uncertainty quantification $\mathbb{E}[y_{hi-fi}]$, $Var[y_{hi-fi}]$, . . .

$$[S_{\theta_1}, S_{\theta_2}, S_{\theta_3}, S_{\theta_1}, \theta_2, \dots]$$

$$[Reduced model]$$

 $y_{SG}(\theta_1, \theta_2, \theta_3)$

optimization multi-fidelity modeling