

Kabul Edilmiş Araştırma Makalesi (Düzenlenmemiş Sürüm)

Accepted Research Article (Uncorrected Version)

Makale Başlığı / Title

Gezgin satıcı probleminin melez akışkan genetik algoritma (MAGA) kullanarak çözümü
SOLVING travelling salesman problem using hybrid fluid genetic algorithm (HFGA)

Yazarlar / Authors

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4.2. 2-Opt Sezgisi

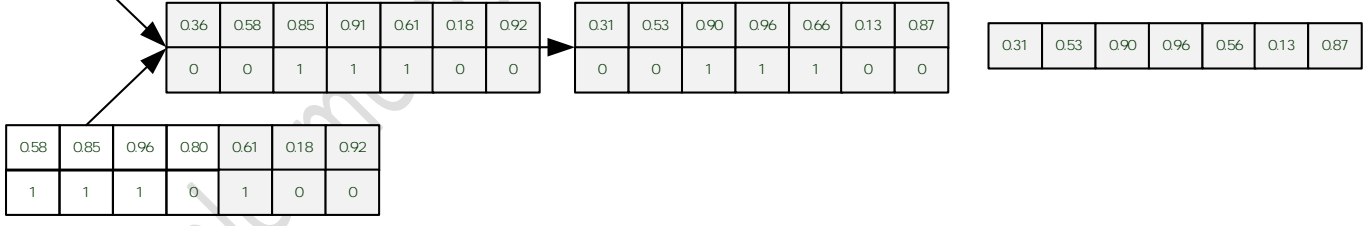
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4.3. 2-Opt Sezgisi

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4.3. 2-Opt Sezgisi

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Tablo 4: GSP- « » ; © ; ® ¥ ' ¥ Ç ¥ ¤ ' ¥ ; ® ; ¥ ¥ ® ; µ ð ¤ & ¤ © Ç ¥ ¤ ¤ ¤

Veri Z	Özellik	Optimal	Ortalama	Ortalama Sapma (%)	Standart Sapma	Ortalama	Ortalama
eil51	EYK	426	505.08	18.56	1.17	503.17	505.99
	GA	426	454.10	6.60	1.35	452.90	455.90
	BT	426	439.13	3.08	2.29	437.42	443.04
	TA	426	439.10	3.08	4.00	434.01	443.58
	KKO	426	467.46	9.73	0.91	466.54	468.43
	AFOA	426	437.26	2.64	1.65	435.28	438.91
	MAGA	426	427.40	0.33	0.97	426.00	429.00
berlin52	EYK	7542	8182.78	8.50	1.66	8180.66	8185.26
	GA	7542	7946.40	5.36	280.66	7546.00	8269.00
	BT	7542	7960.67	5.55	44.69	7903.77	8020.72
	TA	7542	7740.10	2.63	148.90	7544.37	7937.87
	KKO	7542	7922.32	5.04	44.55	7872.59	7985.41
	AFOA	7542	7705.80	2.17	101.59	7544.00	7810.00
	MAGA	7542	7542	0.00	0.00	7542	7542
st70	EYK	675	761.51	12.82	0.91	760.67	762.99
	GA	675	700.72	3.81	10.07	685.75	711.07
	BT	675	696.33	3.16	1.17	695.10	698.00
	TA	675	690.27	2.26	9.23	680.99	703.74
	KKO	675	756.55	12.08	11.20	739.87	768.75
	AFOA	675	697.12	3.28	2.19	694.91	699.86
	MAGA	675	675.1	0.01	0.32	675	676
eil76	EYK	538	612.26	13.80	0.73	611.38	613.16
	GA	538	570.03	5.95	5.77	560.83	575.70
	BT	538	567.15	5.42	1.84	564.68	569.22
	TA	538	561.71	4.41	5.07	554.54	568.65
	KKO	538	590.69	9.79	2.87	586.43	594.06
	AFOA	538	556.77	3.49	11.03	545.65	574.31
	MAGA	538	544.9	1.28	0.32	544	545
pr76	EYK	108159	130921.92	21.05	1.06	130920.67	130923.18
	GA	108159	122981.65	13.70	6098.68	117673.20	130630.95
	BT	108159	113000.23	4.48	1788.28	110620.77	115152.60
	TA	108159	109930.19	1.64	688.21	109046.25	110943.51
	KKO	108159	118733.31	9.78	2051.79	116259.14	121226.86
	AFOA	108159	113843.92	5.26	2777.70	111341.00	117865.61
	MAGA	108159	108175.1	0.01	27.35	108159	108234
rat99	EYK	1211	1368.75	13.03	1.54	1366.44	1370.53
	GA	1211	1285.61	6.16	1.15	1284.62	1287.56
	BT	1211	1277.36	5.48	0.85	1276.54	1278.66
	TA	1211	1243.47	2.68	8.35	1233.45	1252.59
	KKO	1211	1324.30	9.36	2.47	1320.54	1326.40
	AFOA	1211	1265.85	4.53	0.91	1264.74	1267.18
	MAGA	1211	1222.3	0.93	1.25	1220	1223
kroA100	EYK	21282	24697.83	16.05	1.65	24695.35	24699.54
	GA	21282	22726.20	6.79	504.18	22278.00	23368.00
	BT	21282	22277.50	4.68	708.29	21837.88	22782.68
	TA	21282	22521.64	5.82	215.30	22293.45	22794.73
	KKO	21282	22941.68	7.80	29.83	22908.97	22990.15
	AFOA	21282	22463.60	5.55	445.45	21795.00	22852.00
	MAGA	21282	21300	0.08	21.26	21282	21353
eil101	EYK	629	735.98	17.01	0.40	735.43	736.37
	GA	629	685.89	9.04	3.81	680.67	689.56
	BT	629	672.13	6.86	5.93	664.29	679.72
	TA	629	667.61	6.14	5.16	661.66	674.41
	KKO	629	752.91	19.70	3.66	748.03	757.40
	AFOA	629	675.00	7.31	9.15	658.66	679.54
	MAGA	629	630	0.16	0.00	630	630
ch130	EYK	6110	7198.30	17.81	1.95	7195.17	7200.18
	GA	6110	6610.80	8.20	159.12	6426.00	6777.00
	BT	6110	6558.70	7.34	136.79	6335.90	6699.94
	TA	6110	6717.06	9.94	451.71	6214.81	7334.39
	KKO	6110	6913.99	13.16	11.76	6900.30	6929.02
	AFOA	6110	6515.28	6.63	80.60	6409.03	6594.13

