

Parameter	Description	Value
$n$	Number of circle items	14-72
$C_i$	The $i^{th}$ circle item	
$L$	Size of the square container	Initialized by the current-best-result
$X$	Coordinates for all centres of the circles	$(x_1, y_1, \dots, x_n, y_n)$
$S_1$	Set of circles	Circles index in $[1, int(n/4)]$
$S_2$	Set of circles	Circles index in $[int(n/4) + 1, int(n/2)]$
$S_3$	Set of circles	Circles index in $[int(n/2) + 1, int(3n/4)]$
$S_4$	Set of circles	Circles index in $[int(3n/4) + 1, n]$
$N$	Tabu tenure	1
$l_1, l_2$	Lists of largest action spaces	$ l_1  =  l_2  = 10$
$G$	Number of random patterns	32
$m$	Number of initial patterns for basin hopping	3
$k_p$	Number of successive iteration	20
$k_b$	Perturbations	5
$B[i]$	The circle in the $i^{th}$ position of list B	
$T$	Allowed running time	48 h