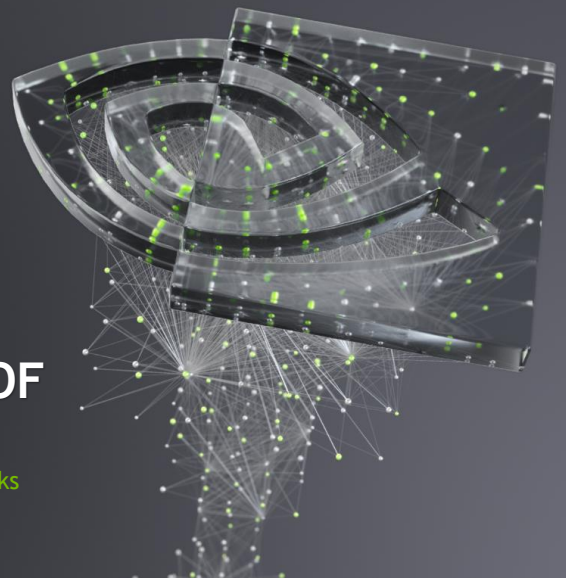
NVIDIA DEEP LEARNING INSTITUTE



FUNDAMENTALS OF DEEP LEARNING

Part 3: Convolutional Neural Networks

AGENDA

- Part 1: An Introduction to Deep Learning
- Part 2: How a Neural Network Trains
- Part 3: Convolutional Neural Networks
- Part 4: Data Augmentation and Deployment
- Part 5: Pre-trained Models
- Part 6: Advanced Architectures

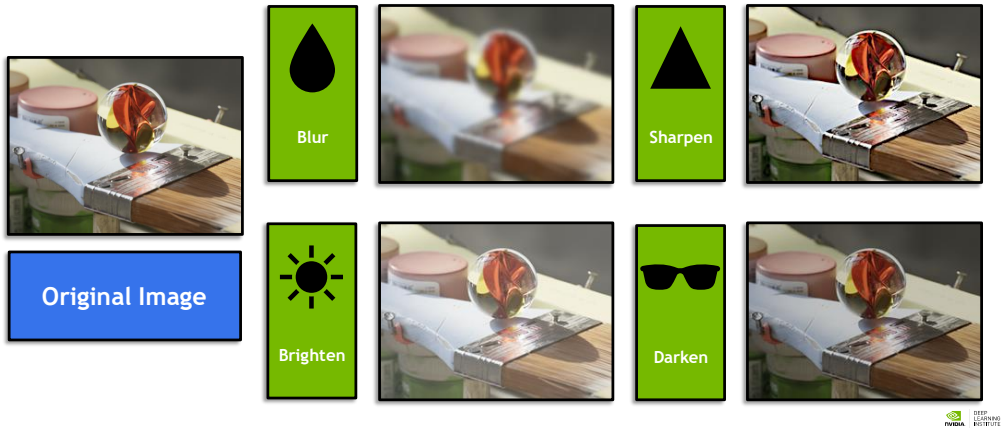
AGENDA – PART 3

- Kernels and Convolution
- Kernels and Neural Networks
- Other Layers in the Model

RECAP OF THE EXERCISE

- Trained a dense neural network model
- Training accuracy was high
- Validation accuracy was low
- Evidence of overfitting

