

Pseudocode

ALGORITHM 1: cKG computation.

Input: Sample x^{n+1} , size of Monte Carlo discretisations n_c and n_y

0. Initialise discretisation $X_d^0 = \{\}$ and set $n_z = n_c n_y$
 1. Compute $x_r^n = \arg \max_{x \in \mathbb{X}} \mu_y^n(x) \text{PF}^n(x)$
 2. **for** j **in** $[1, \dots, n_z]$:
 3. Generate $Z_y^j, Z_1^j, \dots, Z_K^j \sim N(0, 1)$
 4. Compute $x_j^* = \max_{x \in X_d} \{ [\mu_y^n(x) + \tilde{\sigma}_y(x, x^{n+1}) Z_y^j] \text{PF}^{n+1}(x; x^{n+1}, \mathbf{Z}_c^j) \}$
 5. Update discretisation $X_d^j = X_d^{j-1} \cup \{x_j^*\}$
 6. **for** m **in** $[1, \dots, n_c]$:
 7. Compute $\text{KG}_d(x^{n+1} = x; \mathbf{Z}_c^m)$ using X_d
 8. Compute Monte Carlo estimation $\frac{1}{n_c} \sum_{m=1}^{n_c} \text{KG}_d(x^{n+1}; \mathbf{Z}_c^m)$
 9. **Return:** $\text{cKG}(x^{n+1})$
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Performance in Deterministic Setting

