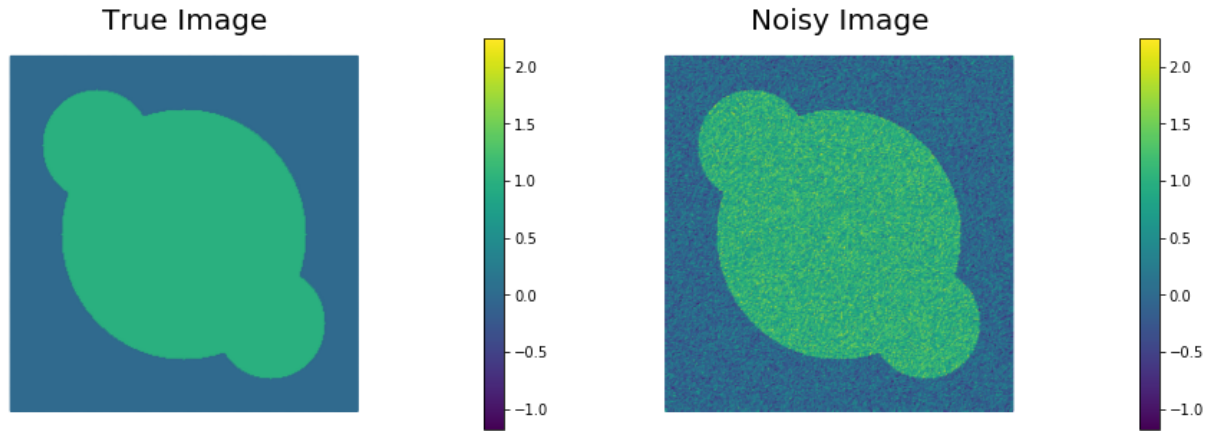Not showing the code to save space... This is simply just changing the nx and ny variables in the original code to 256, and setting $\alpha = 10^{-3}$ and $\beta = 10^{-2}$.

True Image

Noisy Image

```
It          cost          ||g||        (g,m_hat)       alpha_m          tol_cg      cg_it
 0      6.973606e-02    1.312771e-03   -3.484198e-01   1.000000e+00    5.000000e-01      1
 1      2.806234e-02    6.330617e-04   -7.739738e-02   1.000000e+00    5.000000e-01      1
 2      2.574248e-02    4.801157e-04   -4.167117e-03   1.000000e+00    4.794878e-01      1
 3      2.540054e-02    3.292274e-04   -4.803380e-04   1.000000e+00    4.175682e-01      1
 4      2.531315e-02    2.126925e-04   -1.051142e-04   1.000000e+00    3.457821e-01      1
 5      2.528462e-02    1.294037e-04   -3.363246e-05   1.000000e+00    2.779269e-01      1
 6      2.527144e-02    8.277619e-05   -1.609133e-05   1.000000e+00    2.167843e-01      2
 7      2.526596e-02    5.237808e-05   -6.766335e-06   1.000000e+00    1.733833e-01      2
 8      2.526351e-02    3.010859e-05   -3.128623e-06   1.000000e+00    1.379207e-01      3
 9      2.526253e-02    1.705102e-05   -1.240443e-06   1.000000e+00    1.045682e-01      3
10      2.526211e-02    7.723877e-06   -5.885363e-07   1.000000e+00    7.869184e-02      4
11      2.526202e-02    3.196279e-06   -1.238683e-07   1.000000e+00    5.296295e-02      5
12      2.526201e-02    9.984804e-07   -2.588686e-08   1.000000e+00    3.407037e-02      5
13      2.526200e-02    2.575648e-07   -3.258643e-09   1.000000e+00    1.904251e-02      6
14      2.526200e-02    4.774290e-08   -2.523342e-10   1.000000e+00    9.671587e-03      7
15      2.526200e-02    5.902901e-09   -1.158380e-11   1.000000e+00    4.163983e-03      8
16      2.526200e-02    4.785962e-10   -3.146083e-13   1.000000e+00    1.464156e-03      9
Norm of the gradient less than tolerance
Inexact Newton CG converged in  16 nonlinear iterations and  60 linear iterations.
Final norm of the gradient 4.785961950203523e-10
Value of the cost functional 0.02526200355791334
```


alpha = 1.00e-03