Tablo 4: İstatistiksel Veriler

Veri	Optimal	Ortalama	Standart Sapma	Ortalama	Standart Sapma
ch130	MAGA	6110	6164.80	0.90	25.65
ch150	EYK	6528	7077.89	8.42	1.09
	GA	6528	7004.76	7.30	3.46
	BT	6528	7061.83	8.18	97.04
	TA	6528	6862.34	5.12	180.33
	KKO	6528	7350.48	12.60	15.47
	AFOA	6528	6942.43	6.35	39.11
	MAGA	6528	6569.40	0.63	1.90
rat195	EYK	2323	2628.38	13.15	1.57
	GA	2323	2414.52	3.94	5.90
	BT	2323	2537.99	9.25	24.82
	TA	2323	2373.94	2.19	11.66
	KKO	2323	2465.11	6.12	40.07
	AFOA	2323	2573.47	10.78	51.66
	MAGA	2323	2347.00	1.03	0.00
d198	EYK	15780	18062.37	14.46	0.84
	GA	15780	16582.86	5.09	172.00
	BT	15780	16380.49	3.81	247.95
	TA	15780	16083.48	1.92	32.19
	KKO	15780	18031.92	14.27	155.01
	AFOA	15780	16645.64	5.49	126.95
	MAGA	15780	15937	0.99	0.00
a280	EYK	2579	3094.21	19.98	0.43
	GA	2579	2789.83	8.82	47.47
	BT	2579	2830.18	9.74	87.54
	TA	2579	2800.79	8.60	13.18
	KKO	2579	2867.85	11.20	88.22
	AFOA	2579	2790.54	7.89	13.63
	MAGA	2579	2634	2.13	0.00
rd400	EYK	15281	18219.35	19.23	1.96
	GA	15281	16567.29	8.42	145.90
	BT	15281	16816.65	10.05	47.86
	TA	15281	20723.56	35.62	15.13
	KKO	15281	19259.06	26.03	75.28
	AFOA	15281	18190.84	19.04	116.68
	MAGA	15281	15606	2.13	0.00
pcb442	EYK	50778	58952.63	16.10	2.18
	GA	50778	55718.90	9.73	750.90
	BT	50778	57421.04	13.08	730.06
	TA	50778	83123.01	63.70	42.22
	KKO	50778	63436.70	24.93	504.87
	AFOA	50778	60750.43	19.64	4264.65

Tablo 5: İstatistiksel Veriler

Veri	Boyut	Ortalama	Standart Sapma
eil51	Ç	4.99	
berlin52	Ç	5.48	
st70	Ç	11.61	
eil76	Ç	13.46	
pr76	Ç	15.09	
rat99	Ç	3046	
kroA100	Orta	3525	
eil101	Orta	3069	
ch130	Orta	7367	
ch150	Orta	111.87	
rat195	μ	24313	
d198	μ	27736	
a280	μ	78410	
rd400	μ	289053	
pcb442	μ	370072	