KERNELS AND CONVOLUTION



KERNELS AND CONVOLUTION

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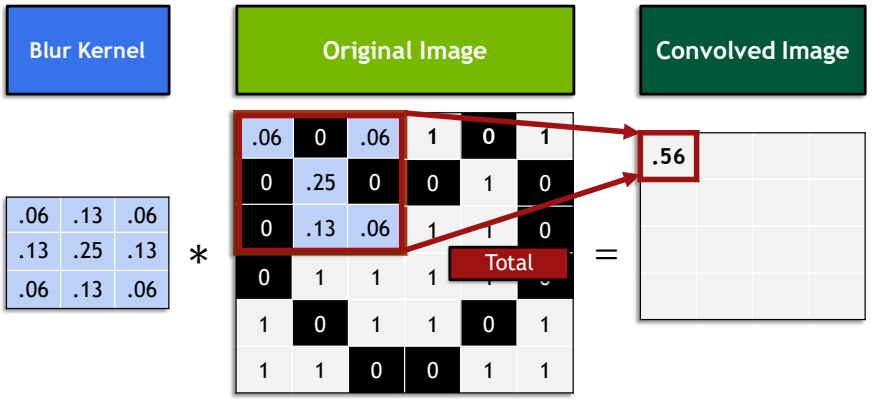
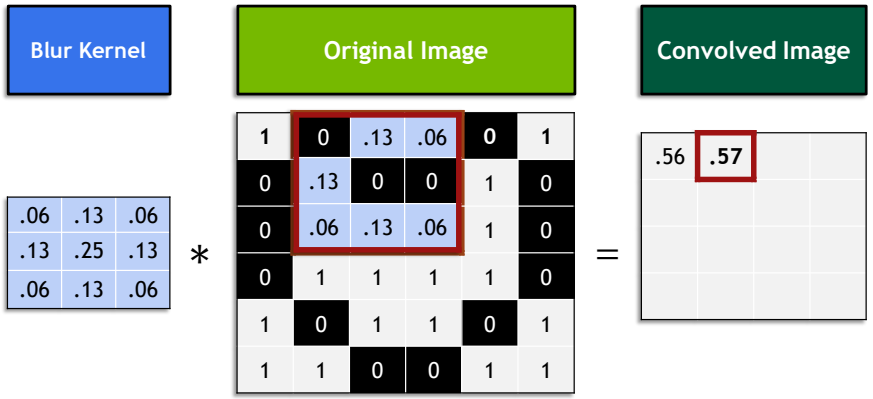
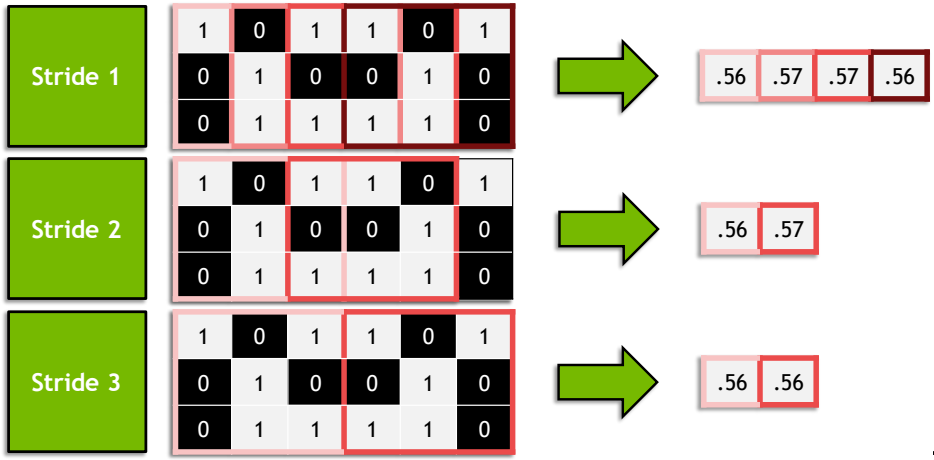


KERNELS AND CONVOLUTION



KERNELS AND CONVOLUTION

STRIDE



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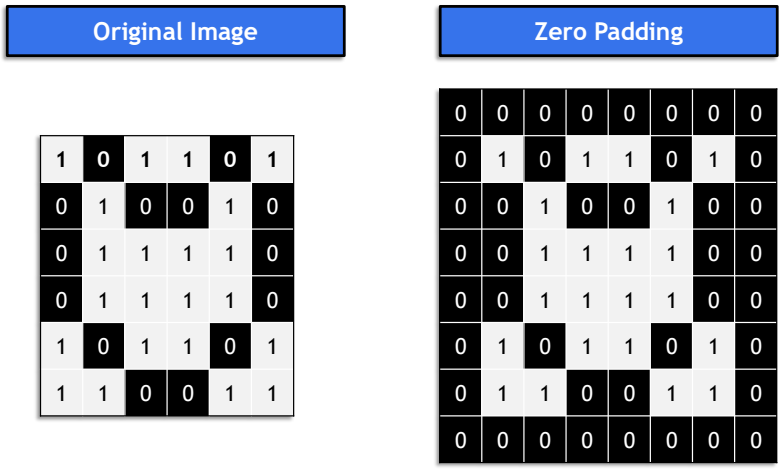

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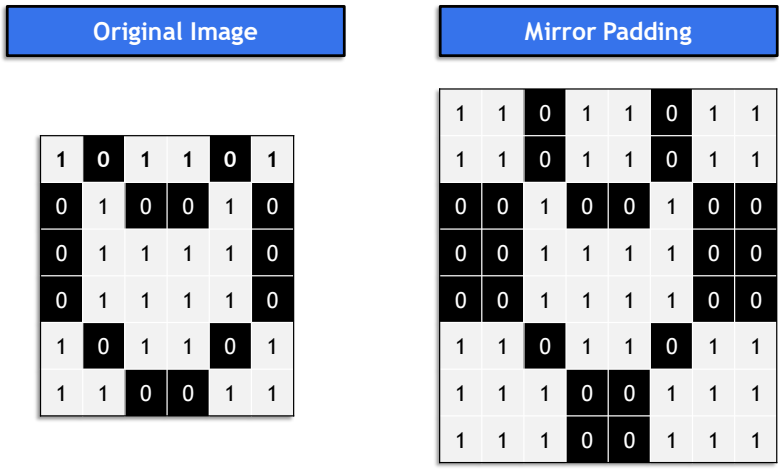


