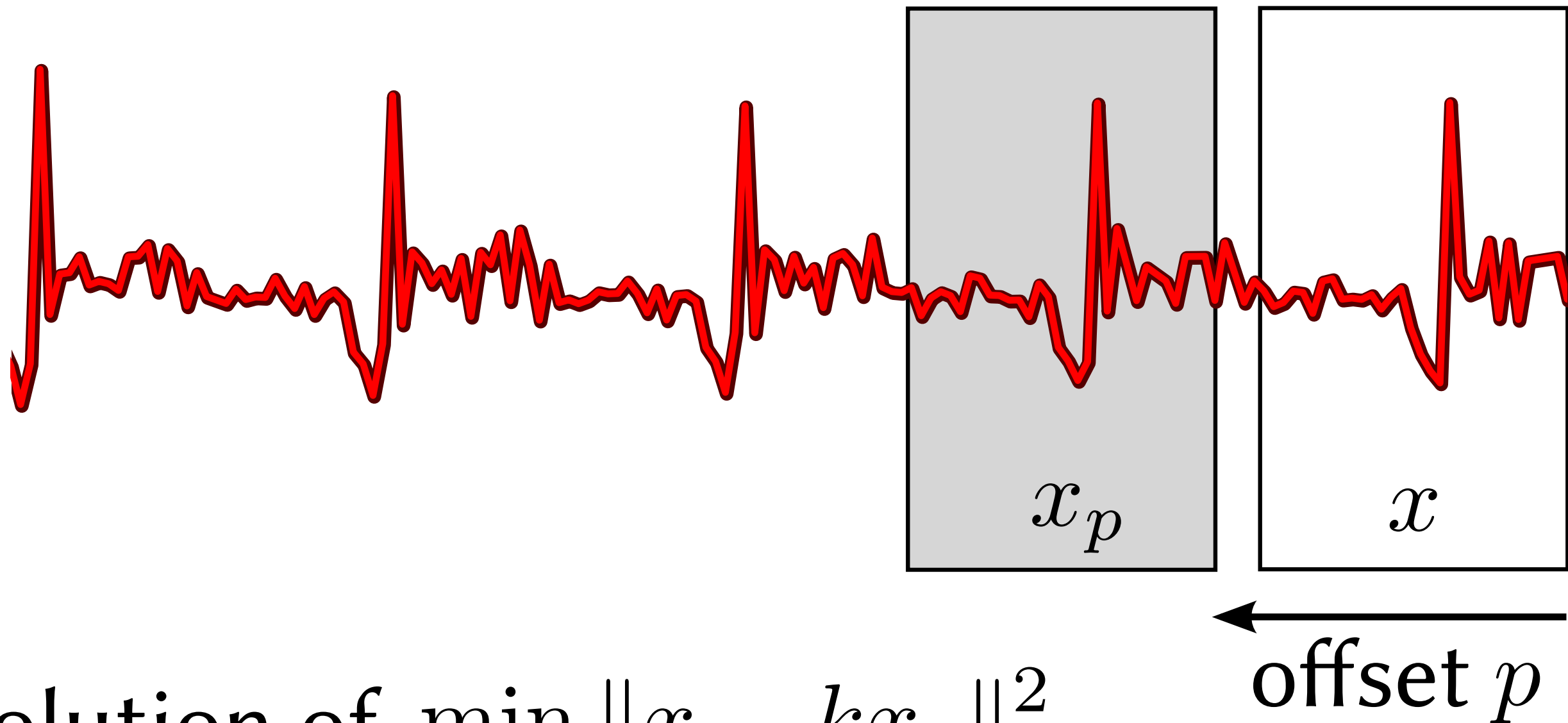


Pitch Detection



The solution of $\min_{p,k} \|x - kx_p\|^2$

is given by

$$\left| \begin{aligned} p &= \arg \max_p \left| \left\langle \frac{x_p}{\|x_p\|}, \frac{x}{\|x\|} \right\rangle \right| \\ k &= \frac{\langle x_p, x \rangle}{\|x\|^2} \end{aligned} \right|$$