

$$\underbrace{p(z_t|x_{1:t}) \propto p(x_t|z_t) \int p(z_t|z_{t-1}) p(z_{t-1}|x_{1:t-1}) dz_{t-1}}_{\text{measurement update, gives } p(x_t, z_t|x_{1:t-1})}$$

state update, gives  $p(z_t|x_{1:t-1})$