$oldsymbol{x}_i^+\!\langle k{+}1
angle = oldsymbol{f}(oldsymbol{x}_i\!\langle k
angle,\,oldsymbol{u}\!\langle k
angle+oldsymbol{q}\!\langle k
angle)oldsymbol{ullet}$  prediction phase

 $w_i' = w_i / \sum w_i \bullet$ 

predict state of this particle one step ahead based on inputs and model

add a random value to represent uncertainty

$$m{
u}_i = m{z}\!\langle k+1
angle - \mathbf{h}(\hat{x}_i^+\!\langle k+1
angle, m{p}_j)$$
 — new information – innovation – from observing landmark  $j$  
$$w_i = e^{-m{
u}_i^T \mathbf{L}^{-1} m{
u}_i} + w_0$$
 — weight is a function of how likely the measurement was

normalize the weights 0 to 1

 $m{x}\!\langle k\!+\!1 
angle \leftarrow R(m{x}^+\!\langle k\!+\!1 
angle, m{w})$  resample, weighted selection of particles to go to the next round update phase