Keskinleştirme

Sharpening

Keskinleştirme (Sharpening)

Keskinleştirilmiş İmge = Orijinal İmge + Kenarlar

Kenarları elde etmenin iki farklı yolu var:

1. Kenar Hesaplama Yöntemleri
2. Kenarlar = Orijinal İmge – Yumuşatılmış İmge

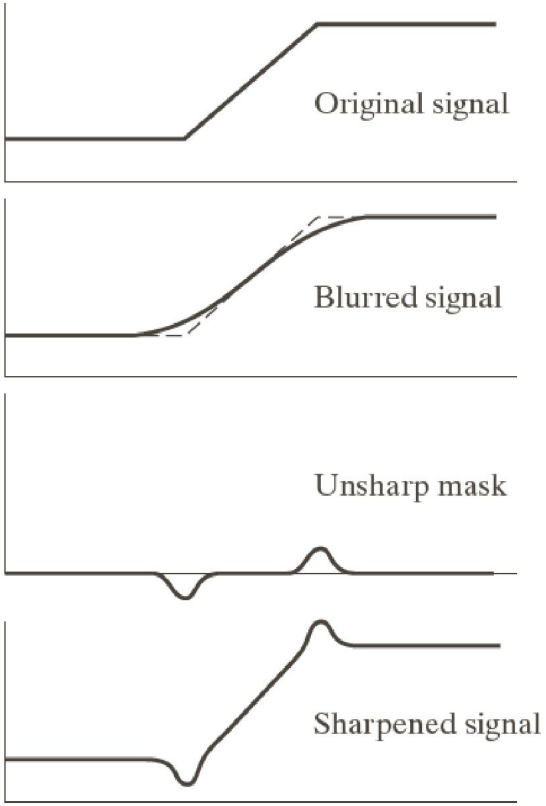
Keskinleştirme – Yumuşatılmış İmge İle (tek boyut)

Orijinal Sinyal

Yumuşatılmış (Blurred)
Gürültünün temizlenmiş olduğu imge

Fark (Unsharp) = Orijinal – Yumuşatılmış

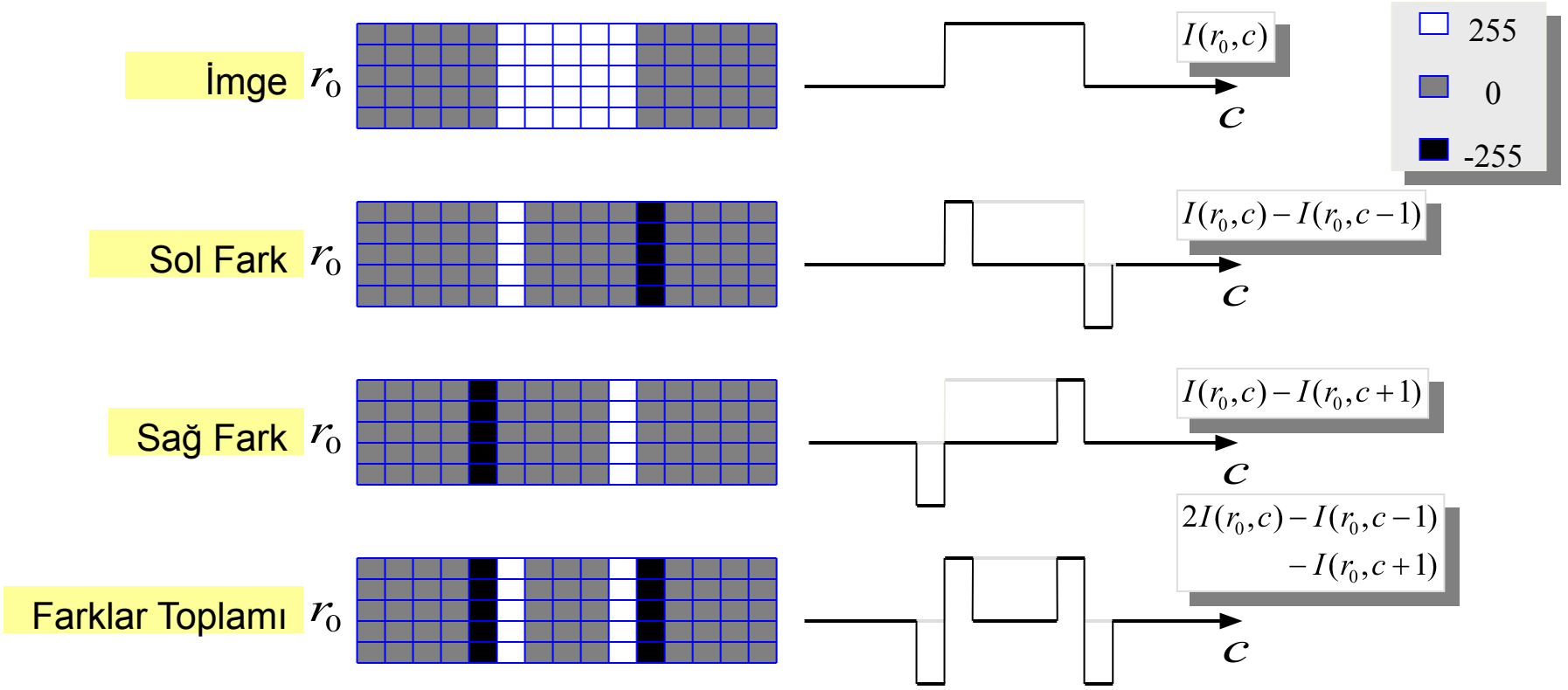
Keskinleştirilmiş (Sharpened)= Orijinal + Fark