KERNELS AND NEURAL NETWORKS

Kernel

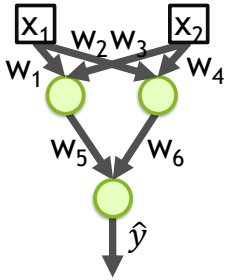
w_1	w_2	w_3
w_4	w_5	w_6
w_7	w_8	w_9

KERNELS AND NEURAL NETWORKS

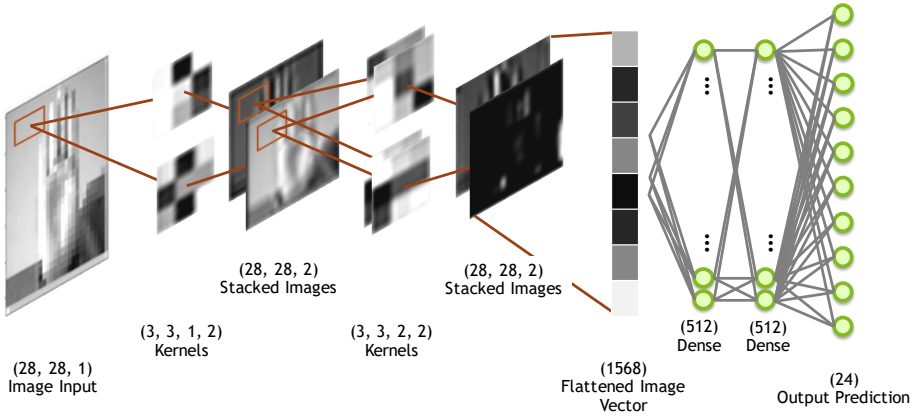
Kernel

w_1	w_2	w_3
w_4	w_5	w_6
w_7	w_8	w_9

Neuron



KERNELS AND NEURAL NETWORKS



FINDING EDGES

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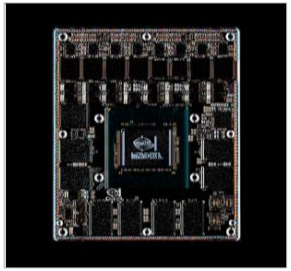		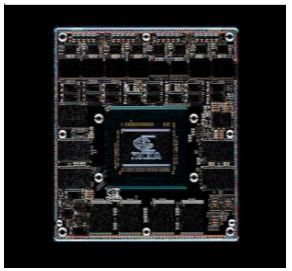
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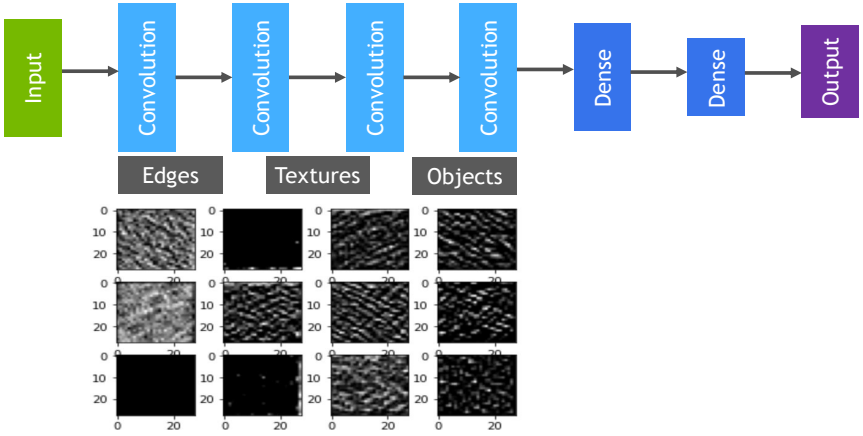
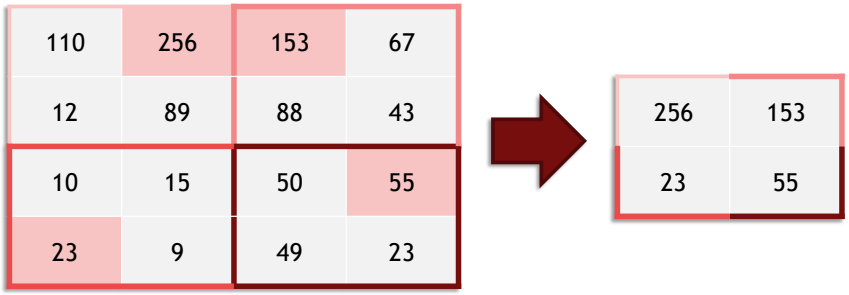
NEURAL NETWORK PERCEPTION

