

Expected improvement (EI)

$$\mu(x) = \mathbb{E} \max(f(x) - f^*, 0) = \text{Var}[\hat{f}(x)] \cdot [z\Phi(z) + \phi(z)]$$

$$z = \frac{\mathbb{E}\hat{f}(x) - m(x)}{\text{Var}[\hat{f}(x)]}$$

Most widely used

