

Machine Vision

Deep Learning — Unit 4

Dr. Jon Krohn

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Slides available at `jonkrohn.com/talks`

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ConvNets

LeNet-5

AlexNet

Transfer
Learning

Project
Formulation

Up Next

- 1 Intro to Convolutional Neural Networks
- 2 Classic ConvNet Architecture I: LeNet-5
- 3 Classic ConvNet Architecture II: AlexNet
- 4 Transfer Learning
- 5 Deep Learning Project II: Formulating
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LeNet-5

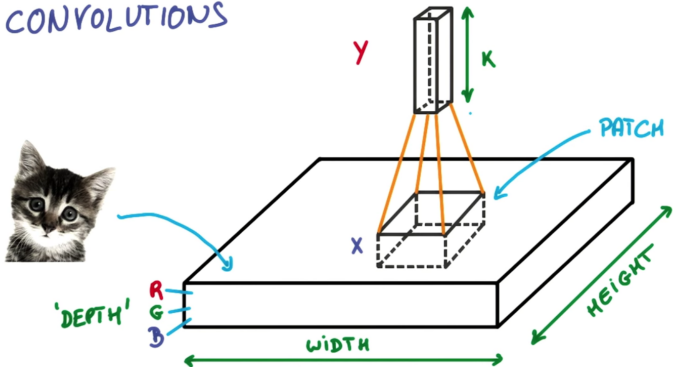
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CONVOLUTIONS



DeepVis

ConvNets

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[deepvis]

Convolution Demo

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from the illustrious [Andrej Karpathy]

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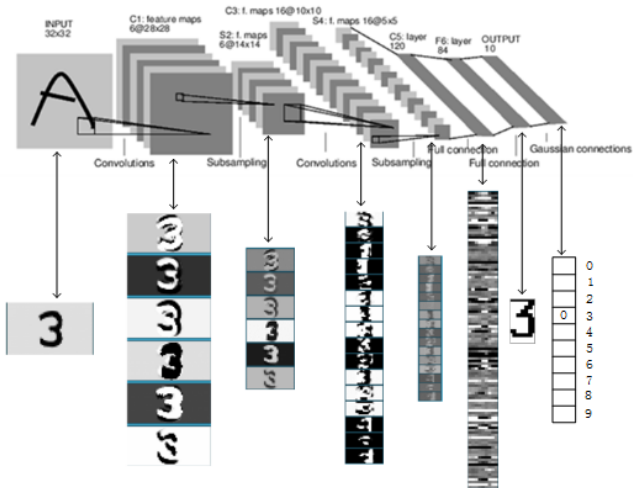
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let's make our [deep net] *convolutional!*

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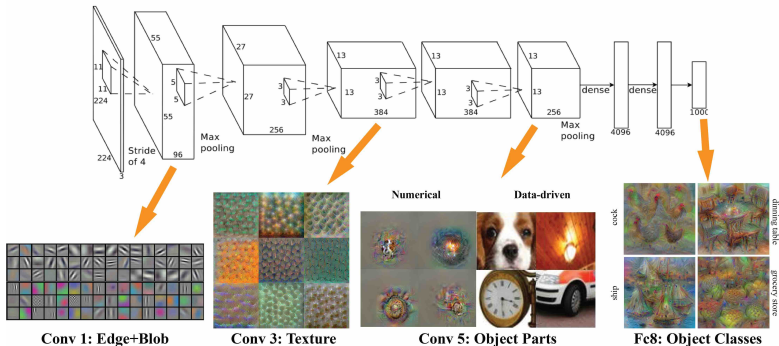
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[AlexNet] from scratch

VGGNet (Simonyan & Zisserman, 2014)

Take-Home Exercise III

- build VGGNet from AlexNet notebook
- be able to verbalize all Arsenal (Theory I-IV) items

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- [toy example]
- [pre-trained model weights in Keras]
- [beefy bottleneck features example]

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Formulating

Your Deep Learning Project II



Formulating

Your Deep Learning Project II

- 1 split your data
 - training set (80% — for optimizing parameters)
 - validation set (10% — for hyperparameters)
 - test set (10% — don't touch yet!)
- 2 build architecture
 - if machine vision (incl. transfer learning), *now*
 - if NLP, wait until next session
- 3 get above chance (simplifying problem, if necessary)

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Natural Language Processing

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