

$$I - \frac{\text{blur}(I)}{G} = L \quad (\text{Laplacian})$$

$$I = L + G$$

Iterate

$$G_0 = I$$

$$G_i = \text{sub}(\text{blur}(G_{i-1}))$$

$$L_i = G_i - \text{blur}(G_i)$$

$$L_k = G_k$$

I have L_1, \dots, L_k

can I get I ?

$$L_{k-1} = G_{k-1} - \text{blur}(G_{k-1})$$

$$L_k = G_k$$

$$G_{k-1} = \text{sub}(\text{blur}(G_{k-1}))$$

Recall up sample

200	50
20	150

BLUR

200	0	50	0
0	0	0	0
20	0	150	0
0	0	0	0

* 4

0	0	0
0	50	0
0	0	0

* blur
3x3

1	2	1
2	4	2
1	2	1

/ 16

Q: Does $\text{up}(\text{down}(\text{img})) = \text{img}$? **NO**

Does $\text{down}(\text{up}(\text{img})) = \text{img}$?

→ blur → info lost

x $\begin{bmatrix} \text{down} \\ \text{up} \\ \text{blur} \\ *4 \end{bmatrix}$ ✓

img

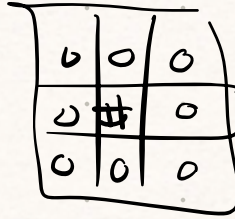
up →

blur → nope

*4

blur

down



0	0	0
0	#	0
0	0	0