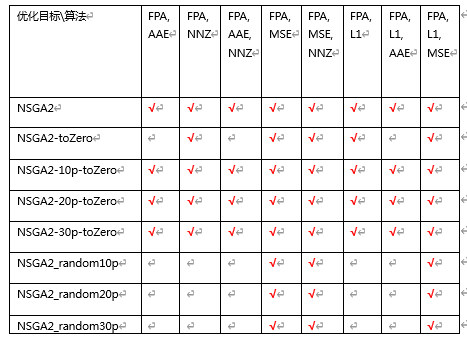
1. 线性-多目标对比

首先在FPA+MSE对比

其次，在FPA+NNZ对比



1. 对于之前比较的FPA+MSE+L1的，显然，nsga2\_random的比别的更优
2. 比较FPA+L1+MSE的random10p,20p,30p

【plot/fpa\_l1\_mse】显然random20p和random30p相对效果更好；且相较于lasso可以获得更优的 效果，更简单的模型

1. 比较FPA+MSE+NNZ,的random10p,20p,30p

【plot/fpa\_mse\_nnz】显然random20p和random30p相对效果更好；且相较于lasso可以获得更优的 效果，更简单的模型

1. 比较FPA+MSE的random10p,20p,30p

【plot/fpa\_mse】效果一般，且无法获得更优模型

1. 比较

linear/fpa+mse+l1/random20p,linear/fpa+mse+l1/random30p,linear/fpa+mse+nnz/random20p, linear/fpa+mse+nnz/random30p.

【plot/比较之1.5】

1. 试一下选取最优train的效果对比

见表格【table/1】

1. 运行一下FPA+NNZ的三个random，运行一下FPA+L1的三个random
2. 画图对比一下在表格6中较优的几个模型：

linear/nsga2\_30p\_toZero/FPA\_NNZ ；linear/nsga2\_30p\_toZero/FPA\_L1\_MSE ；linear/nsga2\_10p\_toZero/FPA\_NNZ\_MSE；linear/nsga2\_30p\_toZero/FPA\_NNZ\_MSE linear/nsga2\_10p\_toZero/FPA\_NNZ；linear/nsga2\_20p\_toZero/FPA\_AAE\_NNZ

1. 按照比例选取模型结果
2. Best train
3. 查看最好的test值是什么

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 优化目标\算法 | FPA, AAE | FPA, NNZ | FPA, AAE, NNZ | FPA, MSE | FPA, MSE, NNZ | FPA, L1 | FPA, L1, AAE | FPA, L1, MSE |
| NSGA2 | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** |
| NSGA2-toZero |  | **√** |  | **√** | **√** | **√** |  | **√** |
| NSGA2-10p-toZero | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** |
| NSGA2-20p-toZero | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** |
| NSGA2-30p-toZero | **√** | **√** | **√** | **√** | **√** | **√** | **√** | **√** |
| NSGA2\_random10p |  | **√** |  | **√** | **√** | **√** |  | **√** |
| NSGA2\_random20p |  | **√** |  | **√** | **√** | **√** |  | **√** |
| NSGA2\_random30p |  | **√** |  | **√** | **√** | **√** |  | **√** |

1. 对于带有random的算法，MSE明显好很多
2. 对于优化fpa+mse+l1，选取的时候依据024按比例，可以获得更好结果

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 算法 | 平均FPA | 平均MSE | 平均NNZ | 选取方法 |
| linear/nsga2\_random20p\_toZero/FPA\_NNZ\_MSE | 0.701227 | 8.99962585 | 3.966666667 | 034110 |
| linear/nsga2\_random20p\_toZero/FPA\_NNZ\_MSE | 0.702395881 | 8.202392595 | 4.066666667 | 034111 |
| linear/nsga2\_random20p\_toZero/FPA\_NNZ\_MSE | 0.70228053 | 8.205401646 | 4.066666667 | 034221 |
| linear/nsga2\_random30p\_toZero/FPA\_L1\_MSE | 0.702033231 | 3.638449287 | 1.8 | 024221 |
| linear/nsga2\_random20p\_toZero/FPA\_NNZ\_MSE | 0.701258547 | 5.686616919 | 2.066666667 | 024421 |
| Lasso | 0.698958096 | 7.467908284 | 8.166666667 |  |
| Ridge | 0.688552667 | 8.724145078 | 21 |  |

1. 绘图

绘制

linear/nsga2\_random20p\_toZero/FPA\_NNZ\_MSE；linear/nsga2\_random30p\_toZero/FPA\_L1\_MSE

ridge；lasso对比