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>> demo_Polynomial_Dictionary_Learning_Uber
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Starting to train the dictionary
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solving the quadratic problem with YALMIP...
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num. of constraints = 33
dim. of socp var = 34, num. of socp blk = 1
dim. of linear var = 40
*****
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SDPT3: Infeasible path-following algorithms
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*****
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version predcorr gam expon scale_data
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HKM 1 0.000 1 0
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it	pstep	dstep	pinfeas	dinfeas	gap	prim-obj	dual-obj	cputime				
0	0.000	0.000	1.0e+00	1.5e+02	7.0e+06	-6.589587e+02	0.000000e+00	0:0:00	chol	1	1	
1	0.981	0.943	1.9e-02	8.7e+00	4.0e+05	-1.773223e+01	8.876504e+02	0:0:00	chol	2	2	
2	1.000	0.964	3.1e-07	3.2e-01	1.6e+04	9.568720e+00	-2.495676e+02	0:0:00	chol	2	2	
3	1.000	0.990	1.5e-07	7.1e-03	3.5e+02	-9.641197e-01	-9.033198e+00	0:0:00	chol	2	2	
4	0.928	0.940	1.6e-07	1.5e-03	5.6e+01	-6.849035e+00	-6.965314e+00	0:0:00	chol	2	2	
5	0.973	0.942	1.2e-08	4.2e-04	1.3e+01	-8.398479e+00	-8.022390e+00	0:0:00	chol	3	2	
6	0.330	0.486	3.4e-08	2.7e-04	7.9e+00	-9.365302e+00	-8.414055e+00	0:0:00	chol	2	2	
7	0.083	0.142	1.3e-08	2.3e-04	7.3e+00	-9.822155e+00	-8.667153e+00	0:0:00	chol	2	2	
8	0.047	0.159	1.2e-08	2.0e-04	6.5e+00	-1.018021e+01	-9.025610e+00	0:0:00	chol	3	2	
9	0.061	0.242	1.2e-08	1.5e-04	5.3e+00	-1.065145e+01	-9.526921e+00	0:0:00	chol	2	2	
10	0.088	0.212	1.2e-08	1.2e-04	4.7e+00	-1.100320e+01	-1.008130e+01	0:0:00	chol	3	2	
11	0.132	0.376	1.1e-08	7.4e-05	3.7e+00	-1.120676e+01	-1.115446e+01	0:0:00	chol	2	2	
12	0.318	0.677	1.2e-08	2.4e-05	1.8e+00	-1.158152e+01	-1.201779e+01	0:0:00	chol	3	3	
13	0.617	0.923	1.4e-08	1.9e-06	7.1e-01	-1.196495e+01	-1.257817e+01	0:0:00	chol	3	2	
14	0.909	0.848	4.2e-09	2.9e-07	7.8e-02	-1.243929e+01	-1.250540e+01	0:0:00	chol	3	4	
15	0.937	0.972	2.4e-08	1.1e-08	8.4e-03	-1.248261e+01	-1.249050e+01	0:0:00	chol	5	6	
16	0.970	0.977	7.5e-08	1.5e-09	2.9e-04	-1.248851e+01	-1.248858e+01	0:0:00	chol			
linsysolve: Schur complement matrix not positive definite												
switch to LU factor. lu 30 ^18												
17	0.025	0.031	3.5e-07	2.1e-09	3.0e-04	-1.248907e+01	-1.248858e+01	0:0:00	lu 30 ^17			
18	0.031	0.075	3.8e-07	2.7e-09	3.2e-04	-1.248958e+01	-1.248858e+01	0:0:00				
stop: steps too short consecutively												

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-----
number of iterations = 18
primal objective value = -1.24885110e+01
dual objective value = -1.24885771e+01
gap := trace(XZ) = 2.85e-04
relative gap = 1.10e-05
actual relative gap = 2.55e-06
rel. primal infeas = 7.54e-08
rel. dual infeas = 1.51e-09
norm(X), norm(y), norm(Z) = 2.5e+03, 4.8e+01, 2.5e+01
norm(A), norm(b), norm(C) = 3.1e+03, 1.6e+03, 4.4e+01
Total CPU time (secs) = 0.13
CPU time per iteration = 0.01
termination code = -5
DIMACS errors: 1.6e-07 0.0e+00 2.1e-09 0.0e+00 2.5e-06 1.1e-05
-----
```

