tf.talk()

A Tiny Tour of TensorFlow

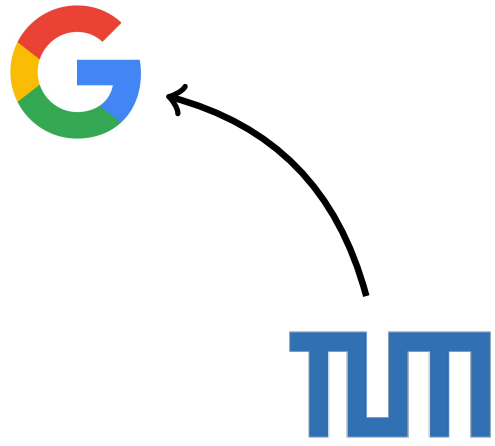
Peter Goldsborough

December 5, 2016

Background

Background

Background



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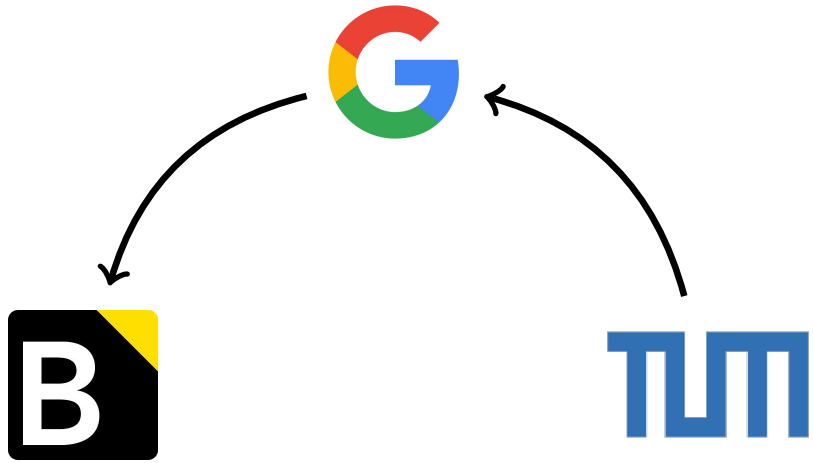

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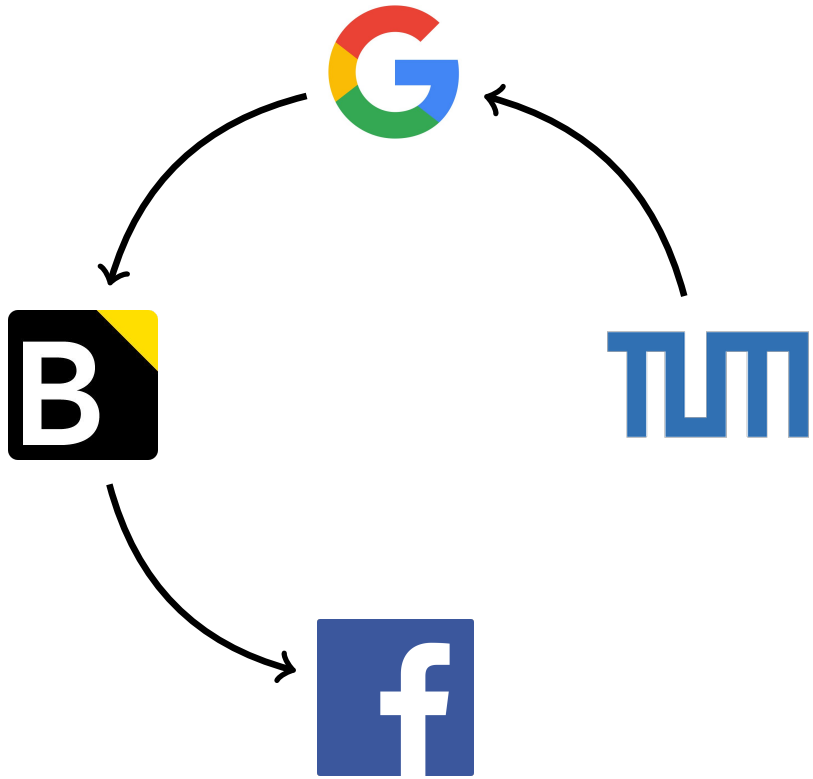

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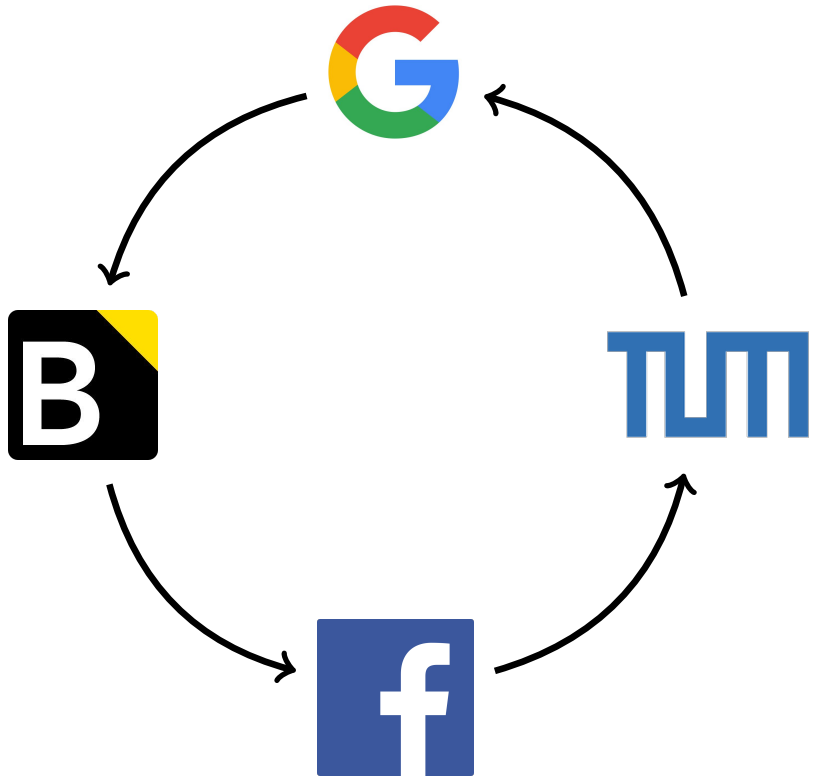

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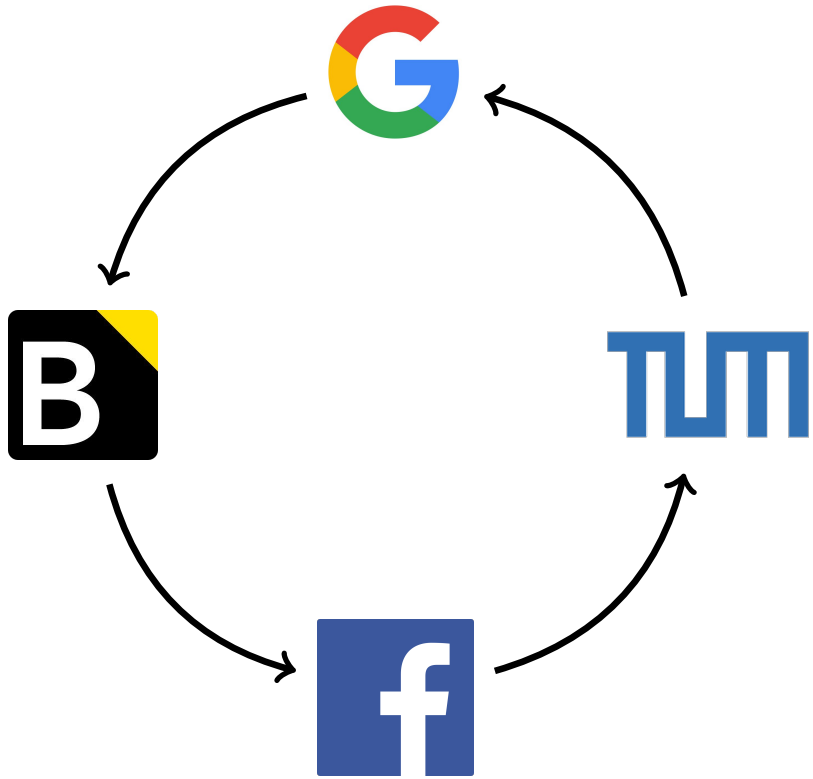


