• Importance Sampling in time

• want a PDF where α are in "fringe", $(1-\alpha)$ are in center,

$$S^*(t) = \begin{cases} \frac{(1-\alpha)}{t_s - t^n} & t^n \le t \le t_s \\ \frac{\alpha}{t^{n+1} - t_s} & t_s < t \le t^{n+1} \end{cases}$$

• Use composite sampling

if $\eta < (1-\alpha)$, sample from $t \in [t^n, t^s]$

else $(\eta > (1-\alpha))$, sample from $t \in [t^s, t^{n+1}]$

• Must adjust weight. $w(t) = \left(\frac{S(t)}{S^*(t)}\right)$

if $t \in [t^n, t^s]$, $w(t) = \left(\frac{1}{t^{n+1} - t^n}\right)\left(\frac{t^s - t^n}{(1-\alpha)}\right) = \left(\frac{t^s - t^n}{\Delta t}\right)\left(\frac{1}{(1-\alpha)}\right)$

else $w(t) = \left(\frac{t^{n+1} - t^s}{\Delta t}\right)\left(\frac{1}{\alpha}\right)$ $\qquad \hat{\sigma} = \frac{1}{\cot} + \sigma$

• Assume the fringe is $\mathcal{N}$ msp of "time", then

$$t^s = t^{n+1} - \frac{\mathcal{N}}{c\sigma_t}$$