```
ans =
```

12.4886

```

num. of constraints = 33
dim. of socp var = 34,   num. of socp blk = 1
dim. of linear var = 40
*****
SDPT3: Infeasible path-following algorithms
*****
version  predcorr  gam  expon  scale_data
HKM      1      0.000  1      0

it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj      cputime
-----
0|0.000|0.000|1.0e+00|1.8e+02|7.7e+06|-5.989209e+02  0.000000e+00| 0:0:00| chol  1  1
1|0.977|0.935|2.3e-02|1.2e+01|5.0e+05|-2.045677e+01  2.814397e+03| 0:0:00| chol  2  2
2|1.000|0.940|3.5e-07|7.1e-01|3.4e+04| 4.440347e+00 -3.067221e+02| 0:0:00| chol  1  2
3|1.000|0.992|2.9e-07|9.3e-03|5.0e+02| 2.042703e+00 -1.021381e+01| 0:0:00| chol  2  2
4|0.936|0.985|5.3e-08|1.3e-03|5.6e+01|-6.168288e+00 -7.042292e+00| 0:0:00| chol  2  2
5|1.000|0.817|1.2e-08|5.2e-04|1.6e+01|-7.517378e+00 -7.516739e+00| 0:0:00| chol  2  2
6|0.499|0.819|1.6e-08|1.8e-04|5.2e+00|-8.213239e+00 -7.932464e+00| 0:0:00| chol  3  3
7|0.338|0.349|1.4e-07|1.3e-04|4.0e+00|-8.725374e+00 -8.377535e+00| 0:0:00| chol  3  2
8|0.163|0.597|1.2e-07|5.8e-05|2.1e+00|-9.165709e+00 -9.041458e+00| 0:0:00| chol  3  3
9|0.515|0.465|1.0e-07|3.2e-05|1.4e+00|-9.638826e+00 -9.599226e+00| 0:0:00| chol  3  3
10|0.563|0.671|3.4e-08|1.1e-05|7.7e-01|-9.867740e+00 -1.012726e+01| 0:0:00| chol  3  3
11|0.809|0.873|9.6e-09|1.7e-06|2.7e-01|-1.013032e+01 -1.032844e+01| 0:0:00| chol  3  3
12|0.889|0.883|1.5e-09|2.6e-07|3.0e-02|-1.029773e+01 -1.031841e+01| 0:0:00| chol  4  3
13|0.987|0.971|5.6e-09|3.0e-08|1.6e-03|-1.031711e+01 -1.031760e+01| 0:0:00| chol  7  9
14|0.988|0.988|3.4e-09|4.2e-10|2.1e-05|-1.031812e+01 -1.031812e+01| 0:0:00| chol
    linsysolve: Schur complement matrix not positive definite
    switch to LU factor. lu 30 ^29
15|1.000|0.810|1.1e-08|1.0e-10|9.6e-06|-1.031814e+01 -1.031814e+01| 0:0:00| lu 30  19
16|1.000|0.984|3.1e-08|3.1e-12|6.0e-07|-1.031814e+01 -1.031813e+01| 0:0:00|
    stop: max(relative gap, infeasibilities) < 1.00e-07
-----
number of iterations    = 16
primal objective value = -1.03181359e+01
dual  objective value = -1.03181307e+01
gap := trace(XZ)        = 5.95e-07
relative gap            = 2.75e-08
actual relative gap     = -2.39e-07
rel. primal infeas      = 3.12e-08
rel. dual infeas        = 3.15e-12
norm(X), norm(y), norm(Z) = 2.0e+03, 5.0e+01, 2.8e+01
norm(A), norm(b), norm(C) = 6.4e+03, 2.7e+03, 4.4e+01
Total CPU time (secs)   = 0.09
CPU time per iteration = 0.01
termination code        = 0
DIMACS errors: 5.1e-08  0.0e+00  4.3e-12  0.0e+00  -2.4e-07  2.8e-08
-----

