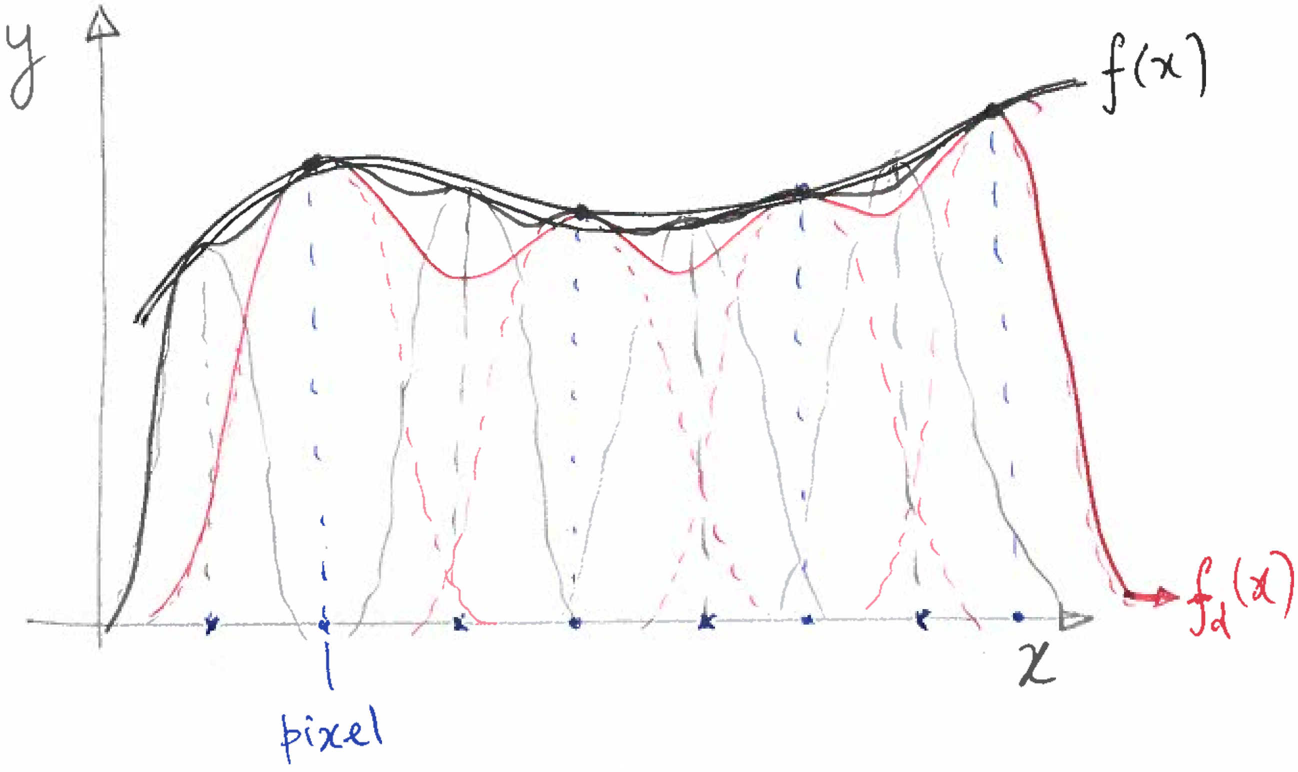
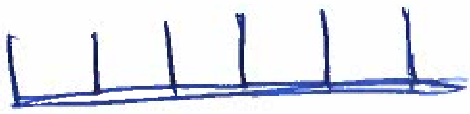


$f_s(x) =$ 

(comb)

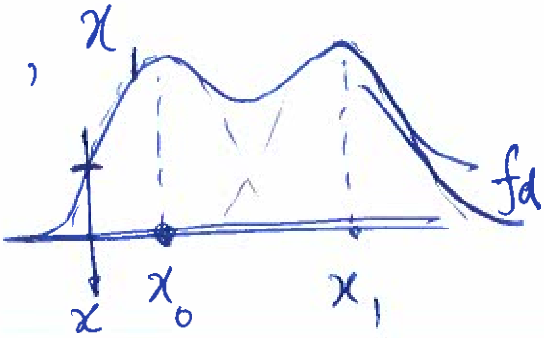
$g(x) =$  kernel

$f_d(x)$

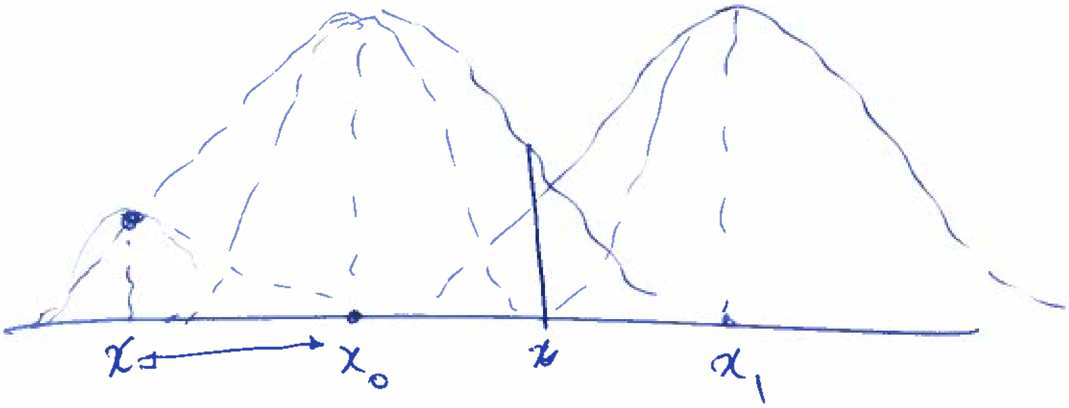
Simple case : 1 spike (pixel)

