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

 num. of constraints =  9
 dim. of socp   var  = 10,   num. of socp blk  =  1
 dim. of linear var  = 118
*******************************************************************
   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|9.9e-01|3.1e+00|2.8e+04| 1.168774e+03  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.923|1.6e-06|2.6e-01|3.1e+03| 1.002066e+03 -2.915097e+01| 0:0:00| chol  1↙
1
 2|0.653|0.567|4.8e-07|1.1e-01|1.7e+03| 6.724450e+02 -3.621249e+01| 0:0:00| chol  1↙
1
 3|1.000|0.619|7.1e-07|4.3e-02|8.7e+02| 3.194966e+02 -5.556681e+01| 0:0:00| chol  1↙
1
 4|0.647|0.945|3.5e-07|2.4e-03|3.0e+02| 1.889803e+02 -7.403079e+01| 0:0:00| chol  1↙
1
 5|0.940|0.983|1.8e-08|4.4e-05|1.7e+01|-5.542510e+01 -7.163327e+01| 0:0:00| chol  1↙
1
 6|0.987|0.987|2.7e-09|8.1e-07|2.3e-01|-7.125802e+01 -7.148127e+01| 0:0:00| chol  1↙
1
 7|0.983|0.987|3.1e-09|3.4e-08|4.7e-03|-7.147503e+01 -7.147941e+01| 0:0:00| chol  1↙
1
 8|0.973|0.982|8.0e-10|1.3e-09|1.5e-04|-7.147925e+01 -7.147939e+01| 0:0:00| chol  2↙
2
 9|1.000|0.971|9.2e-11|1.0e-10|6.6e-06|-7.147939e+01 -7.147939e+01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   =  9
 primal objective value = -7.14793885e+01
 dual   objective value = -7.14793941e+01
 gap := trace(XZ)       = 6.57e-06
 relative gap           = 4.56e-08
 actual relative gap    = 3.93e-08
 rel. primal infeas     = 9.17e-11
 rel. dual   infeas     = 1.04e-10
 norm(X), norm(y), norm(Z) = 3.8e+02, 9.2e+01, 8.0e+01
 norm(A), norm(b), norm(C) = 6.8e+00, 2.4e+00, 4.5e+01
 Total CPU time (secs)  = 0.05
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.1e-10  0.0e+00  1.4e-10  0.0e+00  3.9e-08  4.6e-08
-------------------------------------------------------------------

ans =

   71.4794
```

```
 num. of constraints =  9
 dim. of socp   var  = 10,   num. of socp blk  =  1
 dim. of linear var  = 118
*******************************************************************
   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|9.5e-01|3.1e+00|4.3e+04| 1.859291e+03  0.000000e+00| 0:0:00| chol  1↙
1
 1|0.988|0.853|1.2e-02|4.7e-01|8.6e+03| 1.853838e+03 -2.944664e+00| 0:0:00| chol  1↙
1
 2|1.000|0.852|5.0e-07|7.1e-02|2.6e+03| 1.370431e+03 -3.796937e+01| 0:0:00| chol  1↙
1
 3|0.649|0.613|2.4e-07|2.8e-02|1.4e+03| 7.680240e+02 -5.328029e+01| 0:0:00| chol  1↙
1
 4|0.705|0.938|1.4e-07|1.8e-03|5.2e+02| 4.033094e+02 -6.778447e+01| 0:0:00| chol  1↙
1
 5|0.942|0.987|7.1e-09|4.4e-05|2.9e+01|-3.793755e+01 -6.550412e+01| 0:0:00| chol  1↙
1
 6|0.978|0.973|6.3e-09|7.5e-06|7.9e-01|-6.461183e+01 -6.524910e+01| 0:0:00| chol  1↙
1
 7|0.985|0.987|1.1e-08|2.0e-06|3.7e-02|-6.522961e+01 -6.524454e+01| 0:0:00| chol  1↙
1
 8|0.988|0.991|2.8e-09|2.1e-07|2.6e-03|-6.524456e+01 -6.524541e+01| 0:0:00| chol  1↙
1
 9|0.985|0.975|4.0e-10|6.0e-09|1.4e-04|-6.524543e+01 -6.524553e+01| 0:0:00| chol  1↙
1
10|0.981|0.986|9.2e-12|1.5e-10|4.5e-06|-6.524553e+01 -6.524553e+01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 10
 primal objective value = -6.52455297e+01
 dual   objective value = -6.52455333e+01
 gap := trace(XZ)       = 4.46e-06
 relative gap           = 3.39e-08
 actual relative gap    = 2.72e-08
 rel. primal infeas     = 9.19e-12
 rel. dual   infeas     = 1.55e-10
 norm(X), norm(y), norm(Z) = 2.5e+02, 1.0e+02, 9.7e+01
 norm(A), norm(b), norm(C) = 6.9e+00, 3.6e+00, 4.5e+01
 Total CPU time (secs)  = 0.05
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 9.8e-12  0.0e+00  2.1e-10  0.0e+00  2.7e-08  3.4e-08
-------------------------------------------------------------------