ans =

    10.3181

Iteration    2    Total error is: 0.065434

```

```

num. of constraints = 33
dim. of socp var = 34, num. of socp blk = 1
dim. of linear var = 40
*****
SDPT3: Infeasible path-following algorithms
*****
version predcorr gam expon scale_data
HKM      1      0.000 1      0
it pstep dstep pinfeas dinfeas gap      prim-obj      dual-obj      cputime
-----
0|0.000|0.000|1.0e+00|1.8e+02|5.3e+06|-6.325636e+02  0.000000e+00| 0:0:00| chol 1 1
1|0.980|0.940|2.0e-02|1.1e+01|3.2e+05|-1.890042e+01  2.860311e+03| 0:0:00| chol 1 1
2|1.000|0.938|2.1e-07|7.0e-01|2.2e+04| 2.235388e+00 -1.136115e+02| 0:0:00| chol 2 2
3|1.000|0.990|6.0e-08|1.0e-02|3.6e+02| 3.619939e-01 -8.333365e+00| 0:0:00| chol 2 2
4|0.910|0.977|3.1e-08|1.4e-03|4.1e+01|-6.563089e+00 -6.899185e+00| 0:0:00| chol 2 2
5|1.000|0.758|1.8e-08|6.0e-04|1.3e+01|-7.665174e+00 -7.432313e+00| 0:0:00| chol 2 2
6|0.548|0.750|7.4e-09|2.3e-04|4.7e+00|-8.391941e+00 -7.853654e+00| 0:0:00| chol 3 3
7|0.400|0.295|1.3e-08|1.7e-04|3.9e+00|-8.933956e+00 -8.312625e+00| 0:0:00| chol 2 2
8|0.154|0.606|1.3e-08|7.3e-05|2.0e+00|-9.423191e+00 -9.185456e+00| 0:0:00| chol 3 3
9|0.316|0.547|1.4e-08|3.5e-05|1.2e+00|-9.822430e+00 -9.756852e+00| 0:0:00| chol 3 3
10|0.406|0.701|1.2e-08|1.1e-05|7.2e-01|-9.998448e+00 -1.027786e+01| 0:0:00| chol 3 3
11|0.782|0.824|5.0e-09|2.1e-06|2.5e-01|-1.025838e+01 -1.043481e+01| 0:0:00| chol 2 3
12|0.885|0.965|1.0e-09|1.5e-07|2.7e-02|-1.041895e+01 -1.044127e+01| 0:0:00| chol 5 4
13|0.945|0.998|6.7e-09|2.3e-08|3.6e-03|-1.043826e+01 -1.044113e+01| 0:0:00| chol 5 5
14|0.986|0.987|4.2e-09|7.3e-09|5.4e-05|-1.044107e+01 -1.044087e+01| 0:0:00| chol
linsysolve: Schur complement matrix not positive definite
switch to LU factor. lu 30 2
15|1.000|1.000|8.1e-08|2.3e-10|2.4e-04|-1.044112e+01 -1.044132e+01| 0:0:00| lu 30 30
16|1.000|0.934|1.3e-07|2.5e-10|8.4e-05|-1.044132e+01 -1.044112e+01| 0:0:00| lu 30 ^15
17|0.861|0.709|2.0e-07|1.1e-10|1.3e-05|-1.044165e+01 -1.044110e+01| 0:0:00| lu 30 ^ 7
18|0.254|0.523|1.9e-07|8.2e-11|1.1e-05|-1.044115e+01 -1.044110e+01| 0:0:00| lu 30 ^ 8
19|0.129|0.264|2.3e-07|8.9e-11|1.0e-05|-1.044125e+01 -1.044110e+01| 0:0:00| lu 30 ^17
20|0.037|0.059|2.1e-07|1.1e-10|1.1e-05|-1.044126e+01 -1.044110e+01| 0:0:00|
lack of progress in infeas
-----
number of iterations = 20
primal objective value = -1.04416453e+01
dual objective value = -1.04410958e+01
gap := trace(XZ) = 1.27e-05
relative gap = 5.78e-07
actual relative gap = -2.51e-05
rel. primal infeas = 2.01e-07
rel. dual infeas = 1.09e-10
norm(X), norm(y), norm(Z) = 1.8e+03, 5.0e+01, 2.8e+01
norm(A), norm(b), norm(C) = 7.0e+03, 2.5e+03, 4.4e+01
Total CPU time (secs) = 0.17
CPU time per iteration = 0.01
termination code = 0
DIMACS errors: 3.2e-07 0.0e+00 1.5e-10 0.0e+00 -2.5e-05 5.8e-07
-----

