

# Rolling horizon routine

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Multi-fidelity modelling with a traffic simulator and an  $M/M/1/k$  queuing network

Require: simulation budget  $n_{max}$  Require:  $0 < \eta < 1$  Given initial solution  $\mathbf{x}_0$ , fit initial model  $m_0$  to  $r < n_{max}$  simulation outputs using equation (??)  
 $\mathbf{x} \leftarrow \mathbf{x}_0$   $m \leftarrow m_0$   $n \leftarrow r$   $n < n_{max}$  Find a new solution  $\mathbf{x}'$  (by solving a trust-region sub-problem) which reduces  $m$  and simulate this solution once.  
 $\frac{\text{simulated improvement}}{\text{meta-model improvement}} \geq \eta$   $\mathbf{x} \leftarrow \mathbf{x}'$  Refit model  $m$  based on all simulated data  
 $n \leftarrow n + 1$  Return optimal solution  $\mathbf{x}, m$