ans =

   65.2455
```

```
Iteration   2   Total error is: 0.07835

 num. of constraints =  9
 dim. of socp   var  = 10,   num. of socp blk  =  1
 dim. of linear var  = 118
*******************************************************************
   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|9.5e-01|3.1e+00|4.4e+04| 1.872811e+03  0.000000e+00| 0:0:00| chol  1↙
1
 1|0.987|0.853|1.3e-02|4.7e-01|8.6e+03| 1.866627e+03 -2.750152e+00| 0:0:00| chol  1↙
1
 2|1.000|0.852|5.0e-07|7.1e-02|2.6e+03| 1.383419e+03 -3.805088e+01| 0:0:00| chol  1↙
1
 3|0.650|0.613|2.4e-07|2.8e-02|1.4e+03| 7.740014e+02 -5.345885e+01| 0:0:00| chol  1↙
1
 4|0.706|0.938|1.4e-07|1.8e-03|5.2e+02| 4.053252e+02 -6.801532e+01| 0:0:00| chol  1↙
1
 5|0.942|0.986|7.1e-09|4.5e-05|2.9e+01|-3.800856e+01 -6.571625e+01| 0:0:00| chol  1↙
1
 6|0.978|0.973|6.2e-09|7.6e-06|7.8e-01|-6.482618e+01 -6.545903e+01| 0:0:00| chol  1↙
1
 7|0.985|0.988|9.3e-09|2.0e-06|3.7e-02|-6.543917e+01 -6.545424e+01| 0:0:00| chol  1↙
1
 8|0.986|0.991|2.4e-09|2.2e-07|2.6e-03|-6.545423e+01 -6.545511e+01| 0:0:00| chol  1↙
1
 9|0.985|0.975|3.5e-10|6.0e-09|1.5e-04|-6.545513e+01 -6.545523e+01| 0:0:00| chol  1↙
1
10|0.981|0.986|6.6e-12|1.5e-10|4.6e-06|-6.545523e+01 -6.545523e+01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 10
 primal objective value = -6.54552304e+01
 dual   objective value = -6.54552341e+01
 gap := trace(XZ)       = 4.59e-06
 relative gap           = 3.48e-08
 actual relative gap    = 2.79e-08
 rel. primal infeas     = 6.65e-12
 rel. dual   infeas     = 1.54e-10
 norm(X), norm(y), norm(Z) = 2.5e+02, 1.0e+02, 9.7e+01
 norm(A), norm(b), norm(C) = 6.8e+00, 3.6e+00, 4.5e+01
 Total CPU time (secs)  = 0.05
 CPU time per iteration = 0.00
 termination code       =  0
 DIMACS errors: 7.1e-12  0.0e+00  2.1e-10  0.0e+00  2.8e-08  3.5e-08
-------------------------------------------------------------------