ans =

10.4411

```

Iteration 3 Total error is: 0.065784

num. of constraints = 33
 dim. of socp var = 34, num. of socp blk = 1
 dim. of linear var = 40

SDPT3: Infeasible path-following algorithms

version predcorr gam expon scale_data

HKM 1 0.000 1 0

it pstep dstep pinfeas dinfeas gap prim-obj dual-obj cputime

0	0.000	0.000	1.0e+00	1.8e+02	5.9e+06	-6.564550e+02	0.000000e+00	0:0:00	chol	1	1
1	0.982	0.943	1.8e-02	1.1e+01	3.4e+05	-1.734258e+01	2.731068e+03	0:0:00	chol	1	1
2	1.000	0.942	2.4e-07	6.2e-01	2.2e+04	2.887545e+00	-1.230405e+02	0:0:00	chol	2	2
3	1.000	0.991	5.9e-08	9.2e-03	3.6e+02	7.382067e-01	-8.249936e+00	0:0:00	chol	2	2
4	0.914	0.982	4.0e-08	1.3e-03	4.2e+01	-6.314095e+00	-6.760353e+00	0:0:00	chol	2	2
5	1.000	0.751	1.3e-07	5.9e-04	1.4e+01	-7.459037e+00	-7.235853e+00	0:0:00	chol	2	2
6	0.518	0.732	6.1e-08	2.4e-04	5.0e+00	-8.235910e+00	-7.633087e+00	0:0:00	chol	3	2
7	0.567	0.306	2.5e-07	1.7e-04	4.2e+00	-8.952904e+00	-8.136673e+00	0:0:00	chol	3	3
8	0.151	0.458	2.2e-07	9.8e-05	3.0e+00	-9.324837e+00	-9.089378e+00	0:0:00	chol	3	3
9	0.330	0.650	1.5e-07	3.6e-05	1.4e+00	-9.713019e+00	-9.655504e+00	0:0:00	chol	3	2
10	0.718	0.710	4.4e-08	1.1e-05	6.5e-01	-1.001192e+01	-1.022648e+01	0:0:00	chol	2	3
11	0.879	0.906	6.6e-09	1.3e-06	1.3e-01	-1.027935e+01	-1.036848e+01	0:0:00	chol	3	3
12	0.884	1.000	1.5e-09	7.8e-08	2.1e-02	-1.035628e+01	-1.037454e+01	0:0:00	chol	4	4
13	0.926	1.000	2.4e-09	2.3e-08	2.7e-03	-1.037061e+01	-1.037258e+01	0:0:00	chol	5	6
14	0.984	0.986	2.0e-09	7.3e-09	4.6e-05	-1.037276e+01	-1.037258e+01	0:0:00	chol		

linsysolve: Schur complement matrix not positive definite

switch to LU factor. lu 30 3

15	0.965	1.000	8.1e-08	1.4e-11	4.7e-06	-1.037285e+01	-1.037279e+01	0:0:00	lu 30	^18	
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16	1.000	0.808	5.7e-08	4.9e-12	7.9e-07	-1.037278e+01	-1.037279e+01	0:0:00			
----	-------	-------	---------	---------	---------	---------------	---------------	--------	--	--	--

stop: max(relative gap, infeasibilities) < 1.00e-07

 number of iterations = 16
 primal objective value = -1.03727767e+01
 dual objective value = -1.03727934e+01
 gap := trace(XZ) = 7.92e-07
 relative gap = 3.64e-08
 actual relative gap = 7.71e-07
 rel. primal infeas = 5.66e-08
 rel. dual infeas = 4.88e-12
 norm(X), norm(y), norm(Z) = 1.9e+03, 5.0e+01, 2.8e+01
 norm(A), norm(b), norm(C) = 7.1e+03, 2.2e+03, 4.4e+01
 Total CPU time (secs) = 0.11
 CPU time per iteration = 0.01
 termination code = 0
 DIMACS errors: 9.7e-08 0.0e+00 6.6e-12 0.0e+00 7.7e-07 3.6e-08

ans =

10.3728

Iteration 4 Total error is: 0.065443