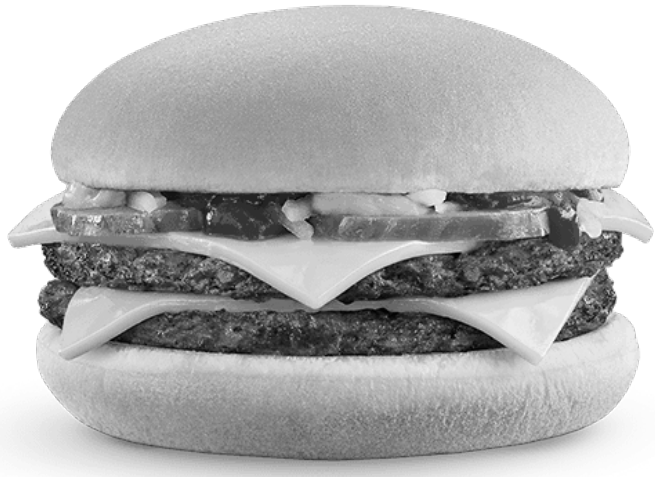
Deep Learning With TensorFlow

`github.com/peter-can-write/tensorflow-paper`

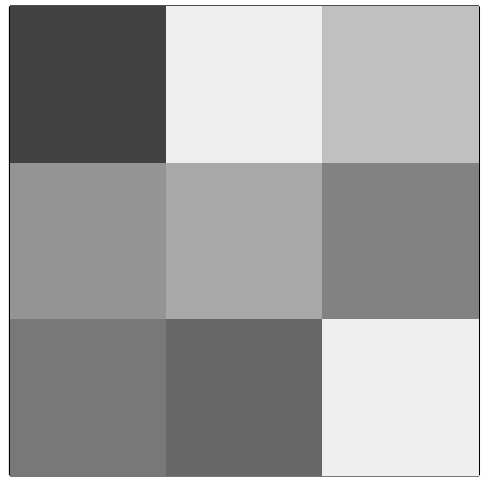
Convolutional Layers

Convolutional Layers

Convolutional Layers



Convolutional Layers



Image

Convolutional Layers

0.4	0.9	0.1
0.7	0.2	0.6
0.8	0.3	0.5

Image

Convolutional Layers

0.4	0.9	0.1
0.7	0.2	0.6
0.8	0.3	0.5

Image

5.7	2.4
3.1	0.9

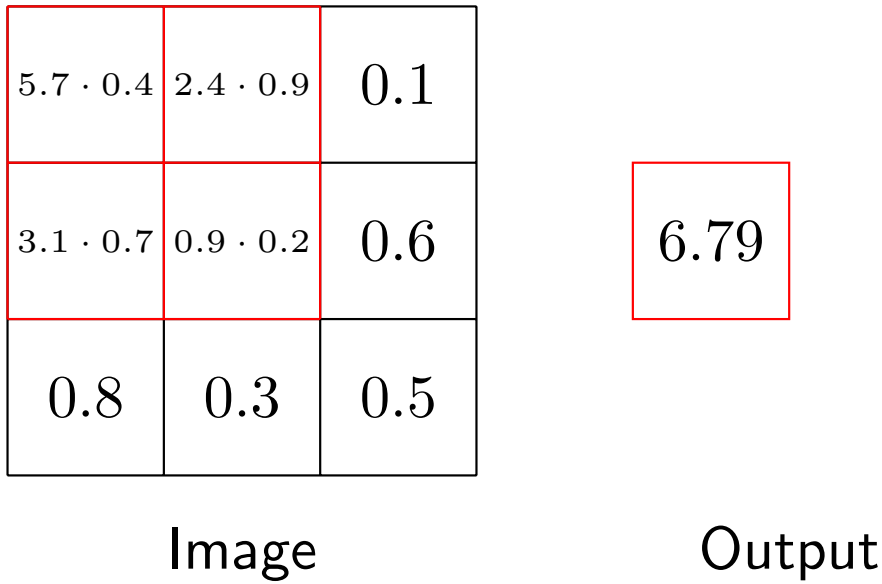
Kernel

Convolutional Layers

$5.7 \cdot 0.4$	$2.4 \cdot 0.9$	0.1
$3.1 \cdot 0.7$	$0.9 \cdot 0.2$	0.6
0.8	0.3	0.5

Image

Convolutional Layers



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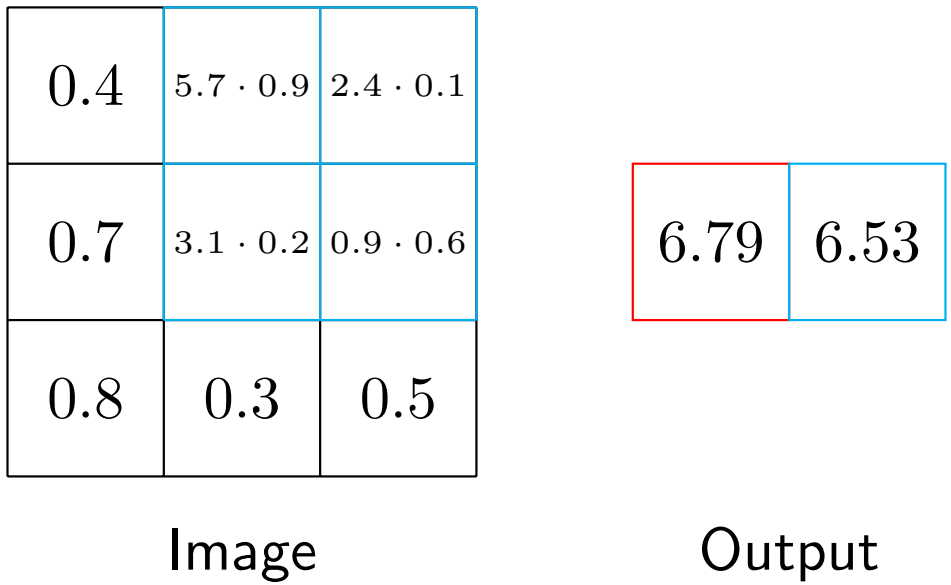

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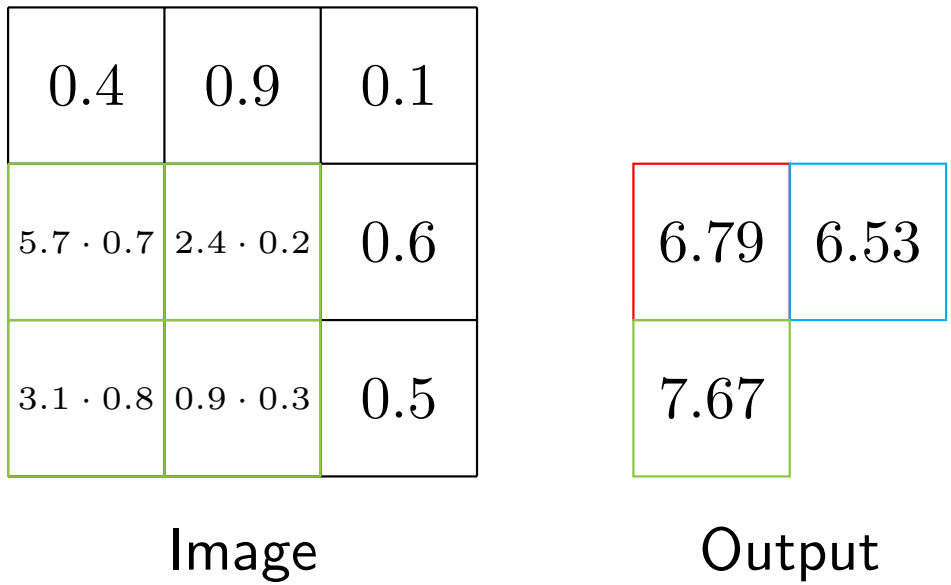