ans =
```

```
   65.4552

Iteration   3   Total error is: 0.078347

 num. of constraints =  9
 dim. of socp   var  = 10,   num. of socp blk  =  1
 dim. of linear var  = 118
*******************************************************************
   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|9.6e-01|3.1e+00|4.4e+04| 1.879561e+03  0.000000e+00| 0:0:00| chol  1↙
1
 1|0.986|0.853|1.3e-02|4.7e-01|8.7e+03| 1.870911e+03 -2.633813e+00| 0:0:00| chol  1↙
1
 2|1.000|0.853|5.0e-07|7.1e-02|2.6e+03| 1.388992e+03 -3.806586e+01| 0:0:00| chol  1↙
1
 3|0.651|0.614|2.4e-07|2.8e-02|1.4e+03| 7.756377e+02 -5.349385e+01| 0:0:00| chol  1↙
1
 4|0.708|0.938|1.4e-07|1.8e-03|5.2e+02| 4.047997e+02 -6.802392e+01| 0:0:00| chol  1↙
1
 5|0.942|0.986|7.0e-09|4.5e-05|2.9e+01|-3.804056e+01 -6.571847e+01| 0:0:00| chol  1↙
1
 6|0.978|0.972|6.2e-09|7.6e-06|7.9e-01|-6.482605e+01 -6.546056e+01| 0:0:00| chol  1↙
1
 7|0.985|0.988|8.9e-09|2.0e-06|3.8e-02|-6.544028e+01 -6.545565e+01| 0:0:00| chol  1↙
1
 8|0.984|0.990|2.3e-09|2.2e-07|2.7e-03|-6.545560e+01 -6.545651e+01| 0:0:00| chol  1↙
1
 9|0.985|0.975|3.4e-10|5.9e-09|1.5e-04|-6.545653e+01 -6.545663e+01| 0:0:00| chol  1↙
1
10|0.980|0.986|7.2e-12|1.5e-10|4.7e-06|-6.545663e+01 -6.545663e+01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 10
 primal objective value = -6.54566304e+01
 dual   objective value = -6.54566342e+01
 gap := trace(XZ)       = 4.68e-06
 relative gap           = 3.54e-08
 actual relative gap    = 2.86e-08
 rel. primal infeas     = 7.19e-12
 rel. dual   infeas     = 1.53e-10
 norm(X), norm(y), norm(Z) = 2.6e+02, 1.0e+02, 9.7e+01
 norm(A), norm(b), norm(C) = 6.9e+00, 3.6e+00, 4.5e+01
 Total CPU time (secs)  = 0.05
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 7.6e-12  0.0e+00  2.1e-10  0.0e+00  2.9e-08  3.5e-08
-------------------------------------------------------------------

ans =
```

```
   65.4566

Iteration   4   Total error is: 0.078347

 num. of constraints =  9
 dim. of socp   var  = 10,   num. of socp blk  =  1
 dim. of linear var  = 118
*******************************************************************
   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|9.6e-01|3.1e+00|4.4e+04| 1.881565e+03  0.000000e+00| 0:0:00| chol  1↙
1
 1|0.985|0.853|1.5e-02|4.7e-01|8.7e+03| 1.883058e+03 -1.899148e+00| 0:0:00| chol  1↙
1
 2|1.000|0.854|5.0e-07|7.1e-02|2.6e+03| 1.395295e+03 -3.765396e+01| 0:0:00| chol  1↙
1
 3|0.658|0.620|2.3e-07|2.7e-02|1.4e+03| 7.695976e+02 -5.281865e+01| 0:0:00| chol  1↙
1
 4|0.721|0.939|1.4e-07|1.7e-03|5.1e+02| 3.918476e+02 -6.687904e+01| 0:0:00| chol  1↙
1
 5|0.942|0.986|6.5e-09|4.4e-05|2.8e+01|-3.778421e+01 -6.459065e+01| 0:0:00| chol  1↙
1
 6|0.977|0.972|6.5e-09|7.6e-06|8.1e-01|-6.367717e+01 -6.433442e+01| 0:0:00| chol  1↙
1
 7|0.987|0.991|1.1e-08|2.0e-06|4.0e-02|-6.431192e+01 -6.432929e+01| 0:0:00| chol  1↙
1
 8|0.980|0.989|3.4e-09|2.2e-07|2.9e-03|-6.432906e+01 -6.433008e+01| 0:0:00| chol  1↙
1
 9|0.985|0.977|4.7e-10|5.8e-09|1.5e-04|-6.433009e+01 -6.433020e+01| 0:0:00| chol  1↙
1
10|0.979|0.984|2.2e-11|1.7e-10|5.0e-06|-6.433020e+01 -6.433020e+01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 10
 primal objective value = -6.43301969e+01
 dual   objective value = -6.43302009e+01
 gap := trace(XZ)       = 5.03e-06
 relative gap           = 3.88e-08
 actual relative gap    = 3.08e-08
 rel. primal infeas     = 2.22e-11
 rel. dual   infeas     = 1.69e-10
 norm(X), norm(y), norm(Z) = 2.6e+02, 1.0e+02, 9.6e+01
 norm(A), norm(b), norm(C) = 6.9e+00, 3.6e+00, 4.5e+01
 Total CPU time (secs)  = 0.05
 CPU time per iteration = 0.00
 termination code       =  0
 DIMACS errors: 2.4e-11  0.0e+00  2.3e-10  0.0e+00  3.1e-08  3.9e-08
-------------------------------------------------------------------
```

