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۲۰-۲۲ اردیبهشت ۱۳۸۴



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 CNN-TSP
 [] NP-Complete (TSP) CNN-TSP
 TSP
 PCB
 TSP TSPLIB
 TSP
 N
 TSPLIB
 [] (SA)
 [] (GA) % /
 [] (ACO)
 (off-line)
 GA
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 ACO SA CNN-TSP

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CNN-

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TSP

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CNN-TSP

TSPLIB

Budinich's SOM [] SA CNN-TSP

[] eISOM [] ESOM [] (BSOM)

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CNN-TSP

[] []

CNN-TSP

CNN-TSP

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% / (

CNN-TSP

CNN-TSP

[] [] 1/20

CNN-TSP

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(Path layer)

CNN-TSP

CNN-TSP

(Link layer)

(Link competitive layer)

(Path competitive layer)

[] ()
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CNN-TSP

CNN-TSP

(selection)

(coding)

OX

[] (order crossover)

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$\{a_1, a_2, \dots, a_N\}$

$a_3 \ a_2 \ a_1$

a_{k+3}

k

AMD

Matlab

Athlon 1600MHz

ENN-TSP

[] TSPLIB

TSP

ENN-TSP

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TSPLIB

ENN-TSP

ENN-TSP

TSPLIB

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TSPLIB

[]

Genitor

(generation)

[]

(parent)

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ENN-TSP

[] "tournament"

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CNN-TSP

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ENN-TSP

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(Evolutionary Neural Network for TSP) ENN-TSP

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ENN-TSP

TSPLIB

TSPLIB

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Budinich's SOM [] SA CNN-TSP

[] eISOM [] ESOM [] (BSOM)

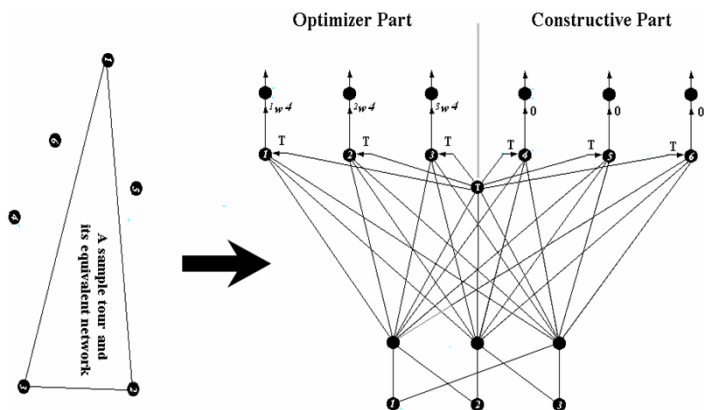
ESOM BSOM CNN-TSP

eISOM

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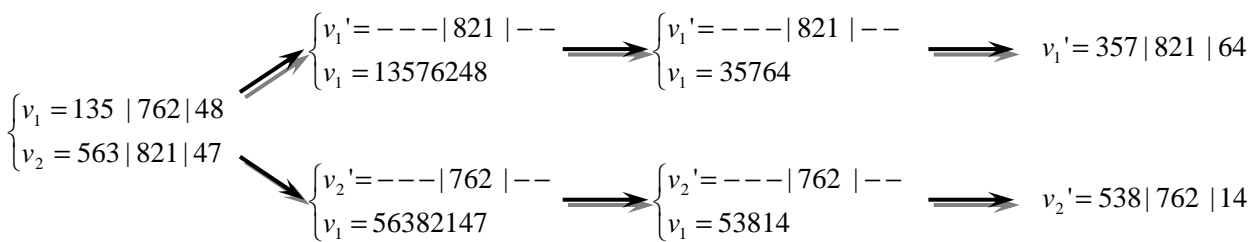
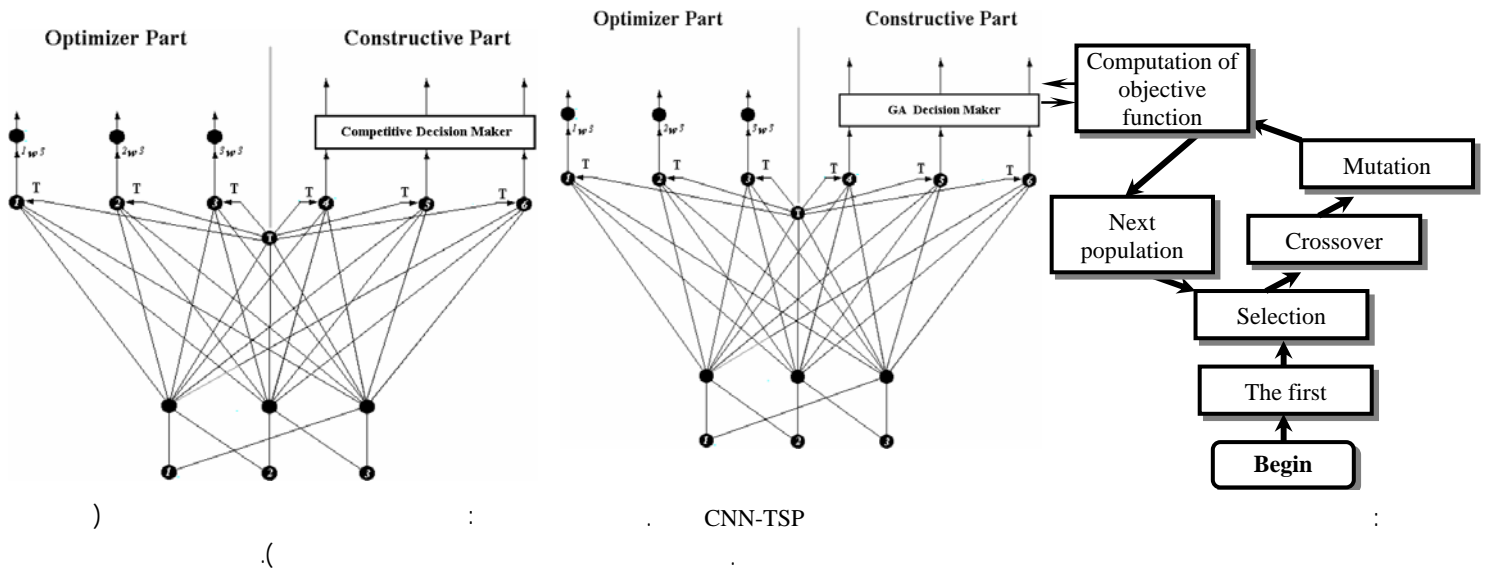
CNN-TSP