a
b
c
d

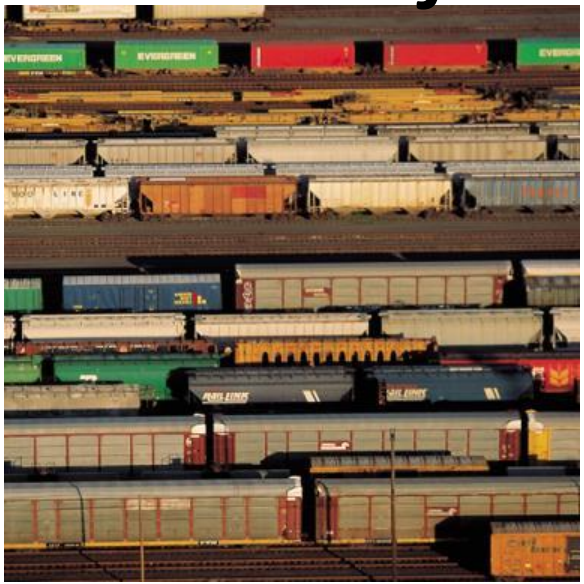
FIGURE 3.39 1-D illustration of the mechanics of unsharp masking. (a) Original signal. (b) Blurred signal with original shown dashed for reference. (c) Unsharp mask. (d) Sharpened signal, obtained by adding (c) to (a).

Kenar bulmak için fark imgelerini hatırlayalım..