```
ans =

   64.3302

Iteration   5   Total error is: 0.078359

 num. of constraints =  9
 dim. of socp   var  = 10,   num. of socp blk  =  1
 dim. of linear var  = 118
*******************************************************************
   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|9.5e-01|3.1e+00|4.3e+04| 1.860144e+03  0.000000e+00| 0:0:00| chol  1↙
1
 1|0.989|0.854|1.0e-02|4.7e-01|8.5e+03| 1.844309e+03 -3.603856e+00| 0:0:00| chol  1↙
1
 2|1.000|0.851|4.9e-07|7.2e-02|2.6e+03| 1.365974e+03 -3.835915e+01| 0:0:00| chol  1↙
1
 3|0.644|0.608|2.4e-07|2.8e-02|1.4e+03| 7.730658e+02 -5.389767e+01| 0:0:00| chol  1↙
1
 4|0.694|0.937|1.5e-07|1.8e-03|5.3e+02| 4.137397e+02 -6.879578e+01| 0:0:00| chol  1↙
1
 5|0.942|0.986|7.5e-09|4.5e-05|2.9e+01|-3.823033e+01 -6.649959e+01| 0:0:00| chol  1↙
1
 6|0.980|0.974|6.0e-09|7.5e-06|7.3e-01|-6.565904e+01 -6.624304e+01| 0:0:00| chol  1↙
1
 7|0.985|0.986|7.9e-09|2.0e-06|3.4e-02|-6.622631e+01 -6.623888e+01| 0:0:00| chol  1↙
1
 8|0.992|0.995|1.8e-09|2.1e-07|2.4e-03|-6.623901e+01 -6.623982e+01| 0:0:00| chol  1↙
1
 9|0.986|0.981|2.3e-10|4.2e-09|1.1e-04|-6.623985e+01 -6.623993e+01| 0:0:00| chol  1↙
1
10|0.995|0.978|2.7e-11|1.4e-10|1.2e-05|-6.623992e+01 -6.623993e+01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 10
 primal objective value = -6.62399209e+01
 dual   objective value = -6.62399323e+01
 gap := trace(XZ)       = 1.23e-05
 relative gap           = 9.25e-08
 actual relative gap    = 8.59e-08
 rel. primal infeas     = 2.68e-11
 rel. dual   infeas     = 1.38e-10
 norm(X), norm(y), norm(Z) = 2.7e+02, 1.0e+02, 9.7e+01
 norm(A), norm(b), norm(C) = 6.9e+00, 3.6e+00, 4.5e+01
 Total CPU time (secs)  = 0.06
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.9e-11  0.0e+00  1.9e-10  0.0e+00  8.6e-08  9.2e-08
-------------------------------------------------------------------
```

