

Test Problems for Irregular Packing: DIGHE

Description of table entries:

reference: publication in which test problem has been used
name: name which the problem is referred to in this work
size: number of items
shapes: geometric shape type which the problem consists of
source: source where the co-ordinates used for the experiments in this work have been obtained from;
i.e. supplied by authors, stated in publication, extracted from sample layout in publication or
extracted from scanned sample layout in publication
factor: scaling factor between problem instance used in the current work and the problem used in the
publication; only stated if dimensions are used in publication

Irregular test problems from literature with known optimum

reference	name	size	problem type	shapes	source
Dighe and Jakiela (1996)	Dighe1	16	jigsaw	polygons	constructed according to a sample layout in the paper
Dighe and Jakiela (1996)	Dighe2	10	jigsaw	polygons	constructed according to a sample layout in the paper

References

Dighe, R, Jakiela, M.J., 1996, Solving Pattern Nesting Problems with Genetic Algorithms Employing Task Decomposition and Contact Detection, *Evolutionary Computation* 3, 239-266.

Jigsaw Problems

The jigsaw problems Dighe1 and Dighe2 which are presented below are not identical to the problems used by Dighe and Jakiela (1996), however similar in terms of number and shape of the items and the object. Dighe and Jakiela allow clearance between the parts, so that the optimal packing density is less than 100%.

name:	Dighe1							
size:	16							
object:	width: 100							
no								
1	x	0	35	0				
	y	0	0	34				
2	x	0	33	18				
	y	0	0	15				
3	x	0	32	32	14			
	y	0	0	41	33			
4	x	35	53	51	48	39	0	
	y	0	15	38	62	57	34	
5	x	2	17	31	25	0		
	y	15	0	33	34	38		
6	x	0	39	20	0			
	y	0	23	26	66			
7	x	3	28	30	32	25	0	
	y	4	0	18	39	37	28	
8	x	0	6	24	2			
	y	1	0	8	19			
9	x	0	22	2				
	y	11	0	32				
10	x	0	20	20				
	y	32	0	37				
11	x	1	26	0				
	y	0	9	15				
12	x	0	19	28	27	24		
	y	3	0	5	20	43		
13	x	20	44	0				
	y	0	40	40				
14	x	3	29	36	0			
	y	6	0	2	29			
15	x	0	36	56				
	y	27	0	27				
16	x	0	20	20				
	y	0	5	27				

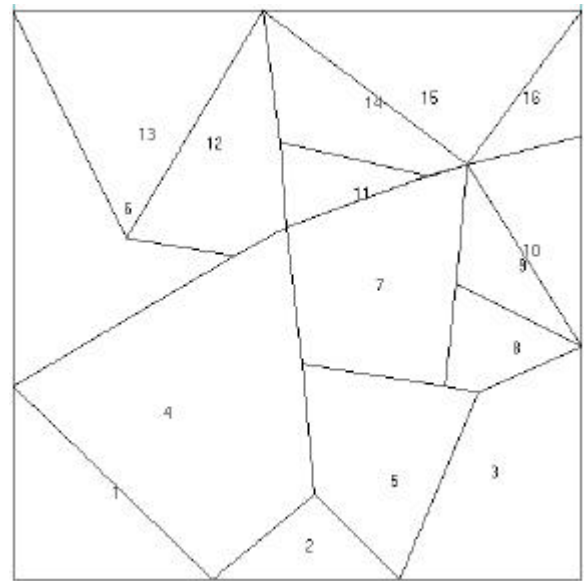


Figure 1: Data set for test problem Dighe1

name:	Dighe2							
size:	10							
object:	width: 100							
no								
1	x	0	33	33	3			
	y	0	0	19	11			
2	x	0	42	37	0			
	y	0	0	30	19			
3	x	5	30	30	0			
	y	0	0	51	30			
4	x	0	3	7	8	0		
	y	0	11	33	38	36		
5	x	0	30	67	56	4		
	y	0	8	19	29	22		
6	x	23	53	53	19	7	0	12
	y	0	21	70	70	42	23	10
7	x	0	52	40	47	3	1	
	y	0	7	20	39	30	5	
8	x	0	8	10	12	0		
	y	0	2	27	64	64		
9	x	0	44	16	2			
	y	0	9	37	37			
10	x	0	28	40				
	y	28	0	28				

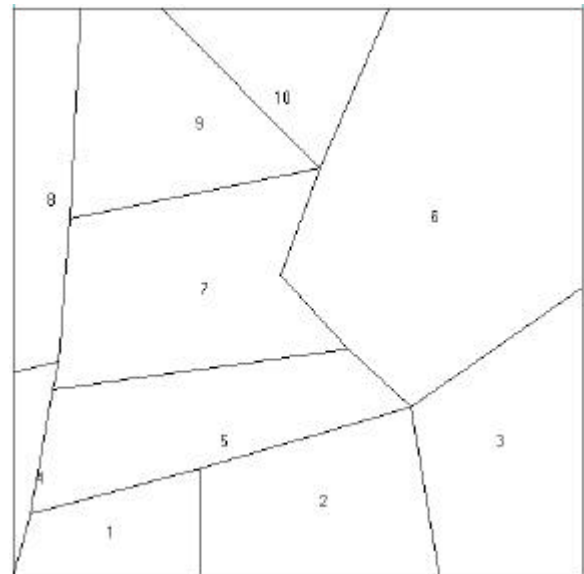


Figure 2: Data set for test problem Dighe2