

```
>> demo_Polynomial_Dictionary_Learning
Starting to train the dictionary
solving the quadratic problem with YALMIP...
```

```
ans =
```

```
NaN
```

```
Error using svd
Input to SVD must not contain NaN or Inf.
```

```
Error in pinv (line 18)
[U,S,V] = svd(A,'econ');
```

```
Error in OMP_non_normalized_atoms (line 53)
    a = pinv(normalized_D(:,indx(1:j))) * x;
```

```
Error in Polynomial_Dictionary_Learning (line 153)
    CoefMatrix = OMP_non_normalized_atoms(Dictionary,Y, param.T0);
```

```
Error in demo_Polynomial_Dictionary_Learning (line 83)
[Dictionary_Pol, output_Pol, err] = Polynomial_Dictionary_Learning(TrainSignal,
param, initial_sparsity_mx);
```

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Starting to train the dictionary
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The coefficient matrix is not full row rank, numerical problems may occur.
SeDuMi 1.32 by AdvOL, 2005-2008 and Jos F. Sturm, 1998-2003.
```

```
Alg = 2: xz-corrector, theta = 0.250, beta = 0.500
```

```
eqs m = 91, order n = 803, dim = 887, blocks = 2
```

```
nnz(A) = 29127 + 0, nnz(ADA) = 8281, nnz(L) = 4186
```

it	b*y	gap	delta	rate	t/tP*	t/tD*	feas	cg	cg	prec
0		6.03E+01	0.000							
1	-4.43E+01	4.90E+01	0.000	0.8138	0.9000	0.9000	14.18	1	1	1.2E+00
2	-5.43E+01	3.16E+01	0.000	0.6436	0.9000	0.9000	16.03	1	1	2.1E-01
3	-5.44E+01	7.57E+00	0.000	0.2400	0.9000	0.9000	3.01	1	1	2.0E-02
4	-5.27E+01	3.66E+00	0.000	0.4836	0.9000	0.9000	1.41	1	1	8.2E-03

```

5 : -5.23E+01 2.09E+00 0.000 0.5706 0.9000 0.9000 1.33 1 1 4.2E-03
6 : -5.19E+01 1.13E+00 0.000 0.5389 0.9000 0.9000 1.21 1 1 2.2E-03
7 : -5.18E+01 6.48E-01 0.000 0.5757 0.9000 0.9000 1.20 1 1 1.2E-03
8 : -5.16E+01 3.43E-01 0.000 0.5290 0.9000 0.9000 1.10 1 1 6.0E-04
9 : -5.16E+01 1.70E-01 0.000 0.4949 0.9000 0.9000 1.12 1 1 2.8E-04
10 : -5.16E+01 7.52E-02 0.000 0.4430 0.9000 0.9000 1.05 1 1 1.2E-04
11 : -5.16E+01 3.07E-02 0.000 0.4078 0.9000 0.9000 1.05 1 1 4.9E-05
12 : -5.16E+01 1.13E-02 0.000 0.3679 0.9000 0.9000 1.02 1 1 1.8E-05
13 : -5.16E+01 4.31E-03 0.000 0.3822 0.9000 0.9000 1.02 1 1 6.8E-06
14 : -5.16E+01 1.44E-03 0.000 0.3328 0.9000 0.9000 1.01 1 1 2.3E-06
15 : -5.16E+01 4.80E-04 0.000 0.3346 0.9000 0.9000 1.00 1 1 7.6E-07
16 : -5.16E+01 1.56E-04 0.000 0.3239 0.9000 0.9000 1.00 1 8 2.5E-07
17 : -5.16E+01 3.94E-05 0.000 0.2535 0.9000 0.9000 1.00 2 2 6.3E-08

```

Run into numerical problems.

```

iter seconds digits      c*x      b*y
17      1.3      6.0 -5.1557495949e+01 -5.1557544060e+01
|Ax-b| = 3.3e-07, [Ay-c]_+ = 3.8E-07, |x|= 1.1e+00, |y|= 8.3e+04

```

Detailed timing (sec)

```

Pre      IPM      Post
9.363E+00 1.883E+01 3.800E-02
Max-norms: ||b||=1.671970e+01, ||c|| = 5.256842e+01,
Cholesky |add|=0, |skip| = 5, ||L.L|| = 884.389.

```

ans =

51.5576

ans =

NaN

Iteration 2 Total error is: NaN

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