```
ans =

   66.2399

Iteration   6   Total error is: 0.078379

 num. of constraints =  9
 dim. of socp   var  = 10,   num. of socp blk  =  1
 dim. of linear var  = 118
*******************************************************************
   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|9.5e-01|3.1e+00|4.4e+04| 1.862544e+03  0.000000e+00| 0:0:00| chol  1↙
1
 1|0.988|0.853|1.2e-02|4.7e-01|8.6e+03| 1.851564e+03 -3.113496e+00| 0:0:00| chol  1↙
1
 2|1.000|0.852|5.0e-07|7.1e-02|2.6e+03| 1.371808e+03 -3.812159e+01| 0:0:00| chol  1↙
1
 3|0.647|0.611|2.4e-07|2.8e-02|1.4e+03| 7.717146e+02 -5.355163e+01| 0:0:00| chol  1↙
1
 4|0.700|0.938|1.5e-07|1.8e-03|5.3e+02| 4.083322e+02 -6.823606e+01| 0:0:00| chol  1↙
1
 5|0.942|0.986|7.3e-09|4.5e-05|2.9e+01|-3.803566e+01 -6.594524e+01| 0:0:00| chol  1↙
1
 6|0.979|0.973|6.2e-09|7.5e-06|7.6e-01|-6.507326e+01 -6.568900e+01| 0:0:00| chol  1↙
1
 7|0.985|0.987|9.3e-09|2.0e-06|3.6e-02|-6.567057e+01 -6.568454e+01| 0:0:00| chol  1↙
1
 8|0.990|0.992|2.3e-09|2.1e-07|2.5e-03|-6.568462e+01 -6.568544e+01| 0:0:00| chol  1↙
1
 9|0.985|0.977|3.2e-10|5.4e-09|1.3e-04|-6.568547e+01 -6.568556e+01| 0:0:00| chol  1↙
1
10|0.980|0.984|9.0e-12|1.5e-10|4.2e-06|-6.568556e+01 -6.568556e+01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 10
 primal objective value = -6.56855577e+01
 dual   objective value = -6.56855611e+01
 gap := trace(XZ)       = 4.25e-06
 relative gap           = 3.21e-08
 actual relative gap    = 2.57e-08
 rel. primal infeas     = 9.02e-12
 rel. dual   infeas     = 1.49e-10
 norm(X), norm(y), norm(Z) = 2.5e+02, 1.0e+02, 9.7e+01
 norm(A), norm(b), norm(C) = 6.9e+00, 3.6e+00, 4.5e+01
 Total CPU time (secs)  = 0.05
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 9.6e-12  0.0e+00  2.1e-10  0.0e+00  2.6e-08  3.2e-08
```

```
------------------------------------------------------------------

ans =

   65.6856

Iteration   7   Total error is: 0.078356

 num. of constraints =  9
 dim. of socp   var  = 10,   num. of socp blk  =  1
 dim. of linear var  = 118
*******************************************************************
   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|9.6e-01|3.1e+00|4.4e+04| 1.882596e+03  0.000000e+00| 0:0:00| chol  1↙
1
 1|0.986|0.853|1.4e-02|4.7e-01|8.7e+03| 1.874913e+03 -2.507612e+00| 0:0:00| chol  1↙
1
 2|1.000|0.853|5.0e-07|7.1e-02|2.6e+03| 1.392506e+03 -3.803683e+01| 0:0:00| chol  1↙
1
 3|0.652|0.615|2.4e-07|2.8e-02|1.4e+03| 7.762785e+02 -5.345543e+01| 0:0:00| chol  1↙
1
 4|0.710|0.938|1.4e-07|1.8e-03|5.2e+02| 4.037589e+02 -6.794091e+01| 0:0:00| chol  1↙
1
 5|0.942|0.986|7.0e-09|4.5e-05|2.9e+01|-3.801946e+01 -6.563275e+01| 0:0:00| chol  1↙
1
 6|0.978|0.972|6.2e-09|7.6e-06|7.9e-01|-6.473575e+01 -6.537452e+01| 0:0:00| chol  1↙
1
 7|0.986|0.988|9.0e-09|2.0e-06|3.8e-02|-6.535382e+01 -6.536952e+01| 0:0:00| chol  1↙
1
 8|0.983|0.990|2.3e-09|2.2e-07|2.7e-03|-6.536943e+01 -6.537037e+01| 0:0:00| chol  1↙
1
 9|0.985|0.975|3.4e-10|5.9e-09|1.5e-04|-6.537038e+01 -6.537049e+01| 0:0:00| chol  1↙
1
10|0.980|0.986|8.0e-12|1.5e-10|4.8e-06|-6.537049e+01 -6.537049e+01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 10
 primal objective value = -6.53704854e+01
 dual   objective value = -6.53704893e+01
 gap := trace(XZ)       = 4.77e-06
 relative gap           = 3.62e-08
 actual relative gap    = 2.92e-08
 rel. primal infeas     = 8.04e-12
 rel. dual   infeas     = 1.55e-10
 norm(X), norm(y), norm(Z) = 2.6e+02, 1.0e+02, 9.7e+01
 norm(A), norm(b), norm(C) = 6.9e+00, 3.6e+00, 4.5e+01
 Total CPU time (secs)  = 0.06
 CPU time per iteration = 0.01
 termination code       =  0
```

```
 DIMACS errors: 8.5e-12  0.0e+00  2.1e-10  0.0e+00  2.9e-08  3.6e-08
------------------------------------------------------------------------

ans =

   65.3705

Iteration   8   Total error is: 0.078347
The total representation error of the testing signals is: 0.37405
>>
```