

# Tests with multiple seeds

- Tests for  $4 \leq N \leq 30$ ;
- Population size fixed to  $P = 125$ ;
- Tournament size ( $k = 4$ );
- *Crossover* probability  $p_c = 0.7$  and mutation probability  $p_m = 0.01$ ;
- Maximum number of iterations  $I_{max} = 200000$ ;
- Each  $N$  ran for 10 *seeds*:  $s \in \{1, \dots, 10\}$ ;
- Calculated the minimum and average values.

# Tests with multiple seeds

**Table:** Minimum and average results in 10 *runs*

N	<b>Minimum</b>		<b>Average</b>	
	Iterations	<i>t</i> (s)	Iterations	<i>t</i> (s)
4	0	0	0.6	0
5	0	0	1.4	0
6	2	0	7.8	0
7	5	0	7.7	0
8	4	0	22	0
9	21	0	193	0.2
10	9	0	1873.8	2.7
11	19	0	310.6	0.5
12	99	0	2382.1	3
13	217	1	3873.4	5.6
14	34	0	785	1.2
15	223	0	4908.6	6.9
16	33	0	3353.8	4.8
17	61	0	6135.8	9.2

# Tests with multiple seeds

**Table:** Minimum and average results in 10 *runs*

N	<b>Minimum</b>		<b>Average</b>	
	Iterations	<i>t</i> (s)	Iterations	<i>t</i> (s)
18	41	0	890.6	1.3
19	39	0	4375.4	6.6
20	367	0	1882	3
21	285	0	6049	9.5
22	144	0	4114	6.5
23	868	2	11352.1	18.7
24	422	0	3385.9	5.8
25	348	0	7278.1	12.6
26	213	0	3540.3	6.1
27	845	1	6825.2	12.3
28	625	2	5889.8	11
29	370	0	8407.5	15.3
30	723	2	10229.1	19.9

# Tests with bigger Ns

- Tests done with  $4 \leq N \leq 80$  and  $N = 90, 100, 120, 150$ ;
- Population size fixed to  $P = 125$ ;
- Tournament size ( $k = 4$ );
- *Crossover* probability  $p_c = 0.7$  and mutation probability  $p_m = 0.01$ ;
- Maximum number of iterations  $I_{max} = 200000$ ;
- Unique seed used  $s = 7$ ;

# Tests with bigger Ns

Table: Results for *seed* 7 and other N values

N	Iterations	<i>t</i> (s)	N	Iterations	<i>t</i> (s)	N	Iterations	<i>t</i> (s)
4	1	0	18	77	0	32	1829	4
5	4	0	19	988	2	33	1682	5
6	23	0	20	1251	2	34	6804	17
7	5	0	21	13848	25	35	1714	5
8	8	0	22	3641	7	36	2923	8
9	86	0	23	28861	57	37	4457	13
10	3932	6	24	819	2	38	6375	19
11	49	0	25	4459	9	39	7233	22
12	5267	7	26	2216	5	40	36632	114
13	1719	3	27	845	2	41	4311	13
14	331	0	28	625	1	42	8602	29
15	8545	13	29	2001	5	43	2025	7
16	450	1	30	723	2	44	9828	34
17	8113	13	31	21304	51	45	5969	22

# Tests with bigger Ns

Table: Results for *seed* 7 and other N values

N	Iterations	<i>t</i> (s)	N	Iterations	<i>t</i> (s)	N	Iterations	<i>t</i> (s)
46	24506	91	59	4843	25	72	13825	103
47	40292	154	60	6040	34	73	5449	41
48	13759	54	61	30834	170	74	33839	258
49	48997	197	62	7542	43	75	12149	94
50	23572	97	63	7895	46	76	45060	358
51	2441	11	64	34600	207	77	12505	101
52	18580	81	65	17881	112	78	45540	378
53	21437	98	66	28680	182	79	41164	352
54	23266	106	67	16091	104	80	19778	172
55	5557	27	68	7491	50	90	43221	247
56	6813	32	69	9840	67	100	68981	475
57	9889	50	70	15391	106	120	13597	125
58	5247	27	71	76997	553	150	160415	2147