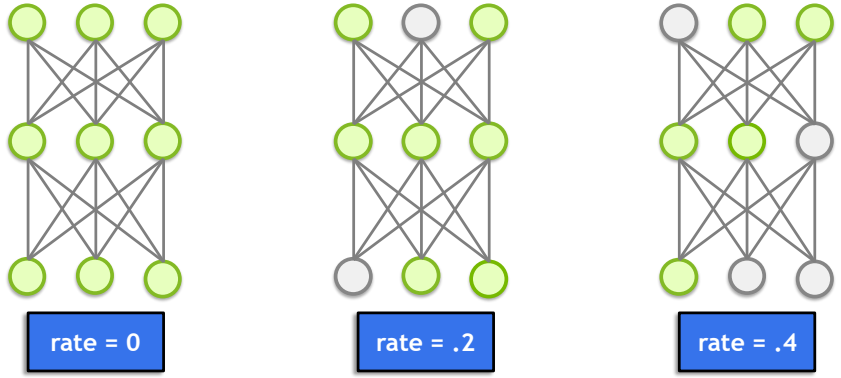


NEURAL NETWORK PERCEPTION

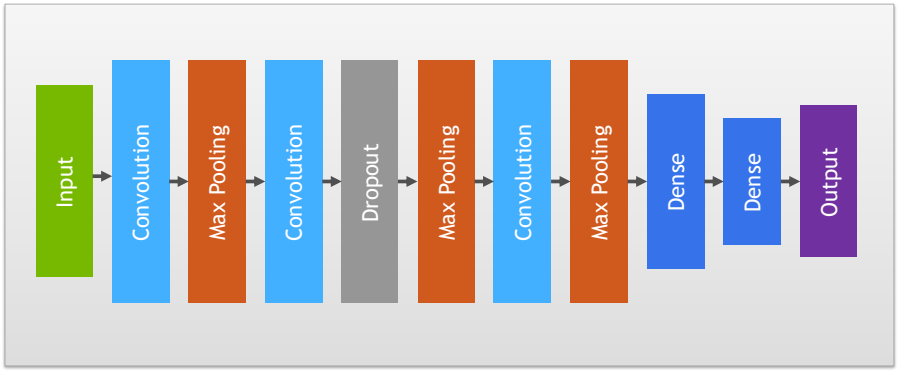
MAX POOLING

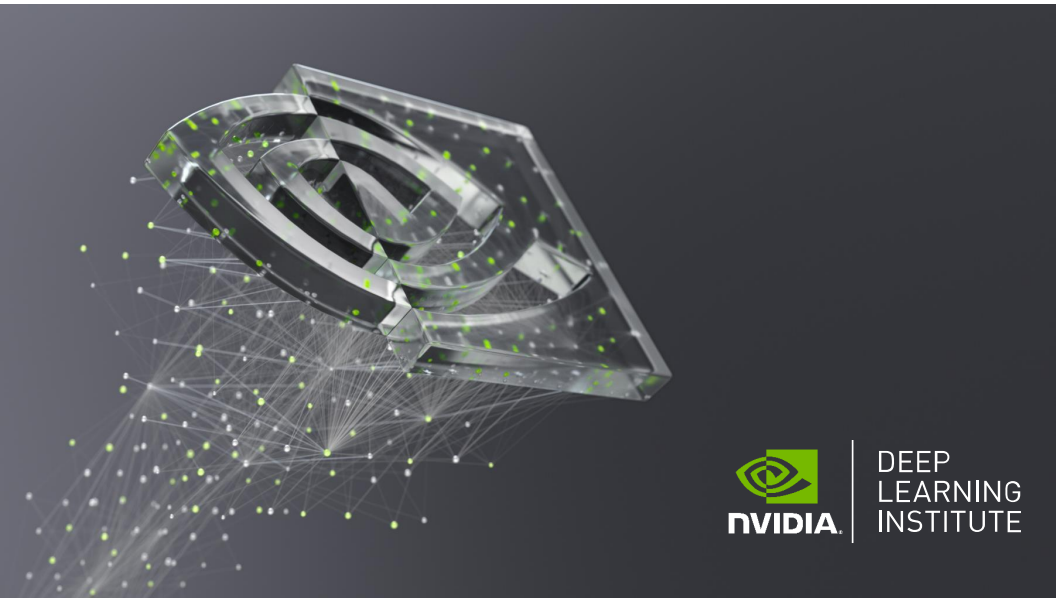


DROPOUT



WHOLE ARCHITECTURE

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