## Particle filter

$$t = 3$$

Normalise weights

$$W_{3}^{(k)} = \frac{\mathbf{x}_{3}^{(k)}}{\sum_{k'} \mathbf{w}_{3}^{(k')}}$$

$$\mathbf{x}_{1}^{(1)} \qquad \mathbf{x}_{1}^{(2)} \qquad \mathbf{x}_{1}^{(3)} \qquad \mathbf{x}_{1}^{(4)} \qquad \mathbf{x}_{1}^{(5)}$$

$$0/5 \qquad 2/5 \qquad 2/5 \qquad 0/5 \qquad 1/5$$

$$A_{1}^{(1)} = 2 \qquad A_{1}^{(2)} = 3 \qquad A_{1}^{(3)} = 5 \qquad A_{1}^{(4)} = 3 \qquad A_{1}^{(5)} = 2$$

$$\mathbf{x}_{2}^{(1)} \qquad \mathbf{x}_{2}^{(2)} \qquad \mathbf{x}_{2}^{(3)} \qquad \mathbf{x}_{2}^{(4)} \qquad \mathbf{x}_{2}^{(5)}$$

$$2/5 \qquad 1/5 \qquad 0/5 \qquad 1/5 \qquad 1/5$$

$$A_{2}^{(1)} = 2 \qquad A_{2}^{(2)} = 4 \qquad A_{2}^{(3)} = 1 \qquad A_{2}^{(4)} = 5 \qquad A_{2}^{(5)} = 1$$

$$\mathbf{x}_{3}^{(1)} \qquad \mathbf{x}_{3}^{(2)} \qquad \mathbf{x}_{3}^{(3)} \qquad \mathbf{x}_{3}^{(4)} \qquad \mathbf{x}_{3}^{(5)}$$

$$1 \qquad 3 \qquad 0 \qquad 0 \qquad 1$$