Deep Q Learning: From Paper to Code

Dealing with Screen Images with Convolutional Neural Networks

Last Time ...

- Naive implementation fell flat
- Linear layers as input
- Simple state representations of our environment

Screen Images

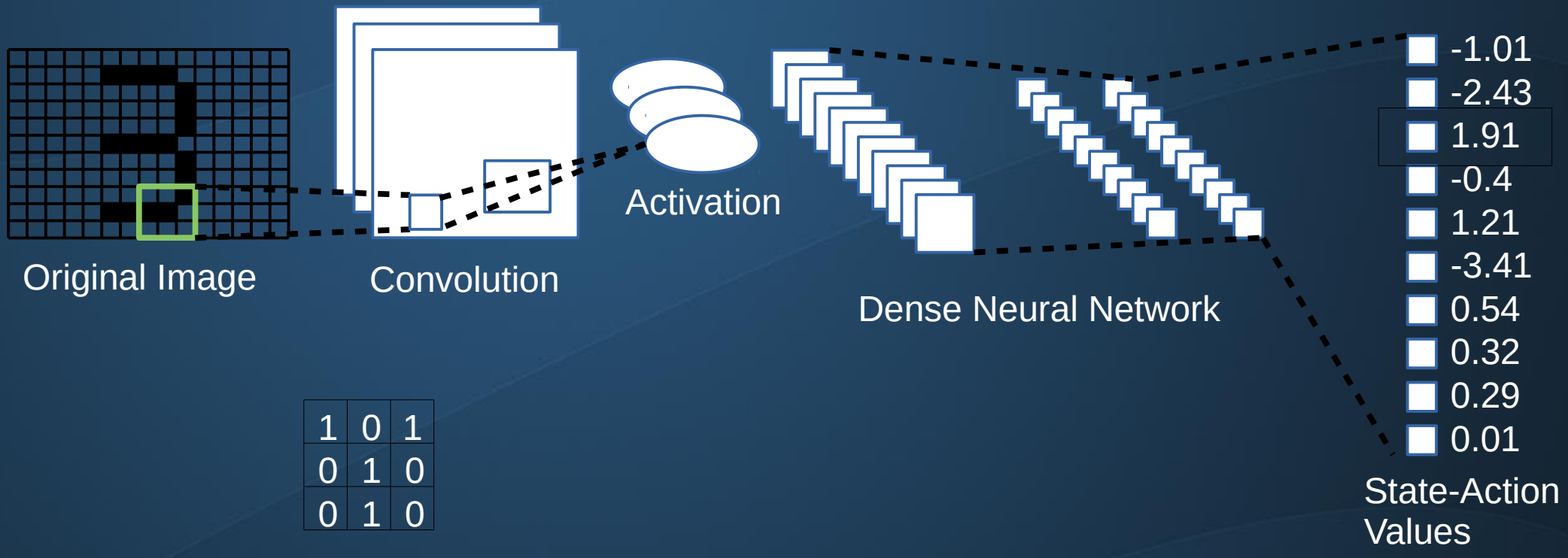
Observations of games

$$\begin{pmatrix} (RGB)_{00} & (RGB)_{01} & (RGB)_{0n} \\ (RGB)_{10} & (RGB)_{11} & \dots & (RGB)_{1n} \\ \dots & \dots & \dots \\ (RGB)_{m0} & (RGB)_{m1} & (RGB)_{mn} \end{pmatrix}$$

Convolutions

- Perform mathematical convolution
- Matrix multiplication
- Performs feature extraction

Convolutions



1	0	1
0	1	0
0	1	0

Example filter

3x3 kernel size

Implementation

- Leverage docs and tutorials
- Just have to add a few layers and utility function

How About Motion?

Up Next