

Transposed Convolution

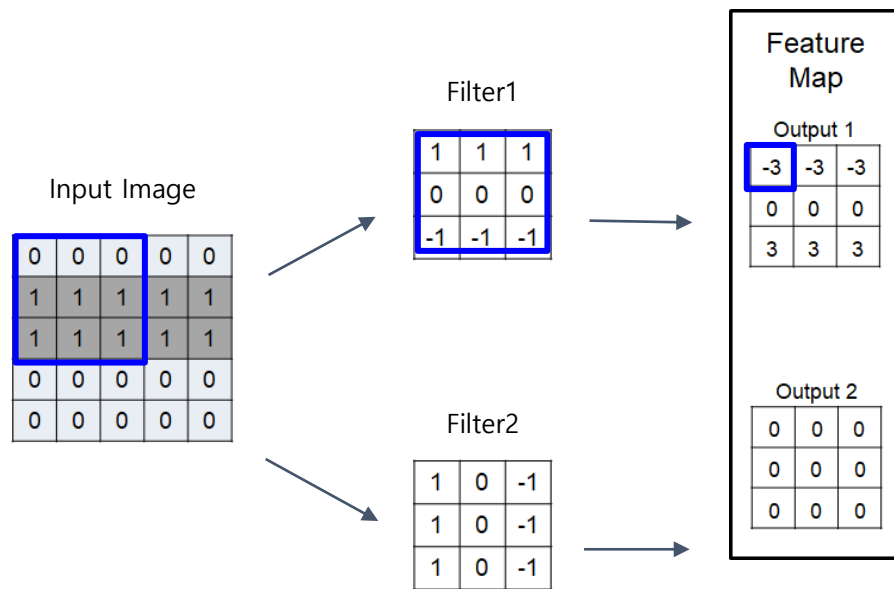
AILAB
Hanyang Univ.

1. Transposed Convolution 원리
2. 다양한 형태의 Transposed Convolution

Transposed Convolution 원리

Convolution?

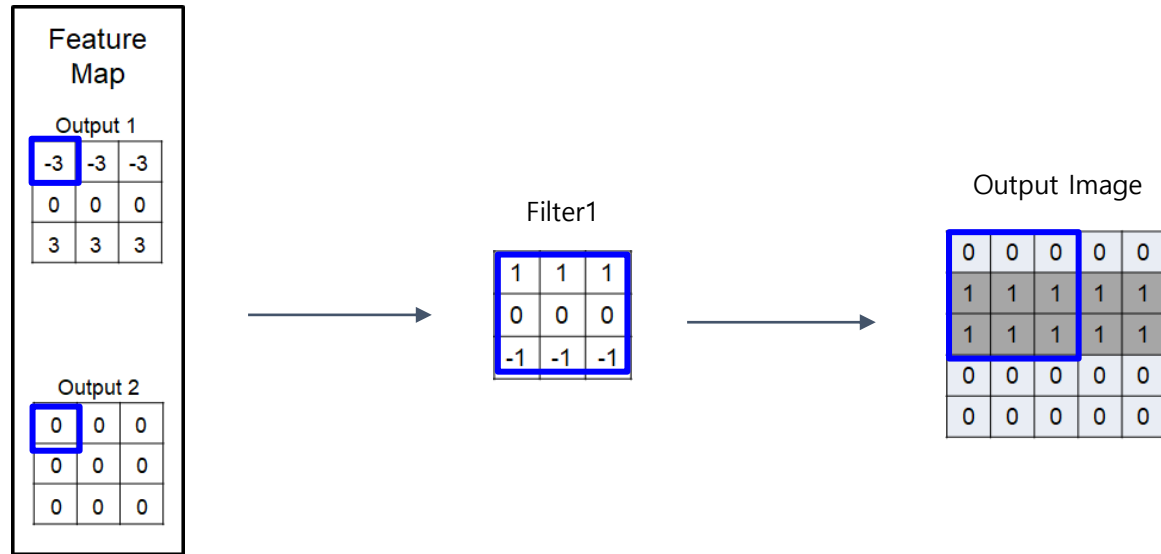
: Convolution(합성곱)은 하나의 함수와 또 다른 함수를 반전 이동한 값을 곱한 다음, 구간에 대해 적분하여 새로운 함수를 구하는 수학 연산자이다.



