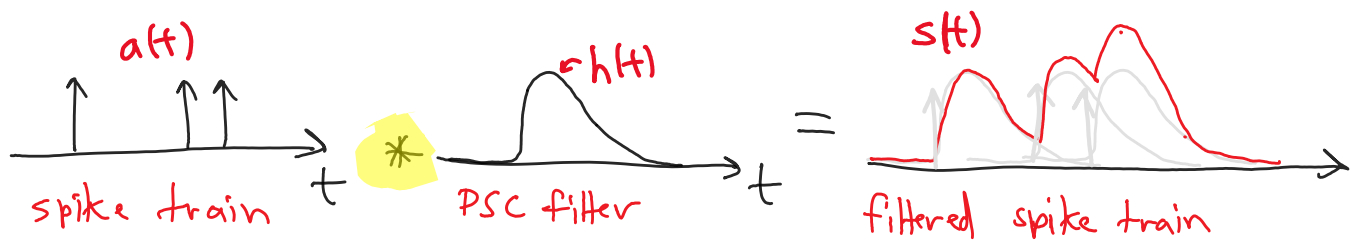


ex01_Q5: Spike-train Convolution

Wednesday, January 13, 2021 10:49 AM



$$\begin{aligned} s(t) &= (a * h)(t) \\ &= \left[\left(\sum_p \delta(t - t_p) \right) * h(t) \right] (t) && \text{Convolution} \\ &= \int \sum_p \delta(\tau - t_p) h(t - \tau) d\tau \\ &= \sum_p \int \delta(\tau - t_p) h(t - \tau) d\tau && \tau - t_p = 0 \Rightarrow \tau = t_p \\ &= \sum_p h(t - t_p) = \text{sum of PSC filters, one for each spike} \end{aligned}$$