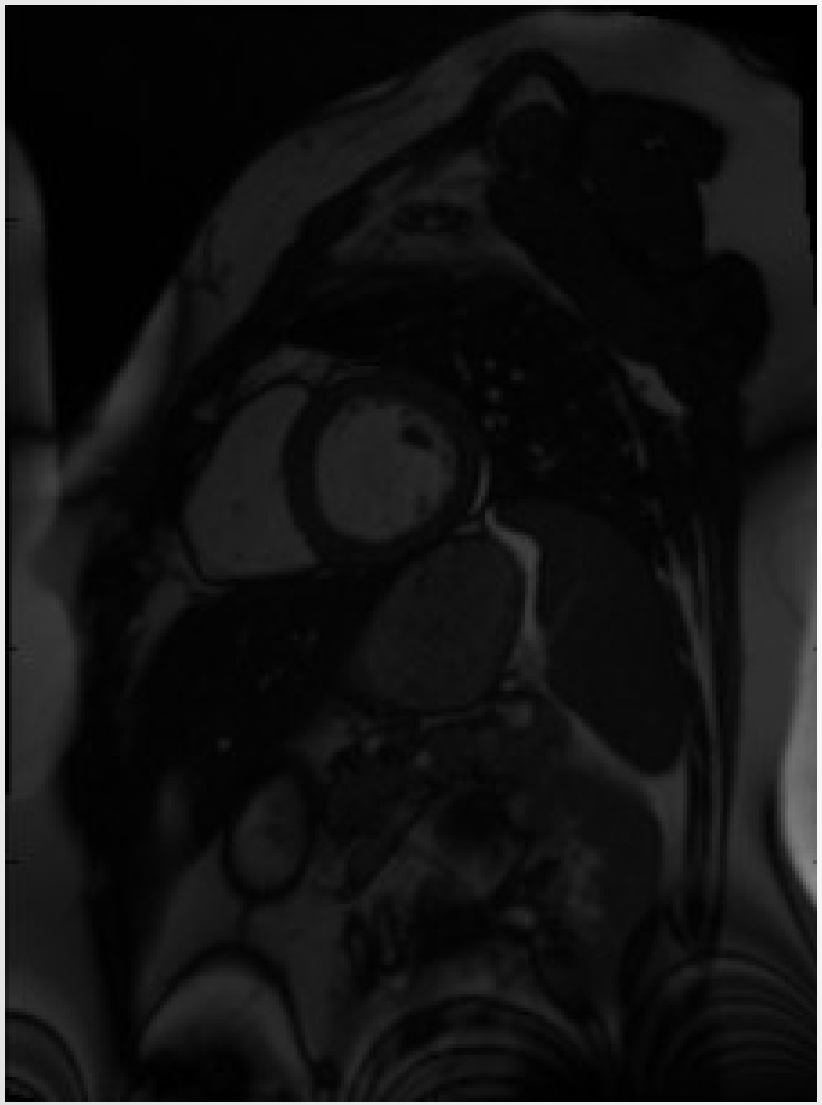
MRI Cardiac Segmentation for the Left Ventricle

