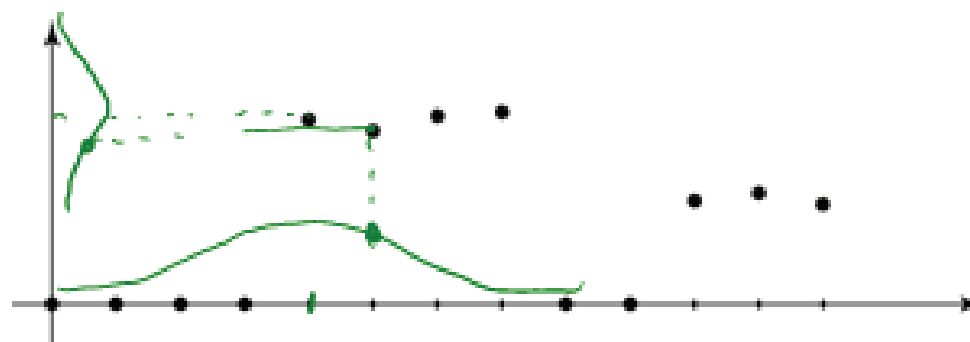
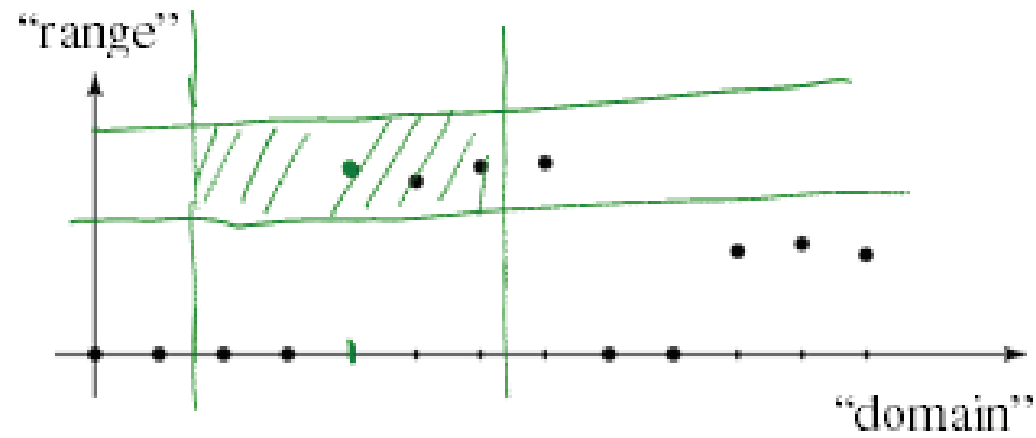


Bilateral filtering

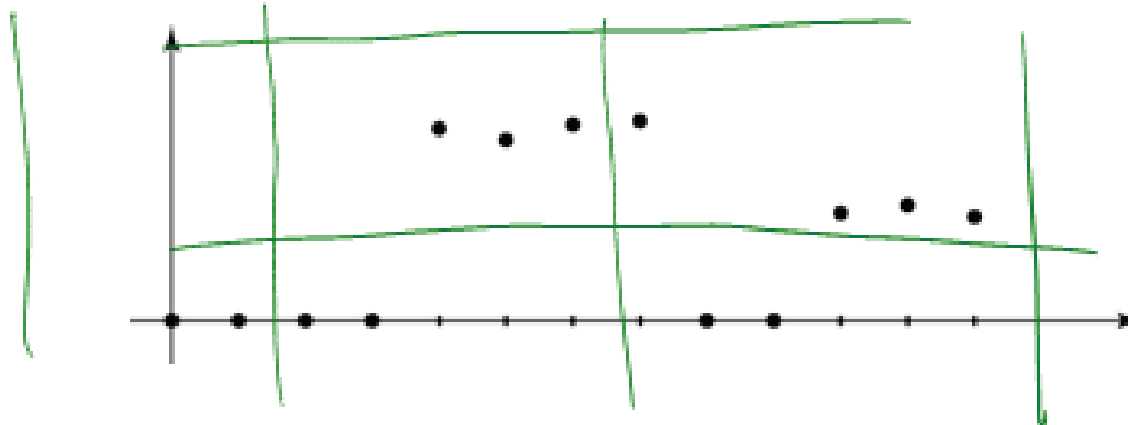
Bilateral filtering

Bilateral filtering is a method to average together nearby samples only if they are similar in value.



Bilateral filtering

We can also change the filter to something "nicer" like Gaussians:



Recall that convolution looked like this:

$$g[l] = \sum_{l'} f[l'] h[l - l']$$

Bilateral filter is similar, but includes both range and domain filtering:

$$g[l] = 1/C \sum_{l'} f[l'] h_{\sigma_s}[l - l'] h_{\sigma_r}(f[l] - f[l'])$$

and you have to normalize as you go:

$$C = \sum_{l'} h_{\sigma_s}[l - l'] h_{\sigma_r}(f[l] - f[l'])$$

Input



$\sigma_f = 0.1$

$\sigma_f = 0.25$

$\sigma_f = 2$



$\sigma_f = 6$

