Assignment 4: CS 736, Algorithms for Medical Image Processing

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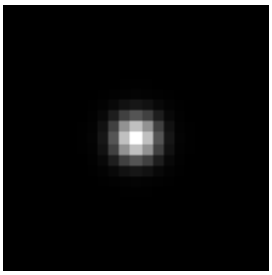
Part (a)

The selected value was $q = 4$.

Part (b)

The neighborhood mask, shown as an image, looks like the following:



Part (c)

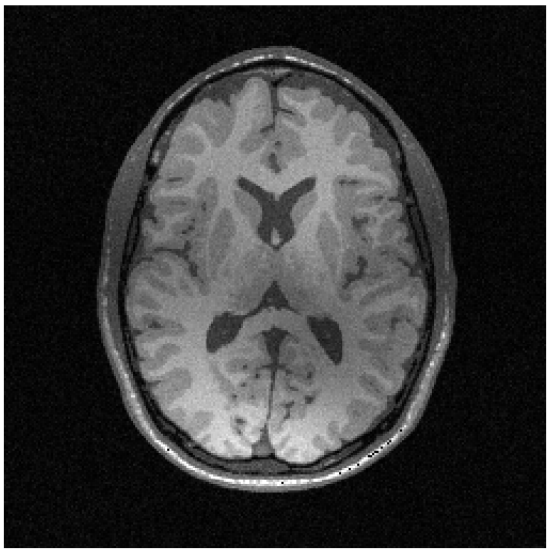
Initial memberships were put to 1/3 for each class for each pixel. This was fixed because it is a natural condition to begin with.

Part (d)

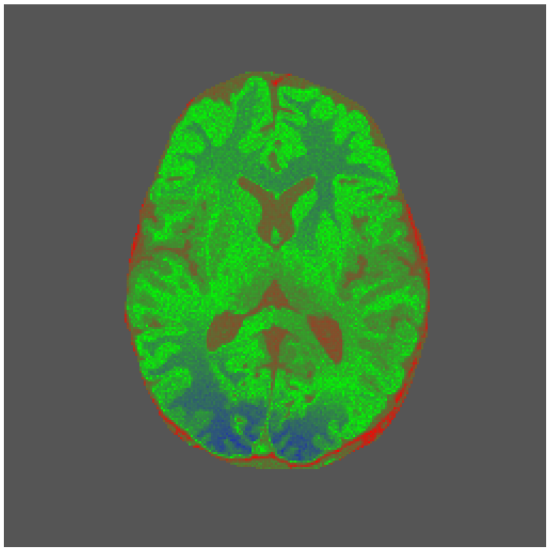
Initial class means were fixed to 0, 0.5 and 1. The reason behind this was to make sure that the initial means were well-separated and covered the entire range of intensities.

Part (f)

Corrupted image:



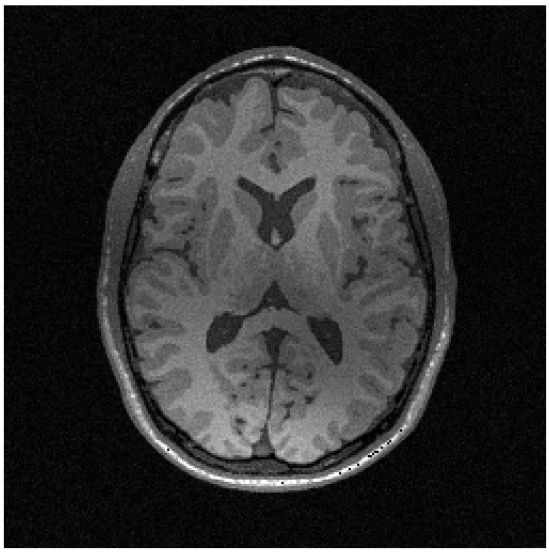
Optimal class-membership image:



Optimal bias-field estimate:

Bias-removed image:

Residual:



Part (g)

Class mean estimates: $[0.3908, 0.4742, 0.4887]$