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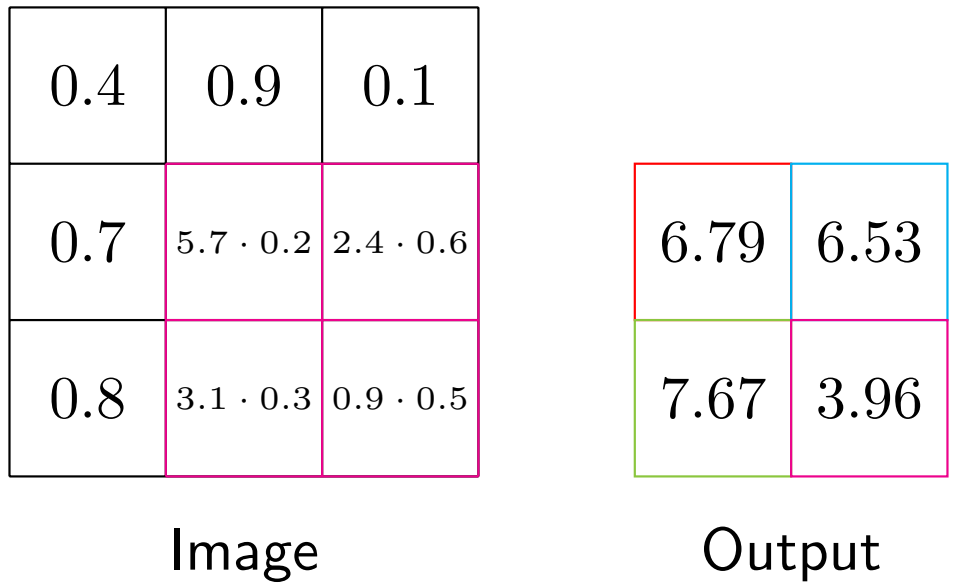

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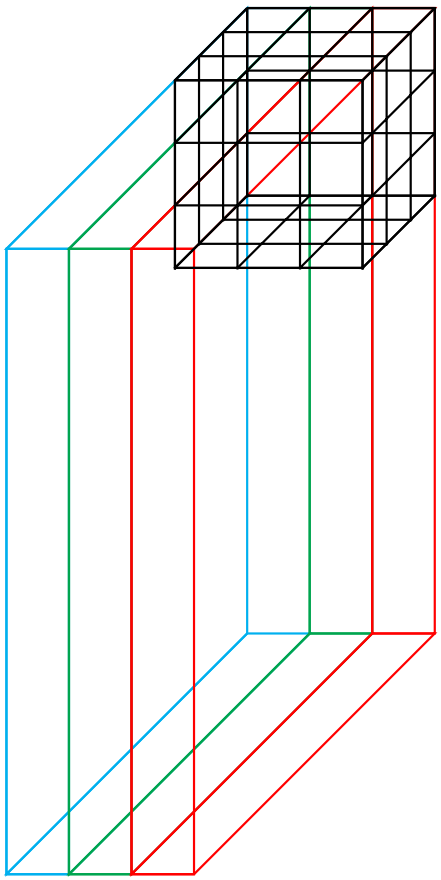

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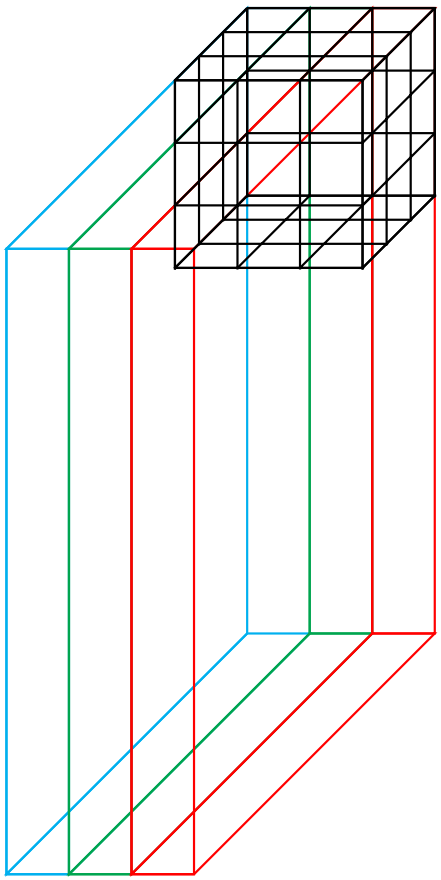

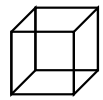

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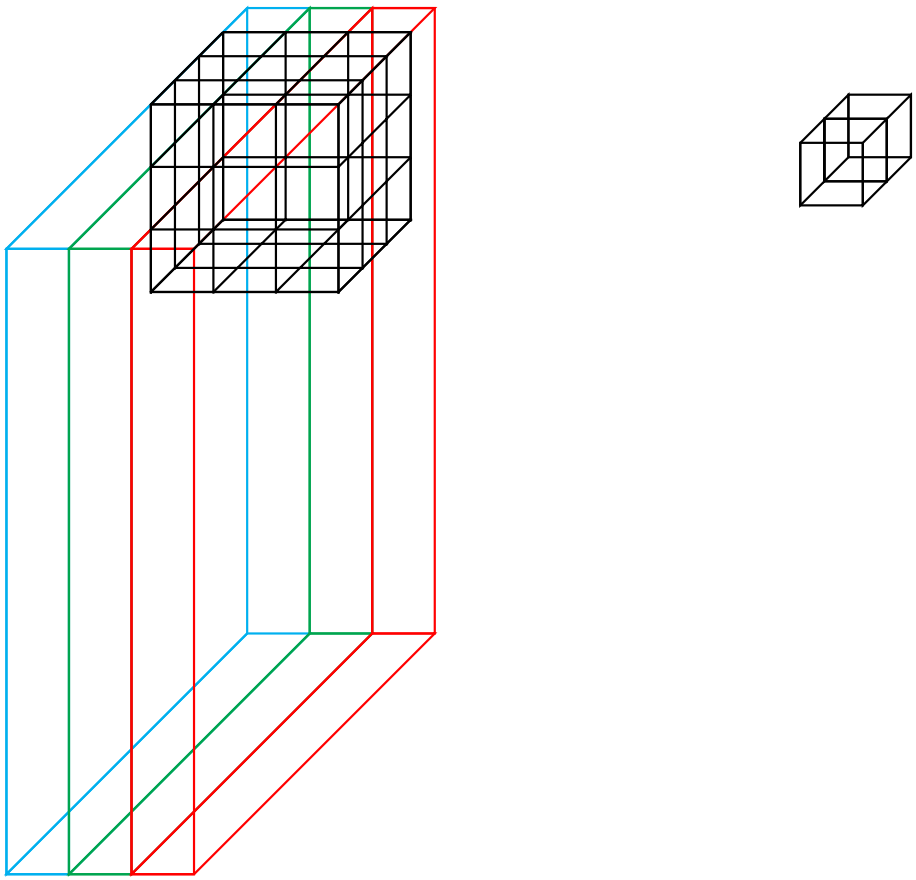

