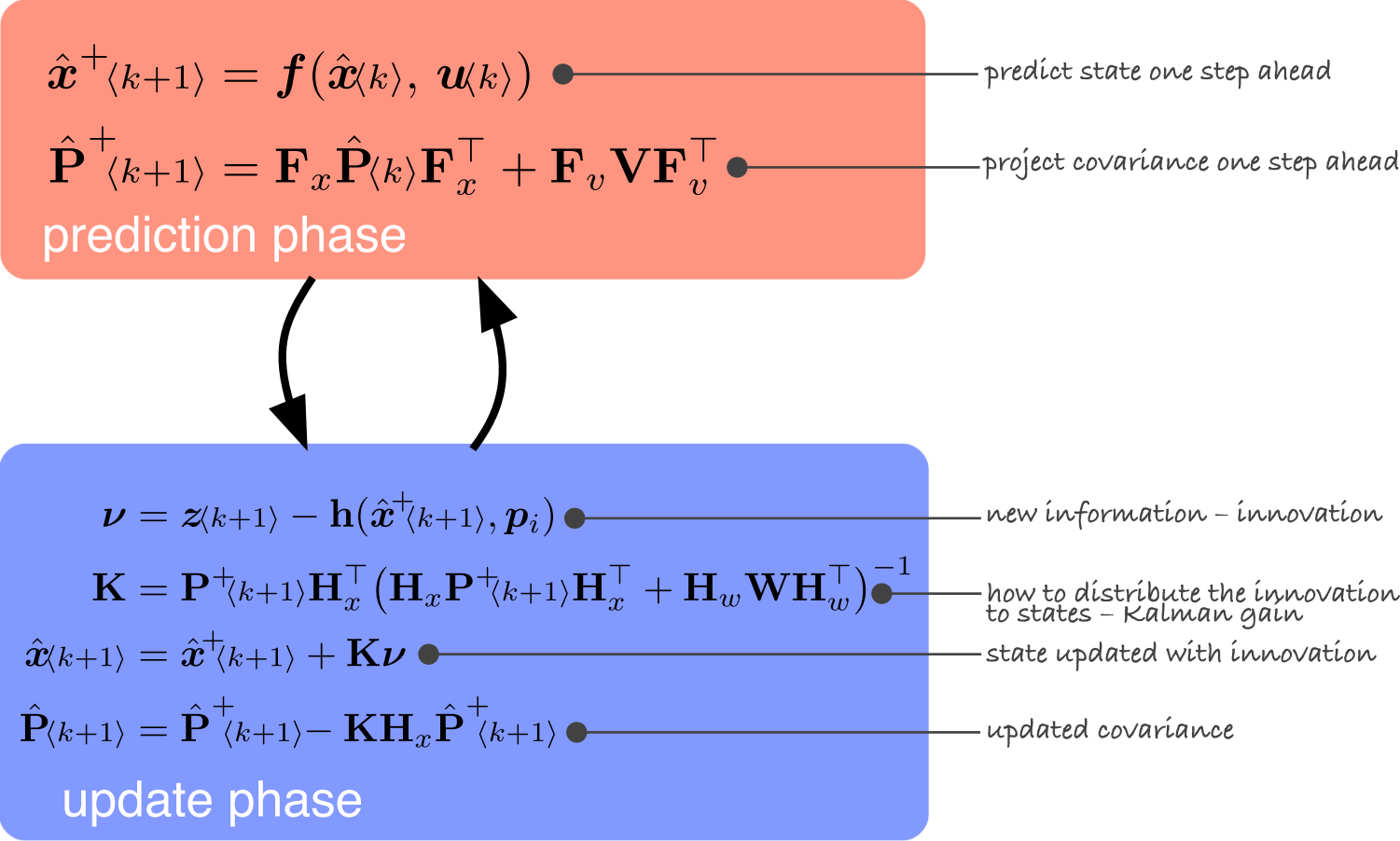
$\hat{\boldsymbol{x}}^{+}_{\langle k+1\rangle} = \boldsymbol{f}(\hat{\boldsymbol{x}}_{\langle k\rangle}, \boldsymbol{u}_{\langle k\rangle})$
predict state one step ahead
$\hat{\mathbf{P}}^{+}_{\langle k+1\rangle} = \mathbf{F}_x \hat{\mathbf{P}}_{\langle k\rangle} \mathbf{F}_x^{\top} + \mathbf{F}_v \mathbf{V} \mathbf{F}_v^{\top}$
project covariance one step ahead
prediction phase
$\boldsymbol{\nu} = \boldsymbol{z}_{\langle k+1\rangle} - \mathbf{h}(\hat{\boldsymbol{x}}^{+}_{\langle k+1\rangle}, \boldsymbol{p}_i)$
new information – innovation
$\mathbf{K} = \mathbf{P}^{+}_{\langle k+1\rangle} \mathbf{H}_x^{\top} \left(\mathbf{H}_x \mathbf{P}^{+}_{\langle k+1\rangle} \mathbf{H}_x^{\top} + \mathbf{H}_w \mathbf{W} \mathbf{H}_w^{\top} \right)^{-1}$
how to distribute the innovation to states – Kalman gain
$\hat{\boldsymbol{x}}_{\langle k+1\rangle} = \hat{\boldsymbol{x}}^{+}_{\langle k+1\rangle} + \mathbf{K}\boldsymbol{\nu}$
state updated with innovation
$\hat{\mathbf{P}}_{\langle k+1\rangle} = \hat{\mathbf{P}}^{+}_{\langle k+1\rangle} - \mathbf{K}\mathbf{H}_x \hat{\mathbf{P}}^{+}_{\langle k+1\rangle}$
updated covariance
update phase