current step $t_{n}$ smoothing

## distribution component


4. Approximate with smaller mixture

1. propagate dynamics current step $t_{\mathbf{n}}$ filtering for each $\left(s_{n+1}, s_{n}, i_{n}\right)$ distribution components

current step tn smoothing distribution component

2. condition and average over the next step $\xrightarrow[\text { smoothing distribution }]{ }$ components $p\left(x_{n+1} \mid s_{n+1}, i_{n+1}, y_{1: N}\right)$

coming distribution components at $\mathrm{t}_{\mathrm{n}+1}$
$\mathrm{s}_{\mathrm{n}+1}=0$

3. compute weights using "likelihood" and $\Pi$, accumulate marginal probabilities
$\mathrm{s}_{\mathrm{n}+1}=1$
$\square$

$$
J_{n+1}^{-}
$$


4. Approximate with smaller mixture