ENN-

TSP

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.TSPLIB		ENN-TSP							
Tour name	City No.	Optimum answer of TSPLIB	The best answer	The worst answer	Min. Iterations	Max. Iterations	Pop. Size	Average time for a gen. (s)	Prop. dif. of the best answer
ulysses16	16	74.11	73.99	73.99	1	1	50	0.016	-0.16%
ulysses22	22	75.67	75.31	75.31	1	1	50	0.023	-0.36%
bays29	29	9074.15	9074.15	9074.15	1	1	50	0.037	0%
att48	48	33523.71	33523.71	33523.71	11	1	50	0.085	0%
eil51	51	426	428.87	428.87	129	260	50	0.101	0.674%
Berlin52	52	7544.37	7544.37	7544.37	1	1	50	0.104	0%
st70	70	678.60	677.11	677.11	223	746	50	0.226	-0.22%
eil76	76	545.39	544.37	544.37	186	1895	50	0.290	-0.19%
pr76	76	108159.44	108159.44	108159.44	75	964	50	0.268	0%
gr96	96	512.31	510.89	510.89	1613	6215	50	0.598	-0.28%
kroA100	100	21282	21285.44	21285.44	1	55	50	0.672	0.016%
kroC100	100	20750.76	20750.76	20750.76	109	603	50	0.682	0%
kroD100	100	21294.29	21294.29	21294.29	237	267	50	0.658	0%
rd100	100	7910.40	7910.40	7910.40	54	2451	50	0.662	0%
eil101	101	629	640.21	642.45	2108	3072	50	0.710	1.78%
lin105	105	14383.00	14383.00	14383.00	22	29	50	0.769	0%
ch130	130	6110.86	6110.72	6110.72	1143	1742	100	1.708	-0.0023%
gr137	137	698.53	706.29	706.29	1344	1914	100	2.080	1.11%
ch150	150	6532.28	6530.90	6530.90	3629	6882	100	2.795	-0.021%
kroA150	150	26524.86	26524.86	26524.86	1987	2619	100	2.751	0%
kroA200	200	29368	29426.49	29426.49	2385	2585	300	9.014	0.199%
tsp225	225	3859	3867.26	3867.26	10068	10115	400	11.52	0.21%

Pop. = Population, Gen. = Generation, Prop. = Proportional, Dif. = Difference

		(SA)	(ENN-TSP)	CNN-TSP				
		.TSPLIB		eISOM	ESOM	Budinich		
		(bold)						
Tour name	No. of Cities	Optimum Answer	Difference of CNN-TSP (%)	Difference of ENN-TSP (%)	Difference of SA (%)	Difference of Budinich's SOM (%)	Difference of ESOM (%)	Difference of eISOM (%)
eil51	51	426	4.09%	0.67%	2.33%	3.10%	2.10%	2.56%
gr96	96	512.31	4.95%	-0.28%	4.12%	2.09%	1.03%	0.81%
kroA100	100	21282	2.58%	0.02%	5.94%	3.68%	1.01%	0.57%
eil101	101	629	6.47%	1.78%	5.74%	5.24%	3.43%	3.59%
13th ICCE2005, Vol. 53	130	6110.86	3.12%	1.11%	8.45%	8.61%	4.27%	3.16%
kroA150	150	26524.86	7.28%	0.00%	4.31%	4.36%	2.04%	1.83%
kroA200	200	29368	5.43%	0.20%	5.61%	6.13%	2.91%	1.64%
Average			4.85%	0.45%	5.21%	4.74%	2.40%	2.02%