创新实验计划

按类分割: che liangyu

moead: che liangyu

结构多种群: keming Li

master-slave Keming Li

```
dataset
```

Dataset	instance	attribute	class
Glass	214	9	6
Breast cancer	699	9	2
Gesture	1743	32	5
sat	6435	36	6
avila	20867	10	12

```
cut migration VS copy migration
```

```
migration
```

fre	num
1	1
1	5
1	10
1	20
5	1
5	5
5	10
5	20
10	1
10	5
10	10
10	20

20	1
20	5
20	10
20	20

```
parameter setting
代数: 100
种群大小: 100
核数：6
运行10次
每次的结果算一下hyper volumn
然后平均一下
```

```
max rule num of  Breast_w.csv is 25.0
max rule num of  Glass.csv is 23.0
max rule num of  gesture.csv is 10.0
max rule num of  sat.trn is 16.0
```

explaination
each **fre** generation migration **num** individual

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Breast
```

fre	num	avg hy	avg migration time	copy/cut
1	1	0.9487179487179487	0.0249	copy
1	5	0.9487912087912087	0.0388	copy
1	10	0.9484981684981684	0.0326	copy
1	20	0.9474725274725275	0.0346	copy
5	1	0.9506959706959707	0.0271	copy
5	5	0.9488644688644688	0.0349	copy
5	10	0.9487179487179487	0.0357	copy
5	20	0.9485714285714285	0.0324	copy
10	1	0.9483516483516483	0.0212	copy
10	5	0.9495238095238095	0.0506	copy
10	10	0.9487912087912087	0.0483	copy
10	20	0.9487179487179487	0.0364	copy

20	1	0.9497435897435897	0.0202	copy
20	5	0.9497435897435897	0.0314	copy
20	10	0.9486446886446886	0.0290	copy
20	20	0.9485714285714286	0.0290	copy
1	1	0.9485714285714285	0.0264	cut
1	5	0.9471794871794872	0.0426	cut
1	10	0.9443956043956044	0.0325	cut
1	20	0.937069597069597	0.0341	cut
5	1	0.9484249084249083	0.0248	cut
5	5	0.9484249084249083	0.0490	cut
5	10	0.947985347985348	0.0367	cut
5	20	0.9465934065934065	0.0322	cut
10	1	0.9487179487179487	0.0229	cut
10	5	0.9483516483516483	0.0340	cut
10	10	0.9483516483516483	0.0301	cut
10	20	0.9497435897435897	0.0308	cut
20	1	0.9493040293040292	0.0210	cut
20	5	0.9496703296703296	0.0380	cut
20	10	0.9484249084249083	0.0287	cut
20	20	0.9484981684981685	0.0269	cut

`Glass`

fre	num	avg hy	avg migration time	copy/cut
1	1	0.6577676074243579	0.0052	copy
1	5	0.6536994660564455	0.0184	copy
1	10	0.6633613018052378	0.0203	copy
5	1	0.6544622425629291	0.0053	copy
5	5	0.6465802186625985	0.0170	copy
5	10	0.6488685481820493	0.0192	copy
5	20	0.6605644546147978	0.0200	copy

10	1	0.6595474192728198	0.0050	copy
10	5	0.6542079837274346	0.0161	copy
10	10	0.6516653953724891	0.0175	copy
10	20	0.6610729722857869	0.0180	copy
20	1	0.6567505720823799	0.0048	copy
20	5	0.6570048309178744	0.0131	copy
20	10	0.6511568777015001	0.0172	copy
20	20	0.661581489956776	0.0181	copy
1	1	0.657259089753369	0.0057	cut
1	5	0.6381896770912789	0.0198	cut
1	10	0.6313246885329264	0.0218	cut
1	20	0.6165776760742435	0.0195	cut
5	1	0.6562420544113907	0.0053	cut
5	5	0.6521739130434783	0.0199	cut
5	10	0.6448004068141368	0.0242	cut
5	20	0.6386981947622681	0.0220	cut
10	1	0.654462242562929	0.0067	cut
10	5	0.6524281718789728	0.0169	cut
10	10	0.6531909483854564	0.0186	cut
10	20	0.6458174421561149	0.0192	cut
20	1	0.6547165013984235	0.0053	cut
20	5	0.6486142893465549	0.0134	cut
20	10	0.6473429951690821	0.0154	cut
20	20	0.6516653953724891	0.0204	cut

Gesture

fre	num	avg hy	avg migration time	copy/cut
1	1	0.5896700143472022	0.0198	copy
1	5	0.5908177905308465	0.0265	copy
1	10	0.590674318507891	0.0796	copy
1	20	0.5924677187948351	0.0183	copy

5	1	0.5924677187948351	0.0182	copy
5	5	0.5890961262553802	0.0304	copy
5	10	0.5916786226685797	0.0281	copy
5	20	0.590961262553802	0.0285	copy
10	1	0.5893830703012913	0.0181	copy
10	5	0.5892395982783357	0.0261	copy
10	10	0.5881635581061693	0.0260	copy
10	20	0.5931850789096125	0.0350	copy
20	1	0.5899569583931134	0.0142	copy
20	5	0.5883787661406026	0.0360	copy
20	10	0.5919655667144907	0.0246	copy
20	20	0.5904591104734577	0.0277	copy
1	1	0.5951219512195123	0.0230	cut
1	5	0.5769727403156385	0.6244	cut
1	10	0.5778335724533716	0.1133	cut
1	20	0.5733859397417503	0.0866	cut
5	1	0.5898134863701577	0.0190	cut
5	5	0.5898134863701577	0.0270	cut
5	10	0.5850789096126255	0.0419	cut
5	20	0.5842180774748924	0.0319	cut
10	1	0.5901004304160689	0.0184	cut
10	5	0.5891678622668579	0.0286	cut
10	10	0.5853658536585367	0.0268	cut
10	20	0.585509325681492	0.0299	cut
20	1	0.5892395982783357	0.0176	cut
20	5	0.5873027259684361	0.0275	cut
20	10	0.5855810616929699	0.0330	cut
20	20	0.5905308464849355	0.0342	cut

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sat
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fre	num	avg hy	avg migration time	copy/cut
1	1	0.6660794813979707	0.5150	copy
5	1	0.6605481961668547	0.1412	copy
5	5	0.6709589909808342	0.1616	copy
5	10	0.6594208004509583	1.2266	copy
5	20	0.6505425591882751	0.5982	copy
10	1	0.6623978297632469	0.0906	copy
10	5	0.6569193912063134	0.1438	copy
10	10	0.6609533540022547	0.3010	copy
10	20	0.662239289740699	0.5010	copy
20	1	0.6614465896279594	0.1059	copy
20	5	0.6516347237880495	0.1168	copy
20	10	0.6550345264937993	0.1058	copy
20	20	0.6543122886133033	0.1409	copy
1	1	0.6615170518602029	0.7011	cut
1	20	0.5425944193912063	0.0628	cut
5	1	0.6585576381059752	0.1139	cut
5	5	0.6508772547914318	0.3265	cut
5	10	0.6402550732807215	2.6806	cut
10	1	0.6614289740698985	0.0955	cut
10	5	0.6533434329199549	0.1429	cut
10	10	0.6512119503945886	1.8004	cut
10	20	0.638000281848929	2.3594	cut
20	1	0.6643003100338218	0.1150	cut
20	5	0.6634547632468997	0.1054	cut
20	10	0.6564437711386697	0.1436	cut
20	20	0.6576768602029313	0.1713	cut