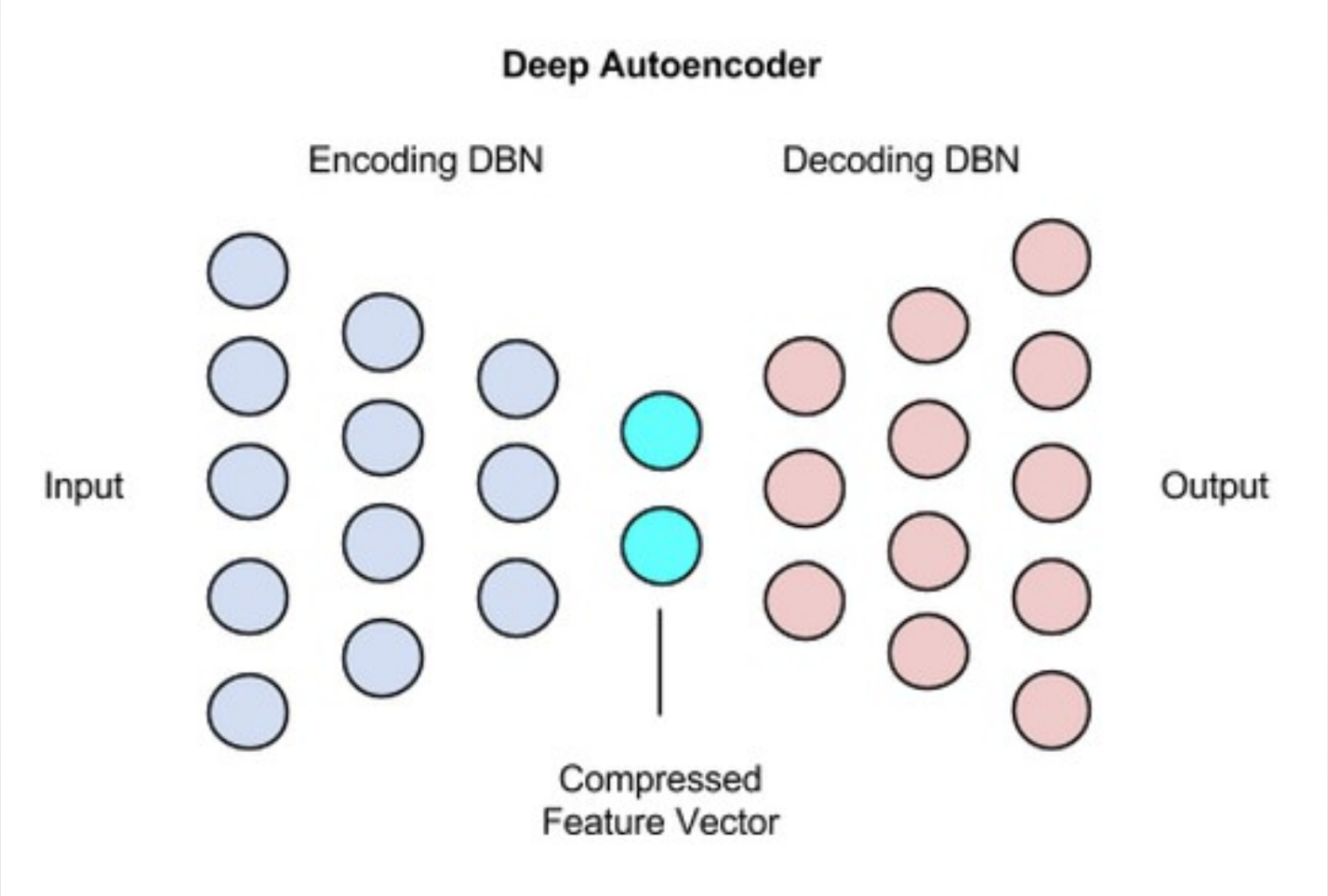


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Week 4

Progress

- Read papers on feature extraction using Stacked Autoencoders and greedy layer-wise training
- Extracted more patches from some patients
- Switched from Keras to Tensorflow to create my own Stacked Autoencoder model
- Trained the new neural network