```

num. of constraints = 33
dim. of socp var = 34, num. of socp blk = 1
dim. of linear var = 40
*****
SDPT3: Infeasible path-following algorithms
*****
version predcorr gam expon scale_data
HKM      1      0.000 1      0
it pstep dstep pinfeas dinfeas gap      prim-obj      dual-obj      cputime
-----
0|0.000|0.000|1.0e+00|1.8e+02|6.1e+06|-6.571636e+02  0.000000e+00| 0:0:00| chol 1 1
1|0.982|0.943|1.8e-02|1.1e+01|3.5e+05|-1.727720e+01  2.748910e+03| 0:0:00| chol 1 2
2|1.000|0.942|2.2e-07|6.2e-01|2.2e+04| 3.002417e+00 -1.283945e+02| 0:0:00| chol 2 2
3|1.000|0.991|4.8e-08|9.1e-03|3.7e+02| 8.448163e-01 -8.279249e+00| 0:0:00| chol 2 2
4|0.916|0.983|3.7e-08|1.3e-03|4.3e+01|-6.253867e+00 -6.733725e+00| 0:0:00| chol 2 2
5|1.000|0.753|2.7e-08|5.9e-04|1.4e+01|-7.408384e+00 -7.202520e+00| 0:0:00| chol 2 2
6|0.518|0.731|4.7e-09|2.3e-04|5.1e+00|-8.192718e+00 -7.594023e+00| 0:0:00| chol 3 3
7|0.574|0.306|3.4e-08|1.7e-04|4.3e+00|-8.924713e+00 -8.099650e+00| 0:0:00| chol 2 2
8|0.153|0.448|3.0e-08|1.0e-04|3.1e+00|-9.287442e+00 -9.054896e+00| 0:0:00| chol 3 2
9|0.329|0.644|2.0e-08|3.7e-05|1.4e+00|-9.680662e+00 -9.615853e+00| 0:0:00| chol 3 3
10|0.700|0.717|1.6e-08|1.1e-05|6.8e-01|-9.972121e+00 -1.020681e+01| 0:0:00| chol 3 3
11|0.880|0.930|3.0e-09|1.0e-06|1.3e-01|-1.025361e+01 -1.034952e+01| 0:0:00| chol 3 3
12|0.844|1.000|1.2e-09|7.8e-08|2.9e-02|-1.032642e+01 -1.035276e+01| 0:0:00| chol 4 5
13|0.942|0.925|3.2e-09|2.7e-08|2.9e-03|-1.034732e+01 -1.034932e+01| 0:0:00| chol 7 7
14|0.980|0.981|2.1e-09|7.5e-09|6.5e-05|-1.034934e+01 -1.034917e+01| 0:0:00| chol
linsysolve: Schur complement matrix not positive definite
switch to LU factor. lu 30 2
15|1.000|1.000|2.0e-08|6.1e-12|2.1e-06|-1.034944e+01 -1.034938e+01| 0:0:00|
stop: max(relative gap, infeasibilities) < 1.00e-07
-----
number of iterations = 15
primal objective value = -1.03494354e+01
dual objective value = -1.03493820e+01
gap := trace(XZ) = 2.11e-06
relative gap = 9.72e-08
actual relative gap = -2.46e-06
rel. primal infeas = 2.03e-08
rel. dual infeas = 6.06e-12
norm(X), norm(y), norm(Z) = 1.9e+03, 5.0e+01, 2.8e+01
norm(A), norm(b), norm(C) = 7.1e+03, 2.4e+03, 4.4e+01
Total CPU time (secs) = 0.09
CPU time per iteration = 0.01
termination code = 0
DIMACS errors: 3.4e-08 0.0e+00 8.2e-12 0.0e+00 -2.5e-06 9.7e-08
-----