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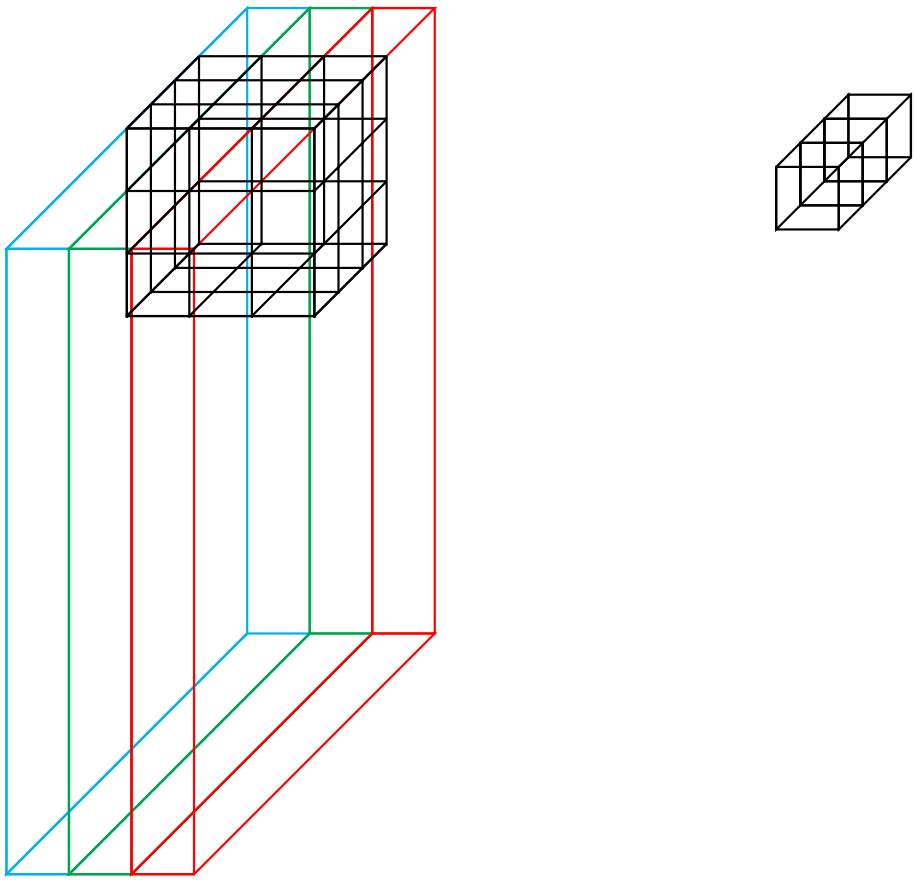
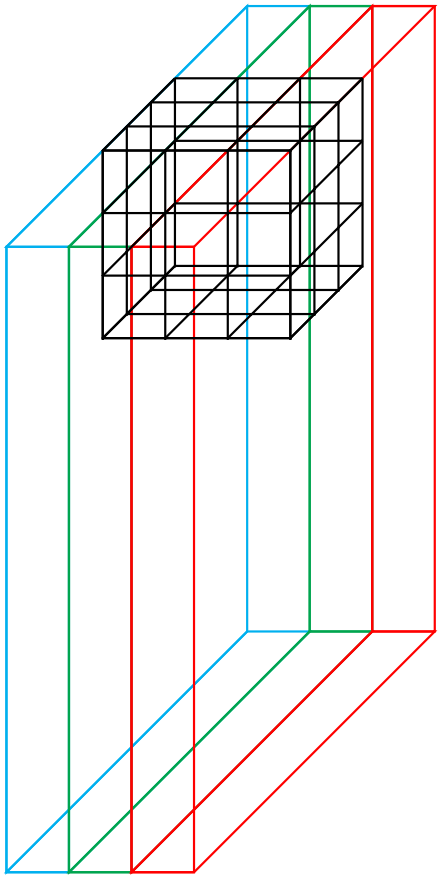
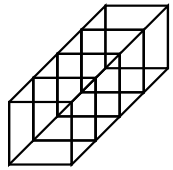


Convolutional Layers





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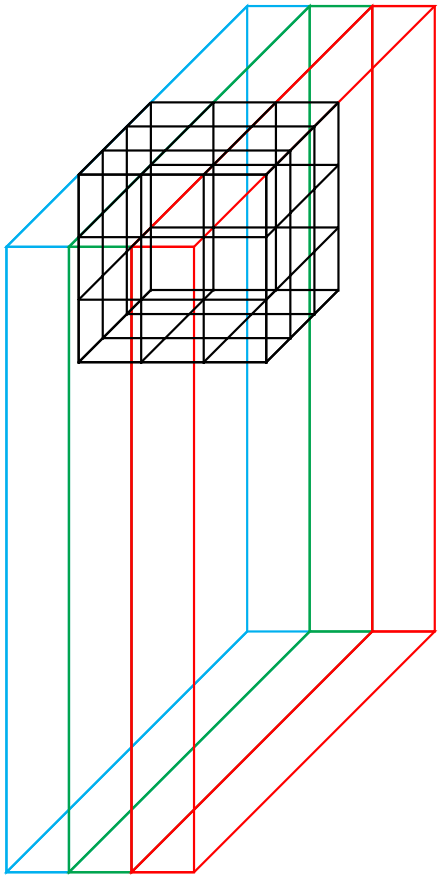

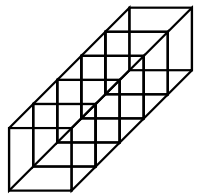

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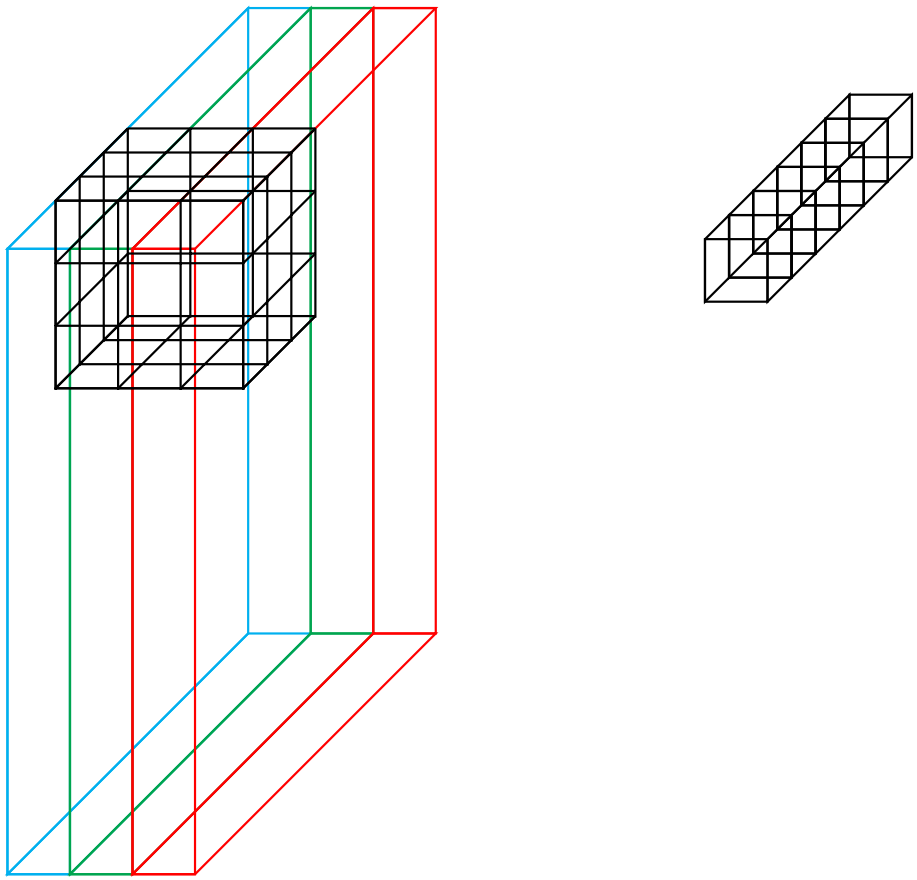

