

Algorithm Initialization

Calculate initial simplex points (P_i)
and initial output values (y_i)

Determine index of high simplex (h)
and calculate simplex centroid (\bar{P})

Find simplex reflection point
 $P_R = (1 + \alpha) \bar{P} - \alpha P_h$
Calculate reflection
output value (y_R)

If $y_R < y_l$
Yes
No

Find simplex expansion point
 $P_E = \gamma P_R + (1 - \gamma) \bar{P}$
Calculate expansion
output value (y_E)

If $y_E < y_l$
Yes
No

Replace simplex high (P_h)
with the expansion point (P_E)

Replace simplex high (P_h)
with the reflection point (P_R)

If $y_R \geq y_h$
Yes
No

If $y_R = y_h$
Yes
No

Replace simplex high (P_h)
with the reflection point (P_R)

Find simplex contraction point
 $P_C = \beta P_h + (1 - \beta) \bar{P}$
Calculate contraction
output value (y_C)

If $y_C > y_h$
No
Yes

Replace simplex high (P_h)
with the contraction point (P_C)

Replace all simplex points
($P_i + P_l$)/2

If stop
condition met

Exit

No
Yes