ans =

    10.3494

Iteration    5    Total error is: 0.065381

num. of constraints = 33
dim. of socp var = 34, num. of socp blk = 1

```

```

dim. of linear var = 40
*****
SDPT3: Infeasible path-following algorithms
*****
version  predcorr  gam  expon  scale_data
HKM      1      0.000  1      0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj      cputime
-----
0|0.000|0.000|1.0e+00|1.9e+02|6.4e+06|-6.675787e+02  0.000000e+00| 0:0:00| chol  1  1
1|0.983|0.944|1.7e-02|1.0e+01|3.6e+05|-1.651708e+01  2.712428e+03| 0:0:00| chol  1  1
2|1.000|0.944|2.2e-07|5.9e-01|2.2e+04| 3.172927e+00 -1.276767e+02| 0:0:00| chol  2  2
3|1.000|0.992|4.4e-08|8.6e-03|3.6e+02| 9.297297e-01 -8.206647e+00| 0:0:00| chol  2  2
4|0.917|0.987|3.9e-08|1.3e-03|4.3e+01|-6.176844e+00 -6.705380e+00| 0:0:00| chol  2  2
5|1.000|0.761|4.9e-08|5.7e-04|1.4e+01|-7.311816e+00 -7.152085e+00| 0:0:00| chol  2  2
6|0.516|0.726|8.6e-09|2.3e-04|5.1e+00|-8.109887e+00 -7.512693e+00| 0:0:00| chol  3  3
7|0.708|0.315|1.7e-07|1.7e-04|4.2e+00|-8.955145e+00 -8.011212e+00| 0:0:00| chol  3  3
8|0.170|0.372|1.5e-07|1.1e-04|3.4e+00|-9.102325e+00 -8.975871e+00| 0:0:00| chol  3  3
9|0.364|0.603|9.7e-08|4.5e-05|1.6e+00|-9.587607e+00 -9.385494e+00| 0:0:00| chol  3  3
10|0.608|0.836|4.1e-08|8.1e-06|8.1e-01|-9.769144e+00 -1.025125e+01| 0:0:00| chol  2  2
11|0.915|0.884|2.0e-09|1.2e-06|8.8e-02|-1.019454e+01 -1.024489e+01| 0:0:00| chol  3  3
12|0.761|1.000|1.8e-09|7.7e-08|2.9e-02|-1.022527e+01 -1.025140e+01| 0:0:00| chol  4  4
13|0.973|0.907|5.4e-09|2.8e-08|3.1e-03|-1.024533e+01 -1.024751e+01| 0:0:00| chol  8  8
14|0.947|0.977|1.6e-08|8.0e-09|1.9e-04|-1.024716e+01 -1.024709e+01| 0:0:00| chol
linsysolve: Schur complement matrix not positive definite
switch to LU factor. lu 30  5
15|0.986|0.978|5.9e-08|2.0e-10|9.7e-06|-1.024722e+01 -1.024728e+01| 0:0:00| lu 14 ^ 3
16|0.907|0.811|1.5e-07|4.6e-11|2.6e-06|-1.024722e+01 -1.024729e+01| 0:0:00| lu 30 ^10
17|0.595|0.586|4.7e-07|2.3e-11|1.6e-06|-1.024720e+01 -1.024729e+01| 0:0:00| lu 30 ^11
18|0.029|0.031|4.5e-07|2.8e-11|1.8e-06|-1.024720e+01 -1.024729e+01| 0:0:00| lu 19 ^ 2
19|0.626|0.600|7.2e-07|1.5e-11|1.3e-06|-1.024729e+01 -1.024729e+01| 0:0:00|
lack of progress in infeas
-----
number of iterations = 19
primal objective value = -1.02472176e+01
dual objective value = -1.02472861e+01
gap := trace(XZ) = 2.60e-06
relative gap = 1.21e-07
actual relative gap = 3.19e-06
rel. primal infeas = 1.52e-07
rel. dual infeas = 4.55e-11
norm(X), norm(y), norm(Z) = 1.9e+03, 5.0e+01, 2.8e+01
norm(A), norm(b), norm(C) = 7.2e+03, 2.3e+03, 4.4e+01
Total CPU time (secs) = 0.14
CPU time per iteration = 0.01
termination code = 0
DIMACS errors: 2.5e-07 0.0e+00 6.2e-11 0.0e+00 3.2e-06 1.2e-07
-----