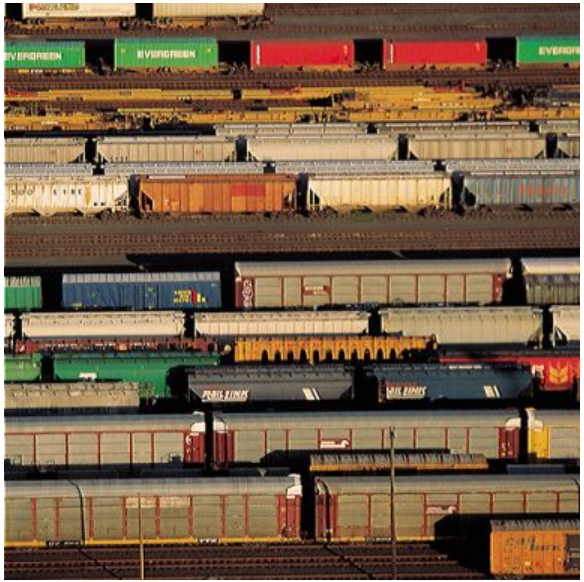


Sol Fark Toplamı

Orijinal İmge + Sol Fark



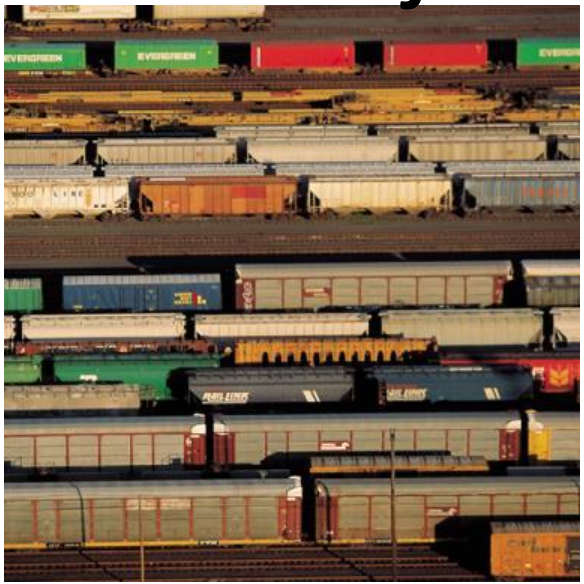
İmge I



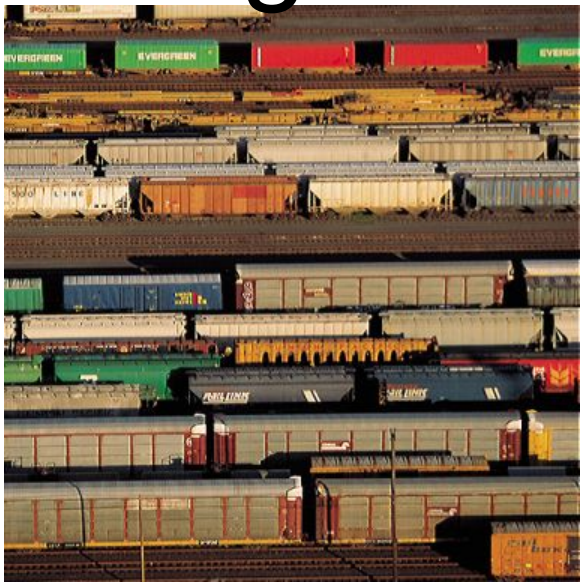
$I+(I*h) = I+(I*$
$[-1\ 1])$

Sağ Fark Toplamı

Orijinal İmge + Sağ Fark



İmge I



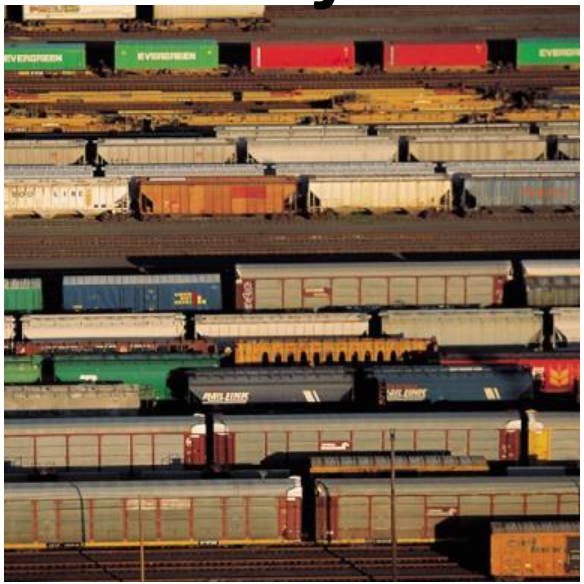
$I+(I*h) = I+(I*[1\ -1])$

Dikey Kenar Keskinleştirme

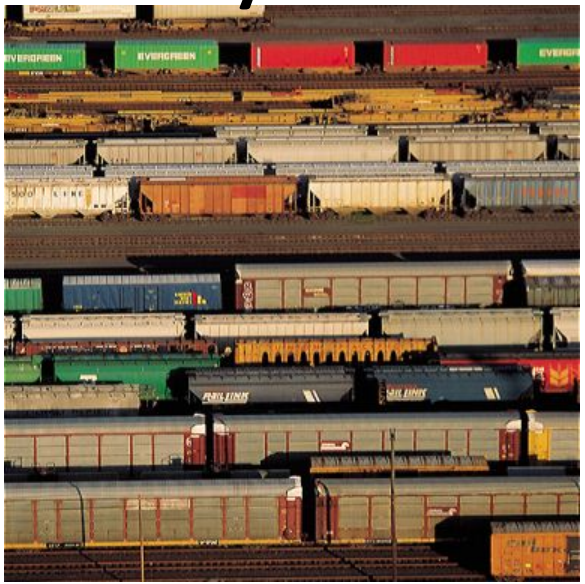
Dikey kenarlar = Sol fark + Sağ Fark

[-1 2 -1] = [-1 1 0] + [0 1 -1]