Transposed Convolution 원리

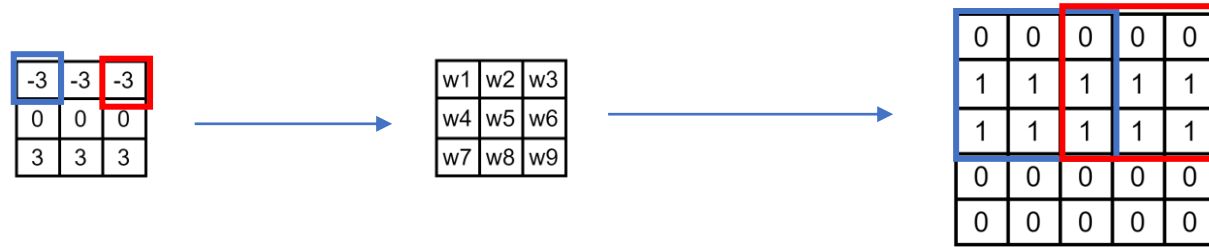
Transposed Convolution?

: Convolution(합성곱)의 역순으로 feature로부터 이미지를 계산하는 방법



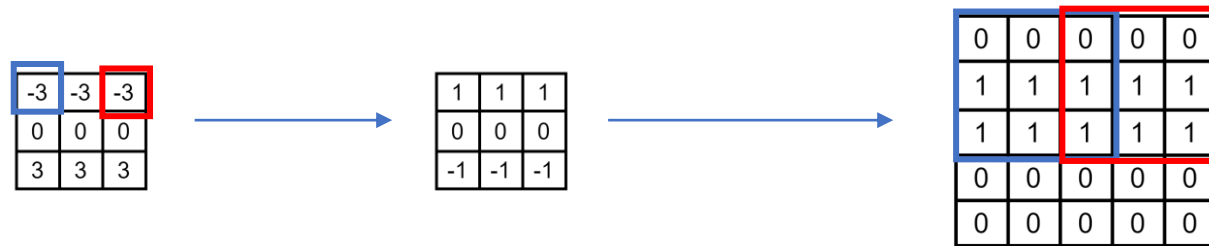
Transposed Convolution 원리

Transposed Convolution vs Deconvolution



Transposed Convolution

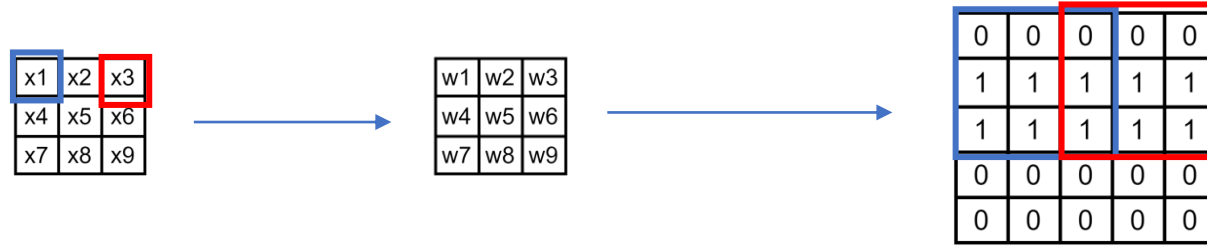
Transposed convolution : Convolution 연산으로 결과값을 추론함



DeConvolution

Deconvolution : Weight 값을 고정해둔 상태에서 이전값을 근사함

다양한 형태의 Transposed Convolution



x1	x2	x3
x4	x5	x6
x7	x8	x9

	x1		x2		x3	
	x4		x5		x6	
	x7		x8		x9	

		x1	x2	x3		
		x4	x5	x6		
		x7	x8	x9		

1. Zero padding X

2. Zero padding O

다양한 형태의 Transposed Convolution

1) Zero padding X

x1	x2	x3
x4	x5	x6
x7	x8	x9



w1	w2	w3
w4	w5	w6
w7	w8	w9



w1x1	w2x1	w3x1	0	0
w4x1	w5x1	w6x1	0	0
w7x1	w8x1	w9x1	0	0
0	0	0	0	0
0	0	0	0	0



0	w1x2	w2x2	w3x2	0
0	w4x2	w5x2	w6x2	0
0	w7x2	w8x2	w9x2	0
0	0	0	0	0
0	0	0	0	0



⋮



0	0	0	0	0
1	1	1	1	1
1	1	1	1	1
0	0	0	0	0
0	0	0	0	0

다양한 형태의 Transposed Convolution

2) Zero padding O