ans =

10.2473

Iteration 6 Total error is: 0.065024

num. of constraints = 33

```

```

dim. of socp var = 34,   num. of socp blk = 1
dim. of linear var = 40
*****
SDPT3: Infeasible path-following algorithms
*****
version predcorr gam expon scale_data
HKM      1      0.000  1      0
it pstep dstep pinfeas dinfeas gap      prim-obj      dual-obj      cputime
-----
0|0.000|0.000|1.0e+00|1.8e+02|6.7e+06|-6.758810e+02  0.000000e+00| 0:0:00| chol 1 1
1|0.984|0.945|1.6e-02|1.0e+01|3.7e+05|-1.596765e+01  2.557158e+03| 0:0:00| chol 1 1
2|1.000|0.946|2.3e-07|5.5e-01|2.2e+04| 3.492596e+00 -1.343013e+02| 0:0:00| chol 2 2
3|1.000|0.992|5.2e-08|8.1e-03|3.6e+02| 1.020771e+00 -8.194299e+00| 0:0:00| chol 2 2
4|0.918|0.989|4.8e-08|1.2e-03|4.3e+01|-6.080807e+00 -6.647401e+00| 0:0:00| chol 2 2
5|1.000|0.787|2.7e-08|5.4e-04|1.3e+01|-7.213034e+00 -7.097566e+00| 0:0:00| chol 2 2
6|0.500|0.718|6.6e-09|2.3e-04|5.1e+00|-8.018689e+00 -7.426219e+00| 0:0:00| chol 3 3
7|0.792|0.314|1.4e-07|1.7e-04|4.2e+00|-8.929038e+00 -7.919393e+00| 0:0:00| chol 2 3
8|0.169|0.340|1.2e-07|1.1e-04|3.6e+00|-8.931419e+00 -8.919854e+00| 0:0:00| chol 2 2
9|0.411|0.593|7.2e-08|4.8e-05|1.7e+00|-9.497607e+00 -9.261917e+00| 0:0:00| chol 3 3
10|0.533|0.959|4.3e-08|2.8e-06|9.4e-01|-9.575310e+00 -1.040879e+01| 0:0:00| chol 3 3
11|1.000|0.794|5.6e-09|7.8e-07|2.6e-01|-9.986445e+00 -1.021631e+01| 0:0:00| chol 3 3
12|0.898|0.788|6.0e-09|2.3e-07|4.1e-02|-1.013832e+01 -1.017191e+01| 0:0:00| chol 4 4
13|0.963|0.870|6.8e-09|5.1e-08|5.7e-03|-1.015733e+01 -1.016140e+01| 0:0:00| chol 6 8
14|0.933|0.969|7.0e-09|9.7e-09|7.1e-04|-1.015956e+01 -1.015997e+01| 0:0:00| chol
linsysolve: Schur complement matrix not positive definite
switch to LU factor. lu 13 2
15|0.955|0.775|1.4e-08|2.9e-09|2.7e-04|-1.015993e+01 -1.016012e+01| 0:0:00| lu 30 3
16|0.942|0.952|3.3e-08|1.8e-10|1.4e-05|-1.015989e+01 -1.016002e+01| 0:0:00| lu 26 ^ 6
17|0.643|0.841|3.3e-07|4.7e-11|6.8e-06|-1.015970e+01 -1.016001e+01| 0:0:00| lu 30 30
18|0.339|0.439|7.4e-07|4.1e-11|5.0e-06|-1.015960e+01 -1.016001e+01| 0:0:00| lu 30 ^22
19|0.098|0.337|7.5e-07|4.0e-11|4.7e-06|-1.015960e+01 -1.016001e+01| 0:0:00| lu 30 ^12
20|0.121|0.649|6.3e-07|2.5e-11|4.0e-06|-1.015970e+01 -1.016001e+01| 0:0:00|
lack of progress in infeas
-----
number of iterations = 20
primal objective value = -1.01596971e+01
dual objective value = -1.01600136e+01
gap := trace(XZ) = 6.77e-06
relative gap = 3.18e-07
actual relative gap = 1.48e-05
rel. primal infeas = 3.28e-07
rel. dual infeas = 4.74e-11
norm(X), norm(y), norm(Z) = 2.0e+03, 5.0e+01, 2.9e+01
norm(A), norm(b), norm(C) = 7.0e+03, 2.2e+03, 4.4e+01
Total CPU time (secs) = 0.19
CPU time per iteration = 0.01
termination code = 0
DIMACS errors: 5.5e-07 0.0e+00 6.4e-11 0.0e+00 1.5e-05 3.2e-07
-----