Orijinal İmge +Dikey kenarlar



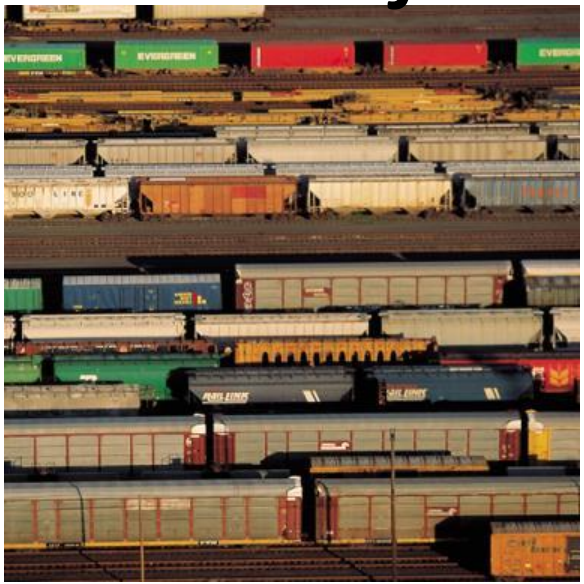
İmge I



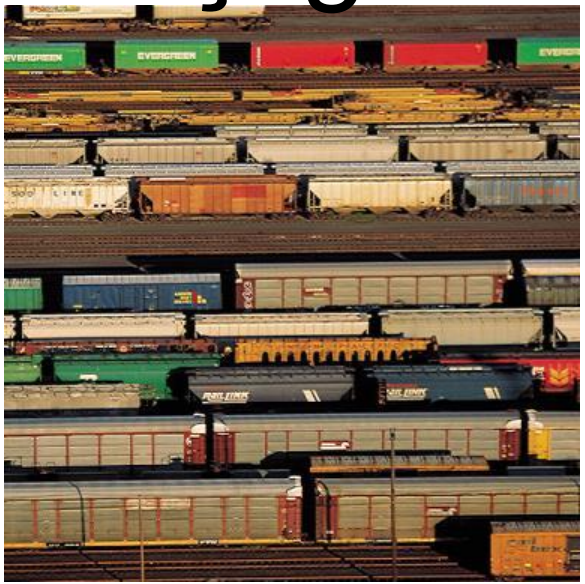
$I+(I*h) = I+(I*[-1\ 2\ -1])$

Aşağı Fark Toplamı

Orijinal İmge + Aşağı Fark



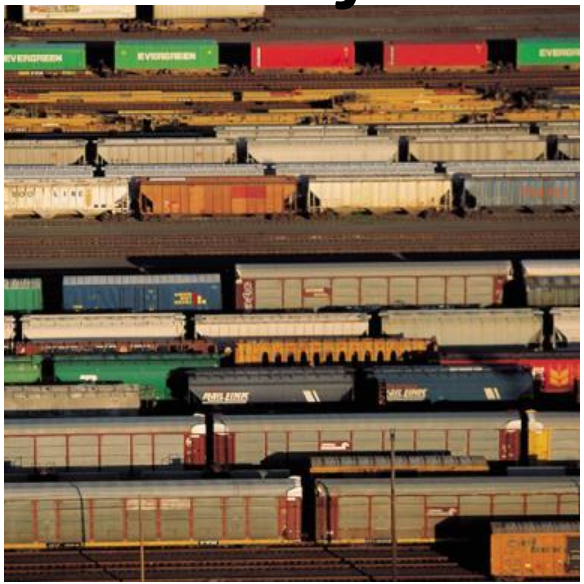
İmge I



