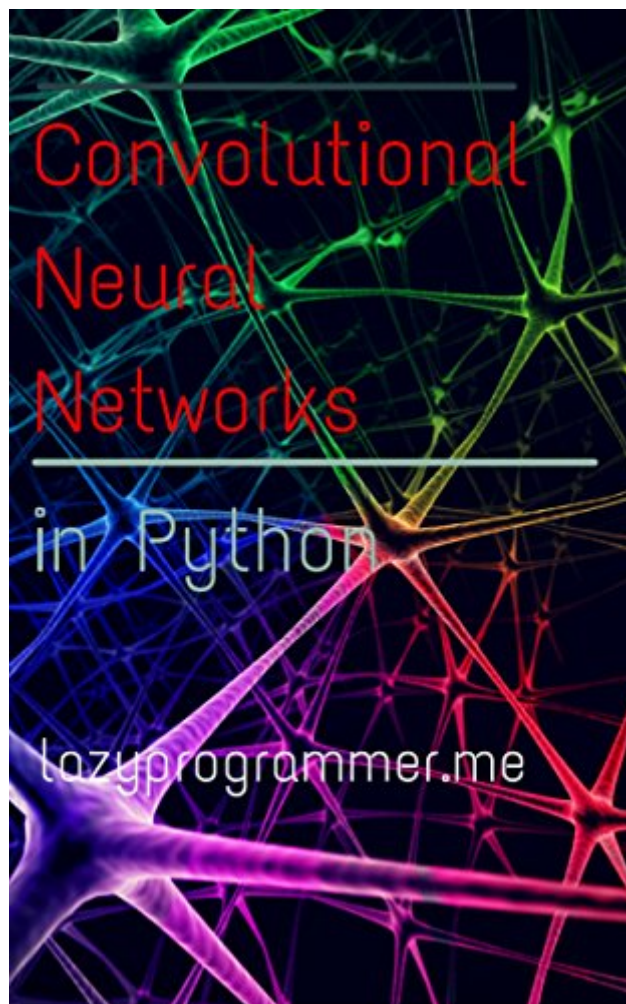The book was found

# Convolutional Neural Networks In Python: Master Data Science And Machine Learning With Modern Deep Learning In Python, Theano, And TensorFlow (Machine Learning In Python)

# Synopsis

This is the 3rd part in my Data Science and Machine Learning series on Deep Learning in Python. At this point, you already know a lot about neural networks and deep learning, including not just the basics like backpropagation, but how to improve it using modern techniques like momentum and adaptive learning rates. You've already written deep neural networks in Theano and TensorFlow, and you know how to run code using the GPU.This book is all about how to use deep learning for computer vision using convolutional neural networks. These are the state of the art when it comes to image classification and they beat vanilla deep networks at tasks like MNIST.In this course we are going to up the ante and look at the StreetView House Number (SVHN) dataset - which uses larger color images at various angles - so things are going to get tougher both computationally and in terms of the difficulty of the classification task. But we will show that convolutional neural networks, or CNNs, are capable of handling the challenge!Because convolution is such a central part of this type of neural network, we are going to go in-depth on this topic. It has more applications than you might imagine, such as modeling artificial organs like the pancreas and the heart. I'm going to show you how to build convolutional filters that can be applied to audio, like the echo effect, and I'm going to show you how to build filters for image effects, like the Gaussian blur and edge detection.After describing the architecture of a convolutional neural network, we will jump straight into code, and I will show you how to extend the deep neural networks we built last time with just a few new functions to turn them into CNNs. We will then test their performance and show how convolutional neural networks written in both Theano and TensorFlow can outperform the accuracy of a plain neural network on the StreetView House Number dataset.All the materials used in this book are FREE. You can download and install Python, Numpy, Scipy, Theano, and TensorFlow with pip or easy_install.Lastly, my goal is to show you that convolutional networks arenâ ™t magical and they donâ ™t require expert-level math to figure out.Itâ ™s just the same thing we had with regular neural networks:y = softmax( relu(X.dot(W1).dot(W2) )Except we replace the first â œdot productâ • with a convolution:y = softmax( relu(conv(X, W1)).dot(W2) )The way they are trained is exactly the same as before, so all your skills with backpropagation, etc. carry over.

# Book Information

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