ans =

10.1600

Iteration 7 Total error is: 0.064749

```

```

num. of constraints = 33
dim. of socp var = 34,    num. of socp blk = 1
dim. of linear var = 40
*****
SDPT3: Infeasible path-following algorithms
*****
version predcorr gam expon scale_data
HKM      1      0.000 1      0
it pstep dstep pinfeas dinfeas gap      prim-obj      dual-obj      cputime
-----
0|0.000|0.000|1.0e+00|1.8e+02|6.9e+06|-6.848169e+02  0.000000e+00| 0:0:00| chol 1 1
1|0.984|0.946|1.6e-02|9.6e+00|3.7e+05|-1.544261e+01  2.242737e+03| 0:0:00| chol 1 1
2|1.000|0.949|2.6e-07|5.0e-01|2.1e+04| 3.940608e+00 -1.427302e+02| 0:0:00| chol 2 2
3|1.000|0.992|1.9e-07|7.6e-03|3.5e+02| 9.753632e-01 -8.178197e+00| 0:0:00| chol 2 2
4|0.917|0.988|6.5e-08|1.2e-03|4.4e+01|-6.027278e+00 -6.584601e+00| 0:0:00| chol 2 2
5|1.000|0.833|4.5e-08|5.0e-04|1.2e+01|-7.169400e+00 -7.076871e+00| 0:0:00| chol 2 2
6|0.470|0.707|6.6e-09|2.2e-04|4.9e+00|-7.986551e+00 -7.377632e+00| 0:0:00| chol 3 3
7|0.911|0.309|1.5e-07|1.6e-04|4.1e+00|-8.970011e+00 -7.874972e+00| 0:0:00| chol 3 3
8|0.147|0.317|1.3e-07|1.1e-04|3.8e+00|-8.845821e+00 -8.971733e+00| 0:0:00| chol 2 2
9|0.489|0.609|6.7e-08|4.6e-05|1.7e+00|-9.489962e+00 -9.272824e+00| 0:0:00| chol 3 3
10|0.420|1.000|4.0e-08|8.6e-07|1.1e+00|-9.517295e+00 -1.058176e+01| 0:0:00| chol 3 3
11|1.000|0.691|1.4e-08|4.5e-07|4.2e-01|-9.861165e+00 -1.026762e+01| 0:0:00| chol 3 3
12|0.888|0.860|6.8e-09|1.3e-07|5.8e-02|-1.010747e+01 -1.016142e+01| 0:0:00| chol 4 4
13|0.950|0.929|1.5e-08|3.2e-08|5.9e-03|-1.013981e+01 -1.014471e+01| 0:0:00| chol 7 8
14|0.926|0.972|1.8e-08|9.7e-09|9.5e-04|-1.014273e+01 -1.014341e+01| 0:0:00| chol
linsysolve: Schur complement matrix not positive definite
switch to LU factor. lu 20 ^30
15|0.310|0.350|5.4e-07|8.3e-09|7.3e-04|-1.014403e+01 -1.014343e+01| 0:0:00| lu 13 2
16|0.530|1.000|2.3e-07|1.1e-09|4.0e-04|-1.014354e+01 -1.014348e+01| 0:0:00| lu 30 ^24
17|0.220|0.246|5.7e-07|1.8e-09|3.5e-04|-1.014493e+01 -1.014346e+01| 0:0:00| lu 30 4
18|0.313|0.846|4.8e-07|1.0e-09|2.7e-04|-1.014499e+01 -1.014344e+01| 0:0:00| lu 21 30
19|0.240|1.000|3.7e-07|6.3e-10|2.3e-04|-1.014402e+01 -1.014345e+01| 0:0:00| lu 28 5
20|0.936|0.860|2.0e-06|3.2e-10|8.5e-05|-1.014347e+01 -1.014343e+01| 0:0:00| lu 30 ^10
21|1.000|0.834|5.5e-07|1.6e-10|3.7e-05|-1.014460e+01 -1.014342e+01| 0:0:00| lu 30 ^18
22|0.010|0.014|5.5e-07|2.6e-10|4.0e-05|-1.014461e+01 -1.014342e+01| 0:0:00| lu 12 ^17
23|0.581|0.509|7.7e-07|2.2e-10|3.4e-05|-1.014398e+01 -1.014342e+01| 0:0:00| lu 30 30
24|0.016|0.032|7.9e-07|3.2e-10|3.7e-05|-1.014444e+01 -1.014342e+01| 0:0:00|
stop: progress is too slow
stop: progress is bad
lack of progress in infeas
-----
number of iterations = 24
primal objective value = -1.01445998e+01
dual objective value = -1.01434184e+01
gap := trace(XZ) = 3.75e-05
relative gap = 1.76e-06
actual relative gap = -5.55e-05
rel. primal infeas = 5.46e-07
rel. dual infeas = 1.55e-10
norm(X), norm(y), norm(Z) = 2.0e+03, 5.0e+01, 2.9e+01
norm(A), norm(b), norm(C) = 6.5e+03, 1.9e+03, 4.4e+01
Total CPU time (secs) = 0.20
CPU time per iteration = 0.01
termination code = -5

```



```
DIMACS errors: 9.7e-07  0.0e+00  2.1e-10  0.0e+00  -5.5e-05  1.8e-06
```

```
-----
```

```
ans =
```

```
10.1434
```

```
Iteration    8    Total error is: 0.064724
```

```
The total representation error of the testing signals is: 0.29516
```

```
>>
```