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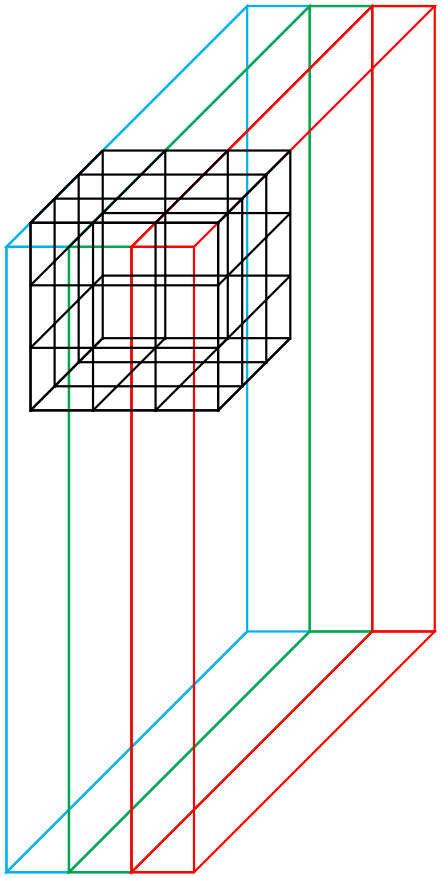

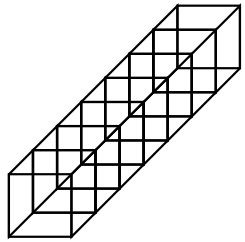

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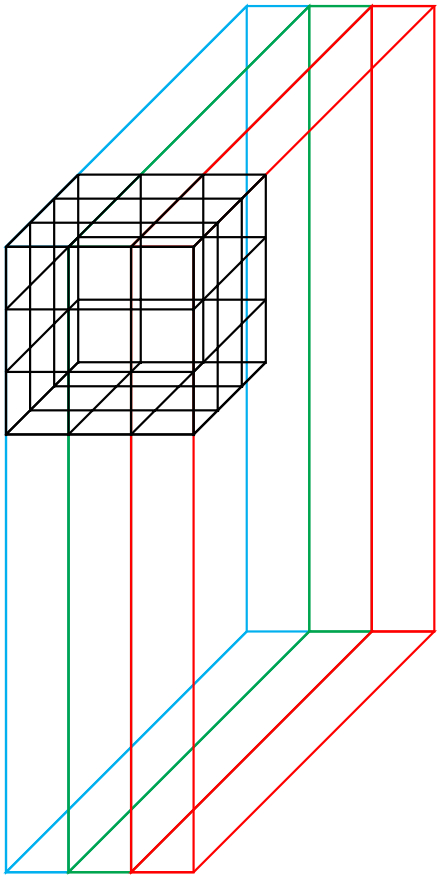

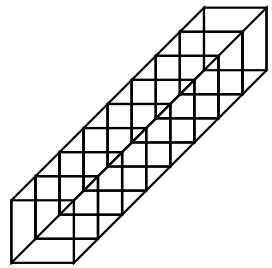

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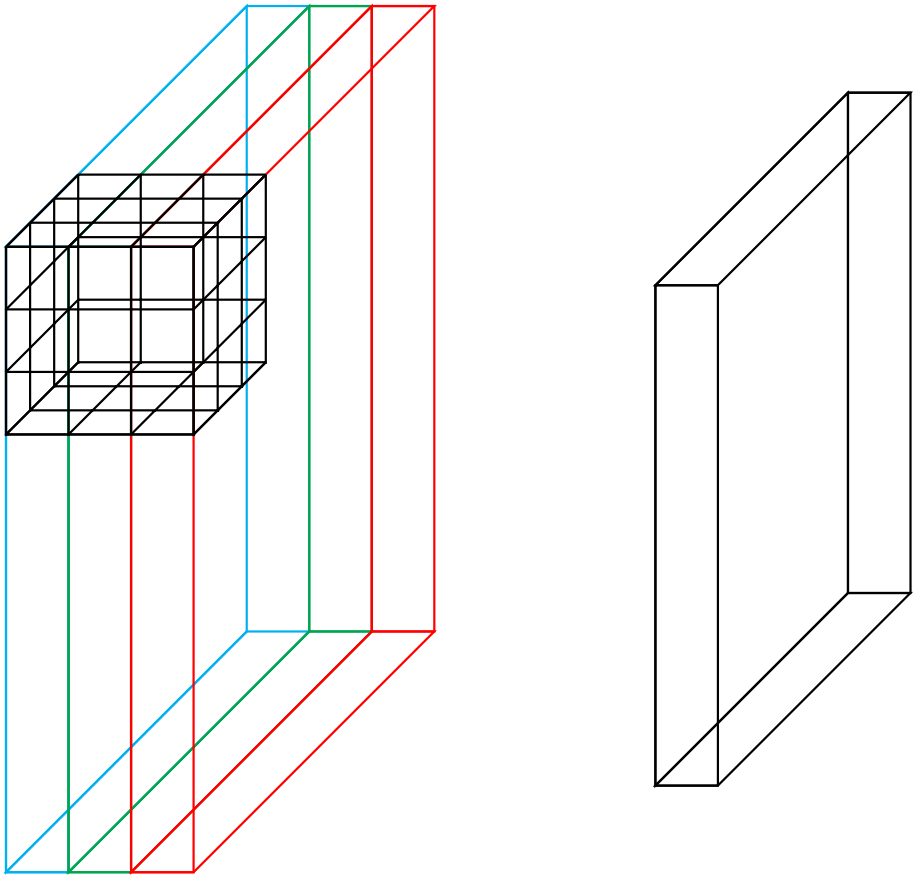

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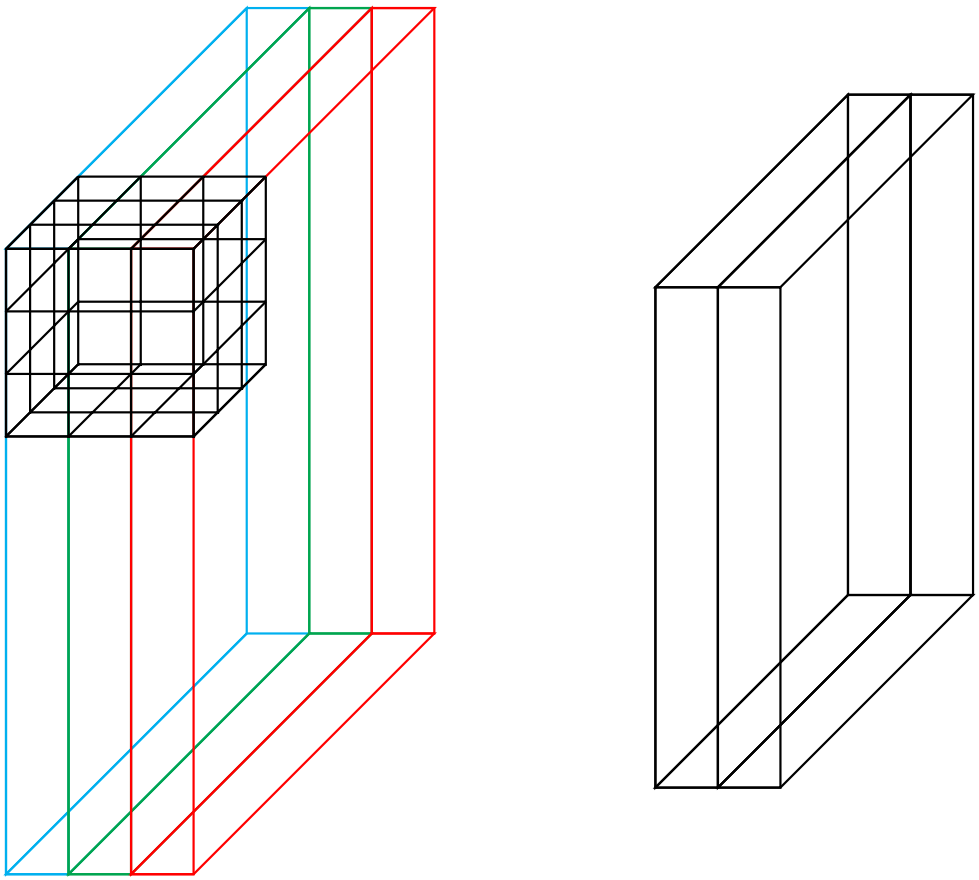

