

**Algorithm 7:** RefineCandidates

**Input** :  $acceptedCandSet_1, acceptedCandSet_2, \vec{B}, \vec{\sigma}, \hat{O}.m, \mathcal{D}$

**ConfigParams**: noSimulations,  $\overrightarrow{PB}$ , CB, maxSimBudget, budgetDelta, budgetThreshold

**Output** : bestCandidate,  $\hat{O}.m$

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1 newCandSet2 ← Perform simulations and store candidates from  $acceptedCandSet_2$  that return the result as accept from
   PerformStochasticSimulations (Algorithm 9) and whose  $O.m$  is statistically better than  $\hat{O}.m$  with at least CB confidence
2 acceptedCandSet ←  $acceptedCandSet_1 \cup newCandSet_2$ 
3 budget ← 1
4 iterationNo ← 1
5 repeat
6    $\vec{N}^{iterNo} \leftarrow \text{ExtendedOCBA}(\vec{N}^{iterNo-1}, \text{iterationNo}, \mathcal{D}, \text{acceptedCandSet}, \text{noSimulations}, \text{budgetDelta})$  // Algorithm 8
7   for  $c \in acceptedCandSet$  do
8      $(\text{result}, O.m, O.sd, \overrightarrow{SC.m}, \overrightarrow{SC.sd}, N) \leftarrow \text{PerformStochasticSimulations}(\vec{X}_c, \vec{B}, \vec{\sigma}, \mathcal{D}, N_c^{iterNo}, N_c^{iterNo}, \overrightarrow{PB},$ 
       CB) // Algorithm 9
9     if result is accept and  $O.m < \hat{O}.m$  then
10      |  $\hat{O}.m \leftarrow O.m$ 
11     else if result is reject then
12      | Remove  $c$  from  $acceptedCandSet$ 
13   end
14   budget ← budget + budgetDelta
15   iterationNo ← iterationNo + 1
16 until budget > budgetThreshold
17 bestCandidate ←  $\{c \in acceptedCandSet \mid O.m_c = \hat{O}.m\}$ 
18 return bestCandidate,  $\hat{O}.m$ 

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