Timeline

1. **Finish with simulations**
   Due: 04.09.15

   - As of 04.01.15 I think I'm done with these... The best method has been figured out and it's just doing it via the circle
   - As per meeting with Brian on 04.02.15 I should look into this a bit more – not only should I look at the RMS data, but also the line profiles of them, as this may provide some interesting information about how well each one is doing
     - Brian noted this because the RMS has a tendency to strongly prefer the DC data, so the circle filter may be the most "DC" similar to the fully sampled data.

2. **Figure out parameterization choices for CS**
   Due: 04.09.15 or TBA

   - *The due date for this has been pushed forward because Brian isn't sure if it will be required. Notes will be made at a future time*
   - Understand what each parameter does fully
   - Figure out why I'm getting poor results on the CS
   - Likely a good idea to go through the math again – figure out what is happening in the CS code
   - Spend a day or two porting?
   - Reading MINC files in would be easier
   - More understanding around the lab on how it works
   - However, I'm not as proficient in python...

3. **Simulation for Random US method**

   - The purpose of this is to see how well we can reconstruct an image based on a solid angle of data
   - Brian stated that we will need to be proficient in how we do this and a lot of thought will need to go into it.

4. **Look at different methods of adding in the extra term in the reconstruction**
   Due: 04.29.15

   - Is there anything that can be done to make the reconstruction have this extra term easily?
   - Ideas for forms:
     - $\lambda_3 ||m_j - m_k||_2 (\vec{d_j} \cdot \vec{d_k})^2$
     - $\mathrm{e}^{\frac{-\alpha_{ij}^2}{2\sigma^2}}$

5. **Massage in 3D reconstructions**
   Due: Later...

   - *Brian stated this should be a final step*

- Analyze the 3D wavelet work that can be done in MATLAB
- Need to understand how the p2DFT and XFM classes work in Lustig's code in order to adapt them to work in 3D
- Run reconstructions on full data that has been undersampled
- Keep in mind that the undersampling doesn't occur in the readout direction