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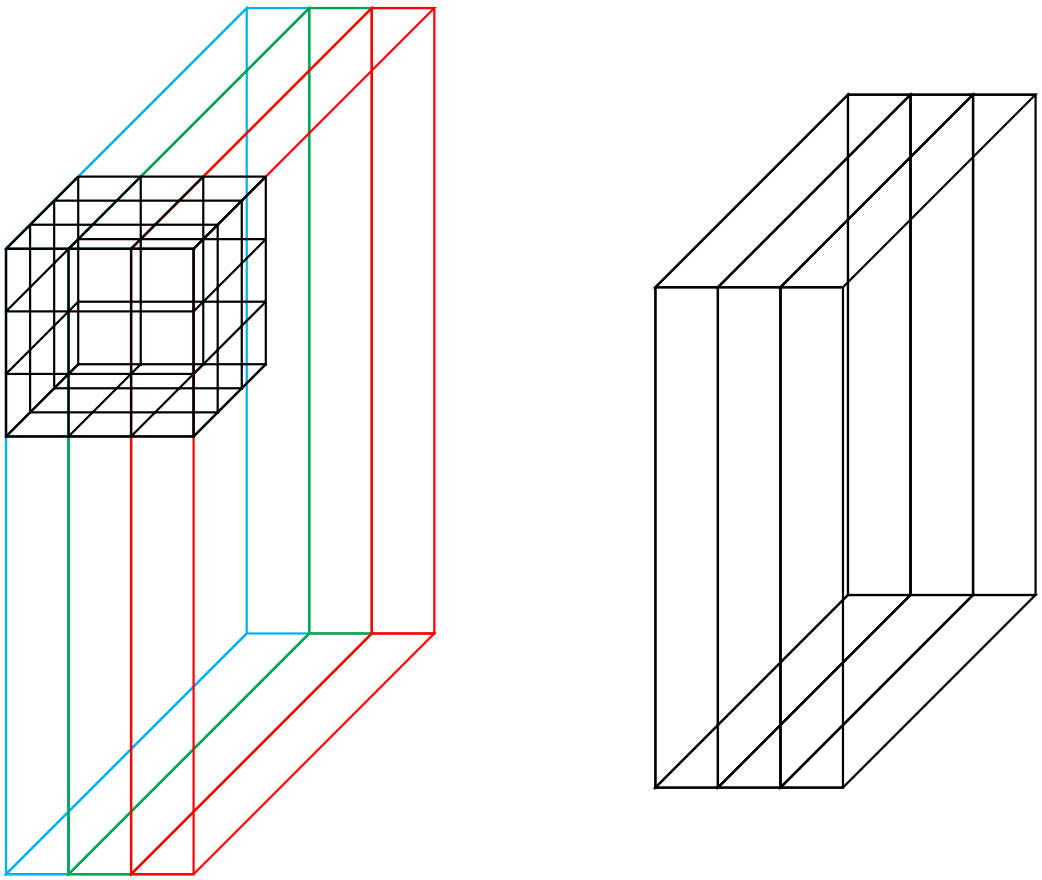
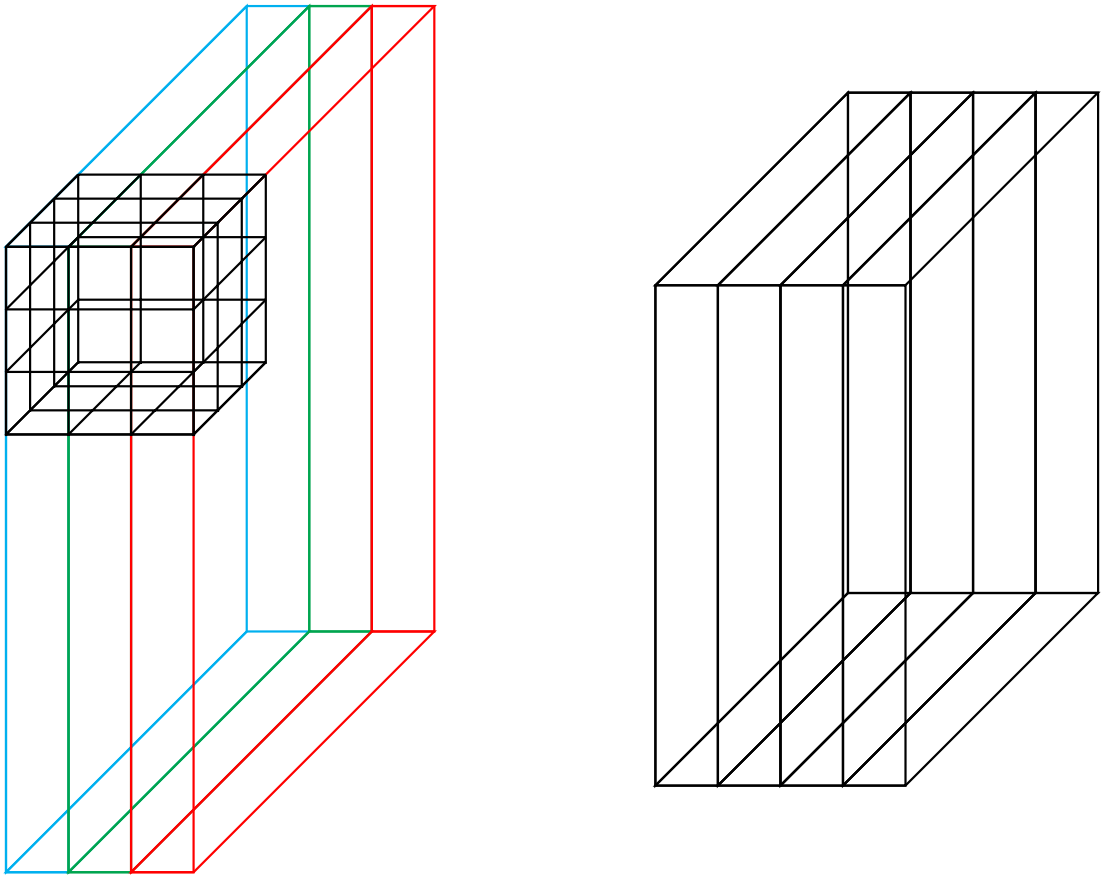