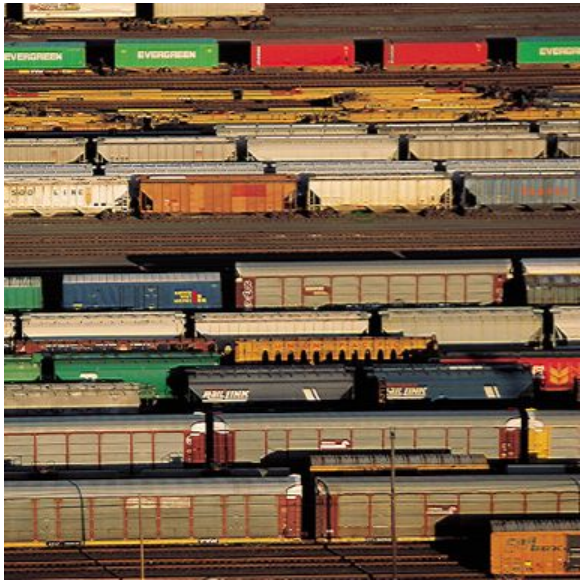
$$I+(I*h) = I+(I*\begin{bmatrix}1\\-1\end{bmatrix})$$

Yukarı Fark Toplamı

Orijinal İmge + Yukarı Fark



İmge I



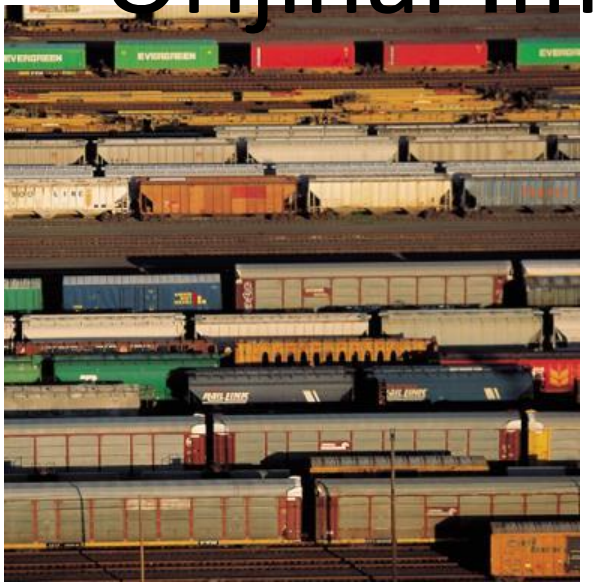
$I+(I*h) = I+(I*\begin{bmatrix}-1\\1\end{bmatrix})$