$f_d(x) = g(x)$

$f_s(x)$; 2 Spikes ? x_0, x

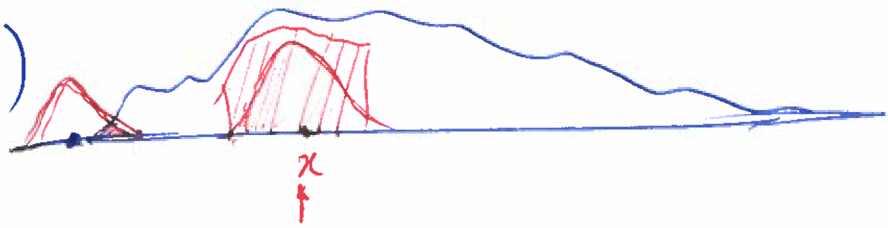


$f_d(x) =$



$f_d = ?$ $\quad g(x - x_0) + g(x - x_1)$

$f_s(x)$



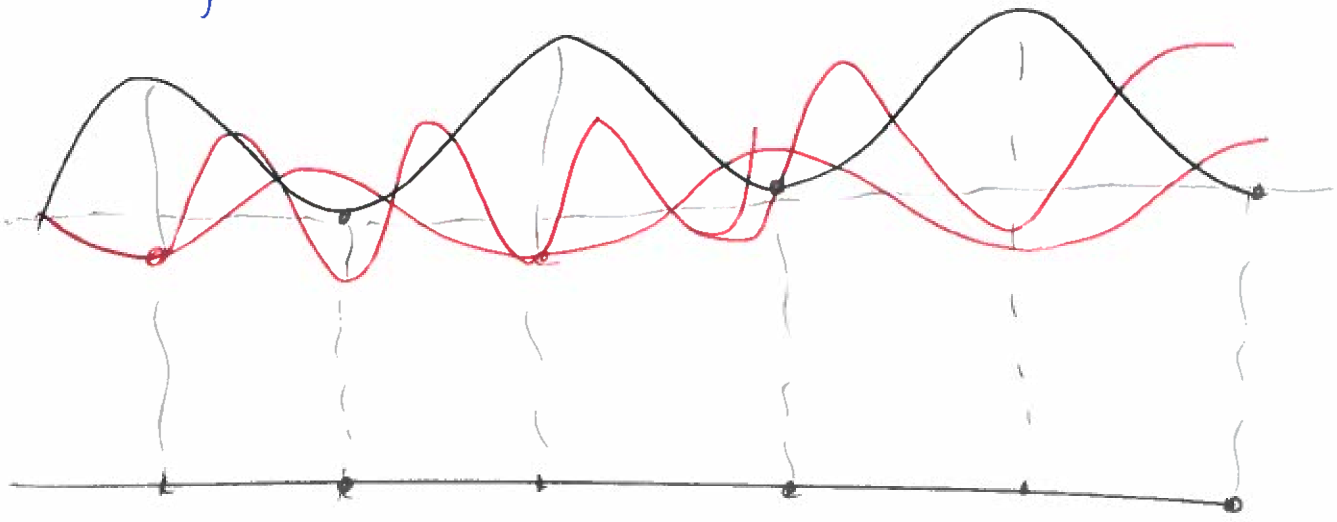
$f_d = ?$ $\quad \int_{-\infty}^{\infty} g(x-y)\cdot f(y)$ **Convolution**

$= f * g$ or $f \circledast g$

If I want to "reconstruct" $f_r(x)$ from samples of $f(x)$ at $\{x_i\}_{i=0\dots N}$, I can then use a reconstruction kernel $g(x)$ and write $f_r(x) = f_s(x) * g(x)$

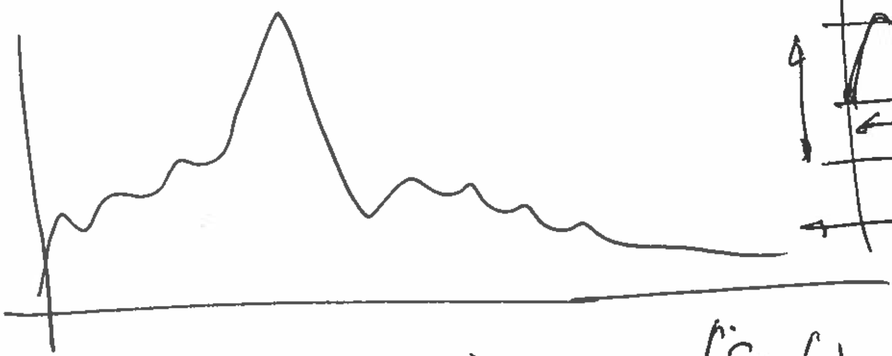
where $f_s(x)$ = Sum of sampled functions

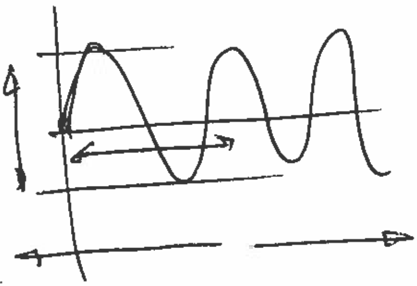
Packing more pixels



$\sin(k \cdot 2\pi x)$

$f(x) \longrightarrow$ rep. as a sum of sinusoids.





$$f(x) = a_1 \sin(k_1 x) + a_2 \sin(k_2 x) + \ldots$$

$$= a_1 \sin(k_1 x + \phi_1) + a_2 \sin(k_2 + \phi_2)$$

↳ phase