Convolutional Layers



Pooling

Pooling

66	2
6	32

Pooling

66	2
6	32

Pooling

50	17
66	2

Pooling

9	50
33	66

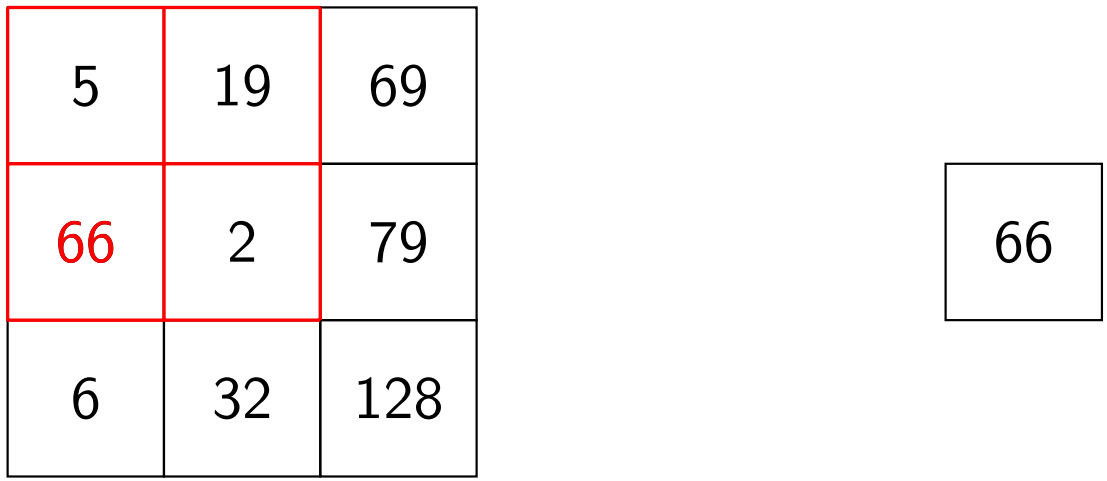
Pooling

5	19	69
66	2	79
6	32	128

Pooling

5	19	69
66	2	79
6	32	128

Pooling



Pooling

5	19	69
66	2	79
6	32	128

66	79

Pooling

5	19	69
66	2	79
6	32	128

66	79
66	

Pooling

5	19	69
66	2	79
6	32	128

66	79
66	128

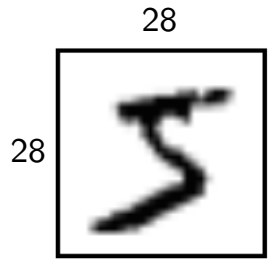
Convolutional Neural Networks

```
INPUT -> [CONV+ -> POOL?]+ -> FC+ -> OUTPUT
```

LeNet5

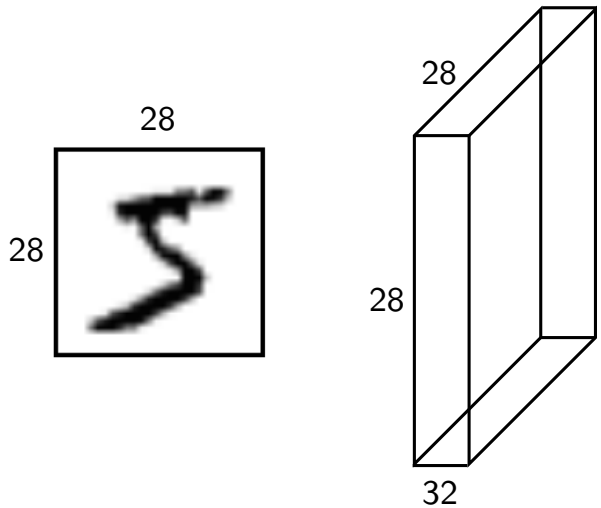
```
INPUT -> [CONV -> POOL]{2} -> FC -> OUTPUT
```

LeNet5



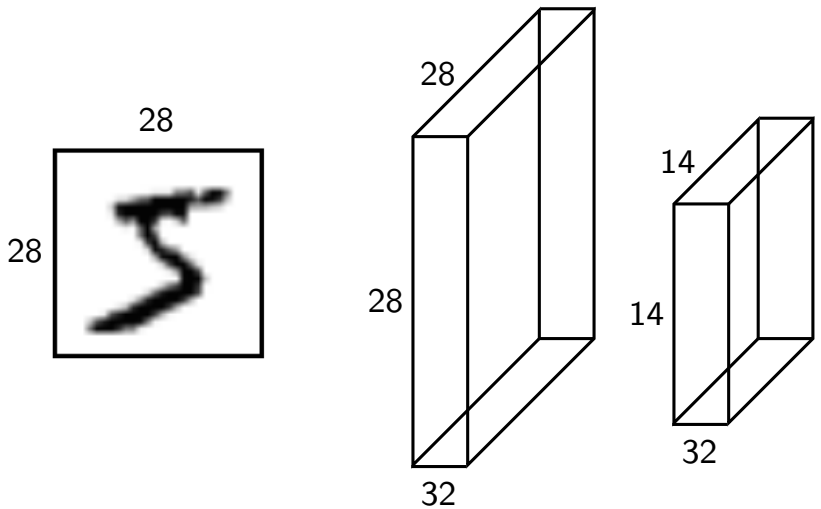
`INPUT -> [CONV -> POOL]{2} -> FC -> OUTPUT`

LeNet5



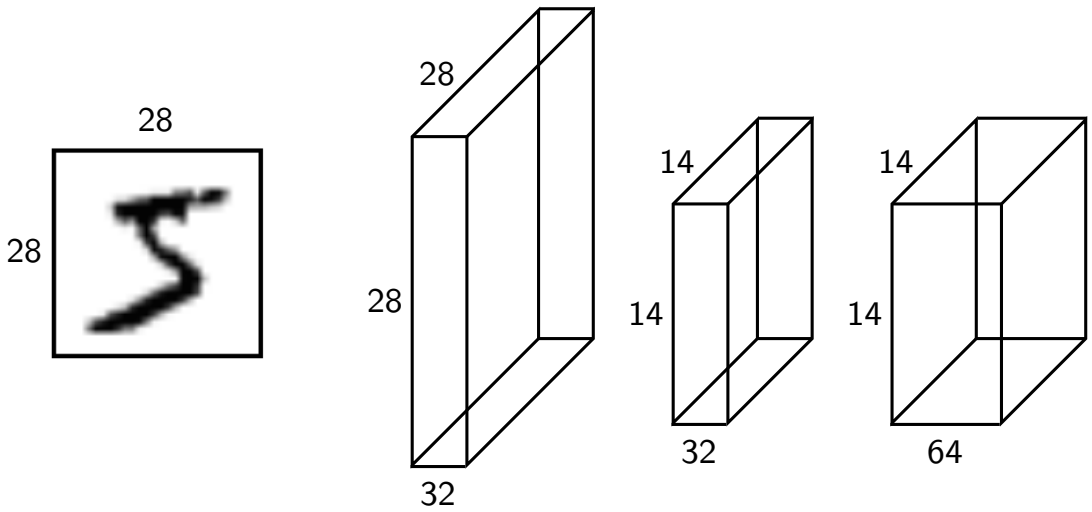

```
INPUT -> [CONV -> POOL]{2} -> FC -> OUTPUT
```

