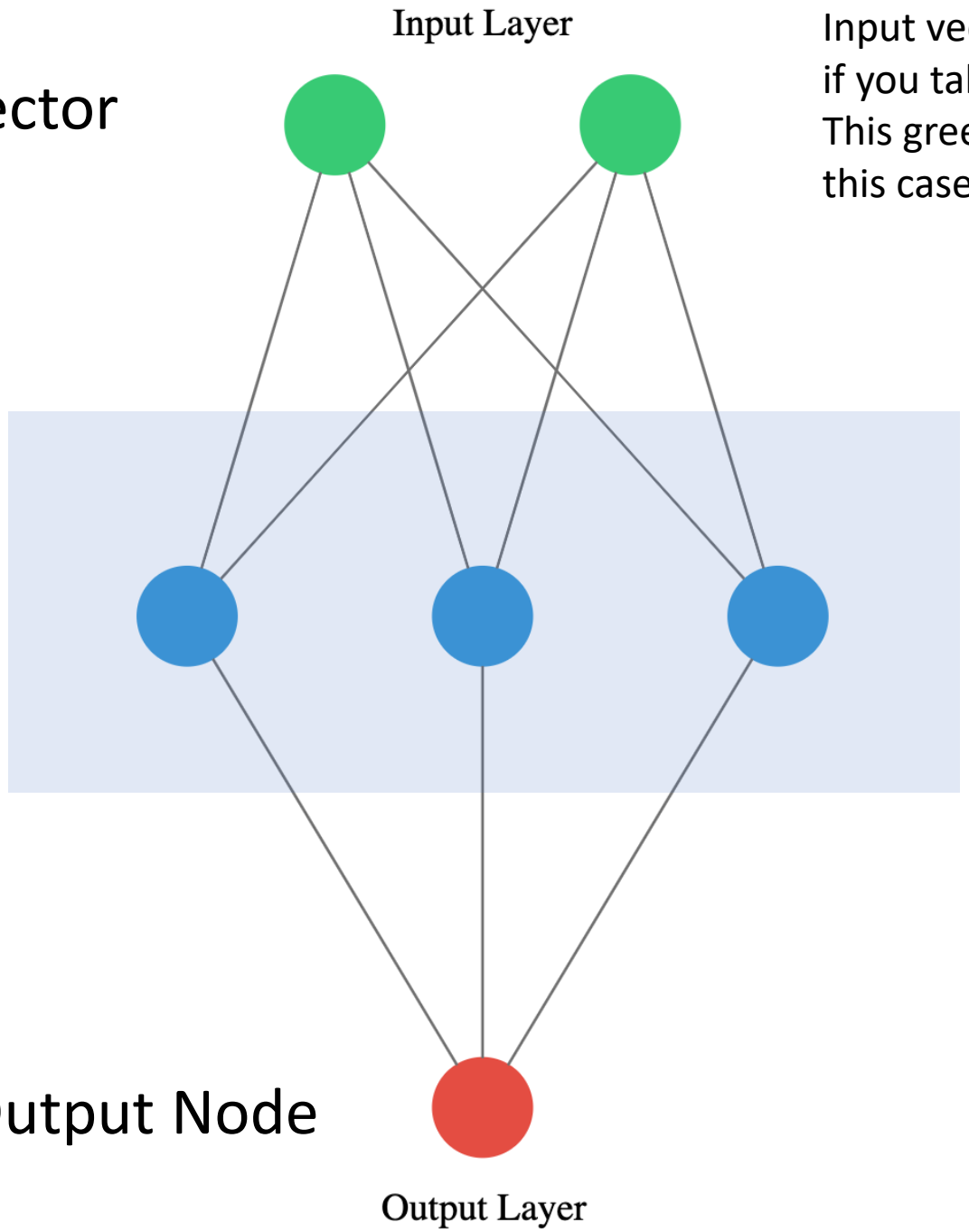
Neural Network

Simple explanation: Any layer (blue) between the input (pink) and output (green) is called hidden



Input vector



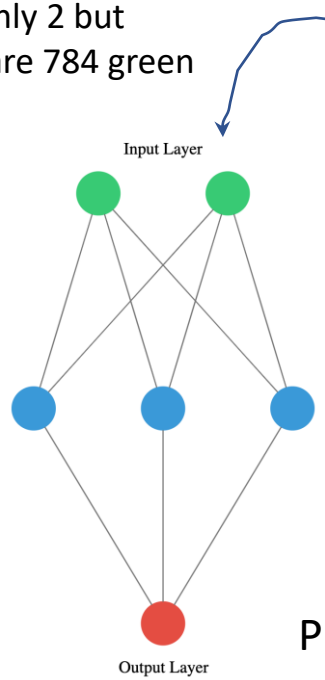
Input vector could be just an image
if you take an image that 28 x 28 pixels
This green layer will have 784 circles. In this case we have just 2.

Hidden Layer
In this case, we have just one layer

Here is a rough procedure

- Take each image (say 28 x 28 pixels)
- Flatten them into a single vector of 784 in length
- Make them flow through the network
- Final red circle gives the probability of the image a car or not

I have shown only 2 but imaging there are 784 green circles



Pixel grey-scale intensity

200	155	200	100	122	…	…	240	255	200
1	2	3	4	5			782	783	784

Hidden layers will the network learn the details of the image

Probability that the image belongs to a car (a number between 0 and 1)

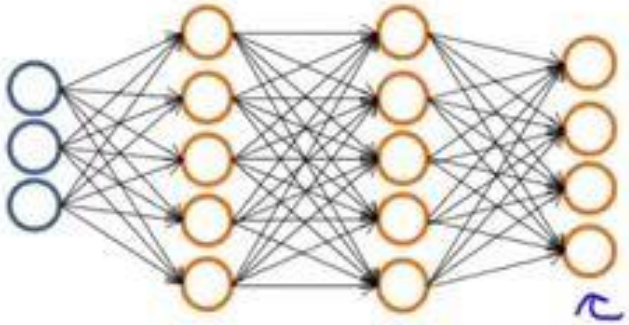
Multiple output units: One-vs-all.

Pedestrian

Car

Motorcycle

Truck



$h_\Theta(x) \in \mathbb{R}^4$

Want $h_\Theta(x) \approx \begin{bmatrix} 1 \\ 0 \\ 0 \\ 0 \end{bmatrix}$, $h_\Theta(x) \approx \begin{bmatrix} 0 \\ 1 \\ 0 \\ 0 \end{bmatrix}$, $h_\Theta(x) \approx \begin{bmatrix} 0 \\ 0 \\ 1 \\ 0 \end{bmatrix}$, etc.

when pedestrian when car when motorcycle

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