Yatay Kenar Keskinleştirme

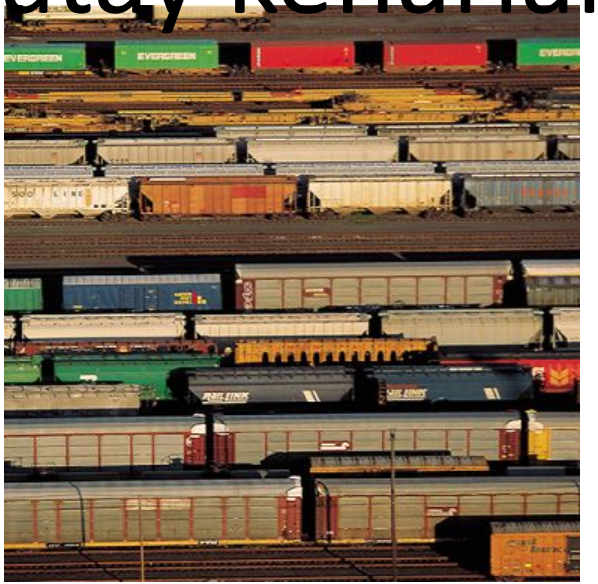
Yatay kenarlar = Aşağı fark + Yukarı Fark

$$\begin{bmatrix} -1 \\ 2 \\ -1 \end{bmatrix} = \begin{bmatrix} -1 \\ 1 \\ 0 \end{bmatrix} + \begin{bmatrix} 0 \\ 1 \\ -1 \end{bmatrix}$$

Orijinal İmge +Yatay kenarlar



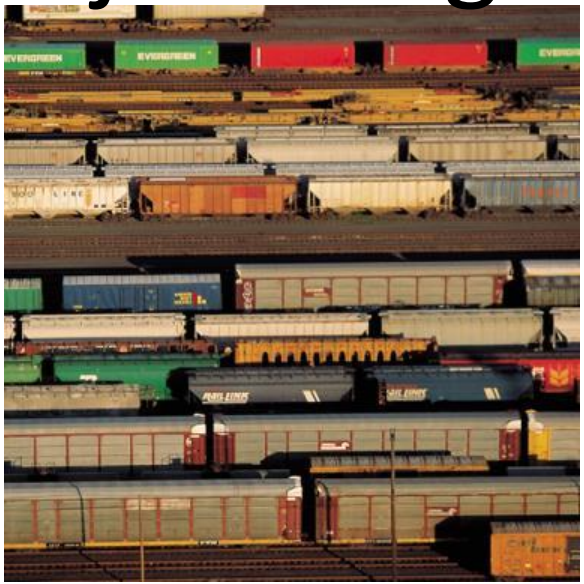
İmge I



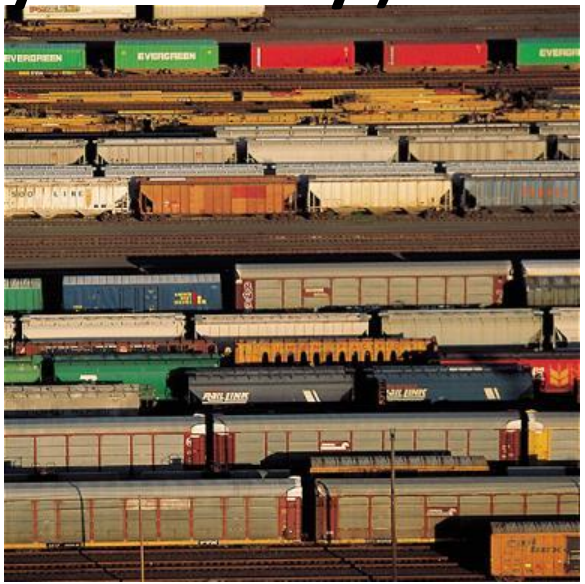
$I+(I*h) = I+(I*\begin{bmatrix} -1 \\ 2 \\ -1 \end{bmatrix})$

Yatay ve Dikey Keskinleştirme

Orijinal İmge+(Yatay+Dikey) Kenarlar



Orijinal



Keskinleştirilmiş İmge