LeNet5




```
INPUT -> [CONV -> POOL]{2} -> FC -> OUTPUT
```

LeNet5

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INPUT -> [CONV -> POOL]{2} -> FC -> OUTPUT
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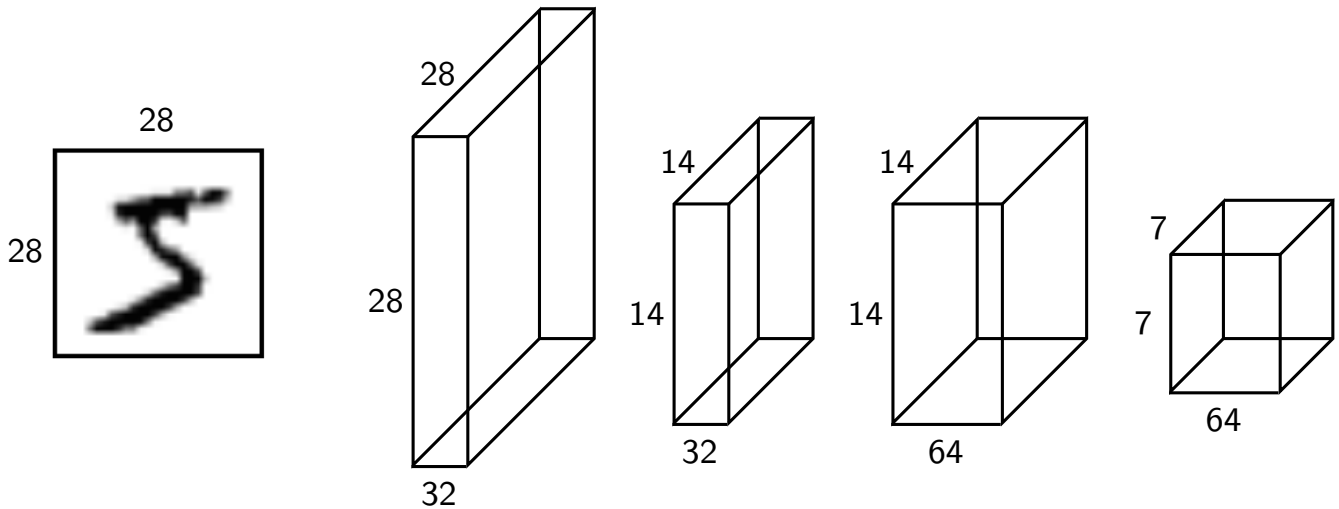
LeNet5




```
INPUT -> [CONV -> POOL]{2} -> FC -> OUTPUT
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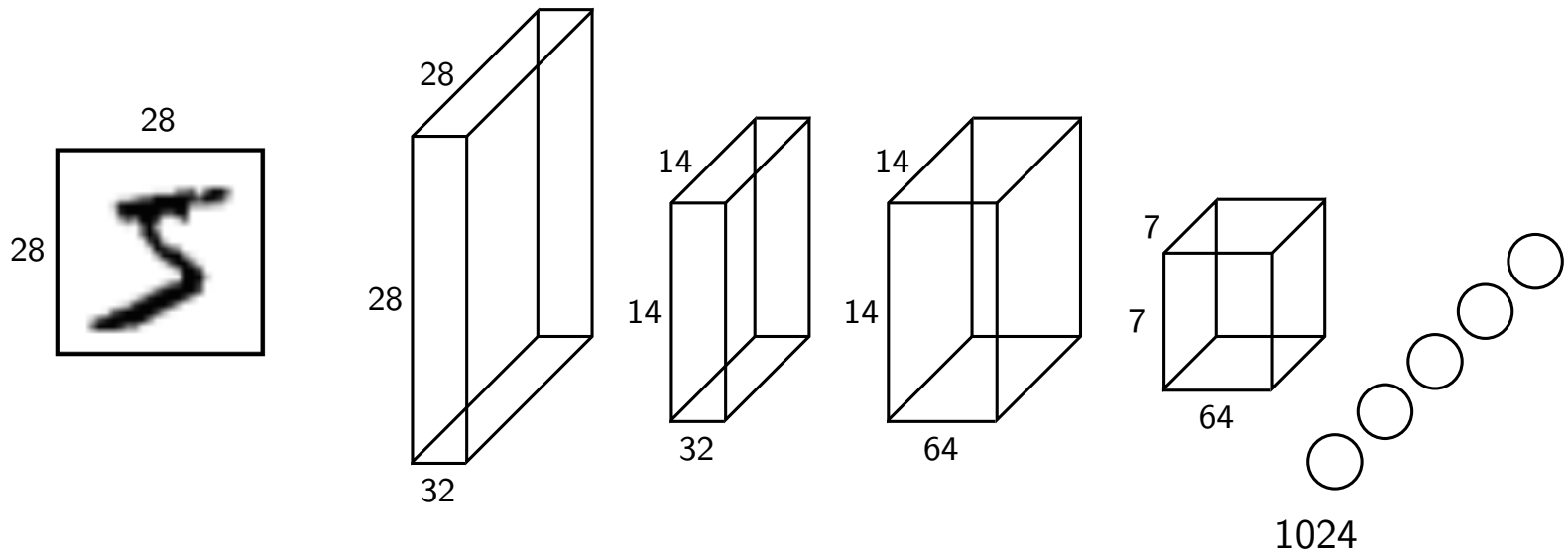
LeNet5




```
INPUT -> [CONV -> POOL]{2} -> FC -> OUTPUT
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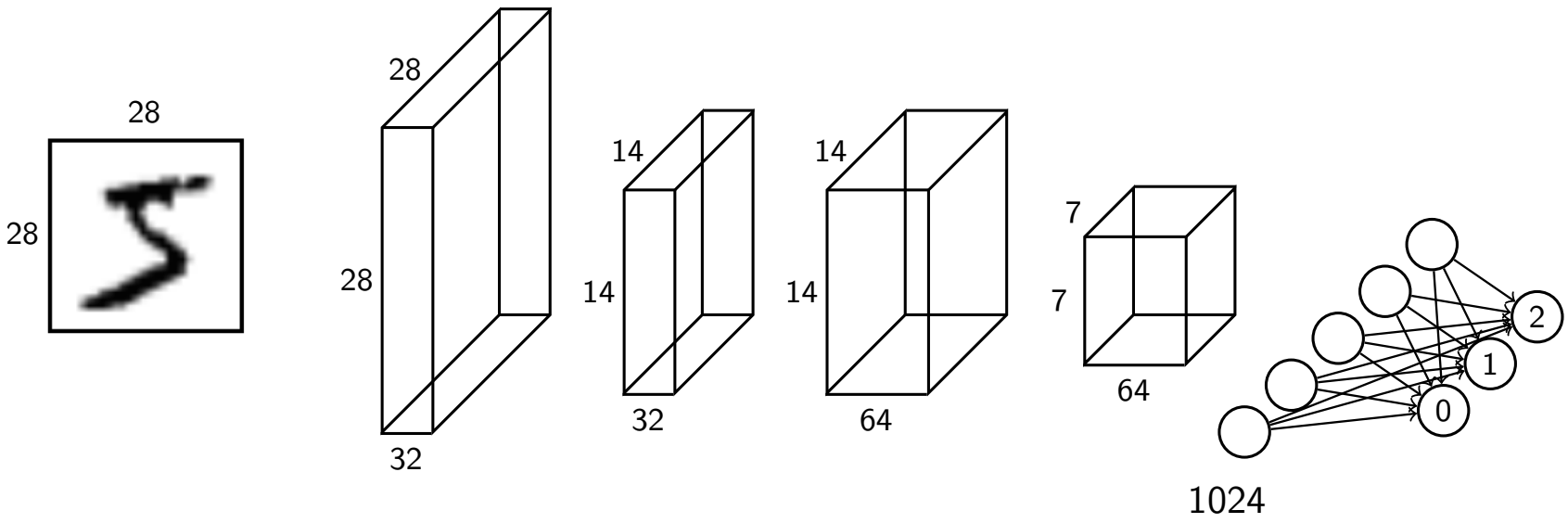
LeNet5



`INPUT -> [CONV -> POOL]{2} -> FC -> OUTPUT`

How do I continue?

Resources

- Deep Learning by Google @ Udacity
- http://colah.github.io
- http://cs231n.github.io
- http://www.deeplearningbook.org
- https://www.tensorflow.org

Stay in Touch!

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- github.com/goldsborough

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- linkedin.com/in/petergoldsborough
- github.com/goldsborough

github.com/peter-can-talk/pydata-london

Q & A