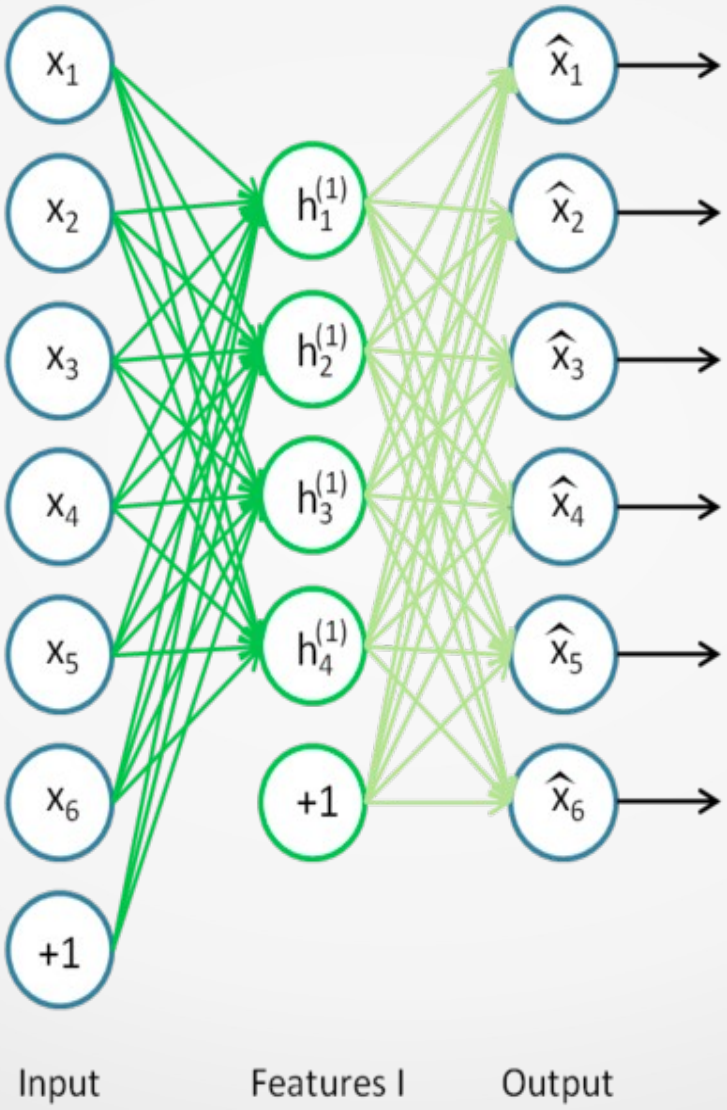
First Autoencoder model



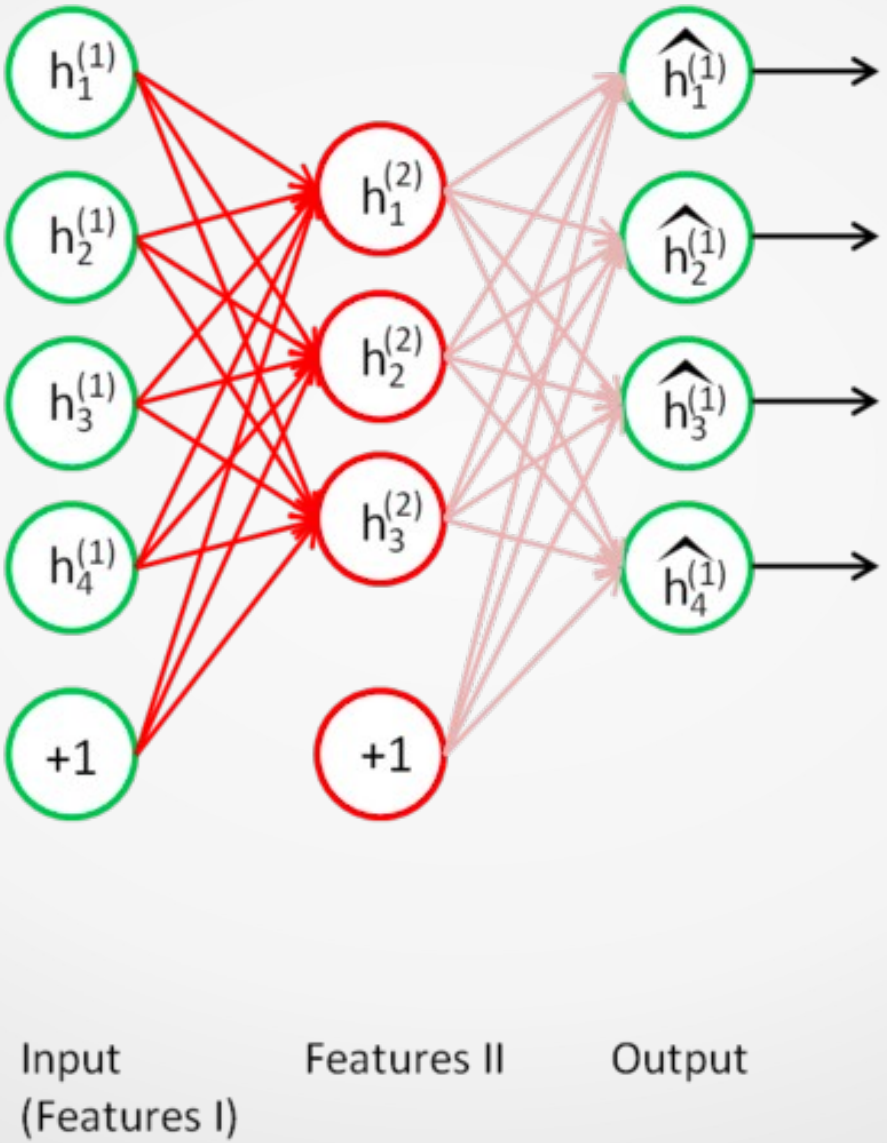
Second Autoencoder model

- Removed the decoding layers of the Autoencoders
- Rather than using 3 hidden layers for features, use 2 (saves time in training)
- Train each layer separately using a separate 1-hidden-layer Autoencoder for each hidden layer
  - 1st Autoencoder learns to reconstruct the input patch
  - 2nd Autoencoder learns to reconstruct the feature output from the 1st Autoencoder's hidden layer

Greedy layer-wise training - Autoencoder



Greedy layer-wise training - Autoencoder



Plan for next week

- Continue to train Autoencoder and play around with parameters to try to get better results
- Extract labeled features from Autoencoder and use them to train Mondrian Forest

References

- http://deeplearning4j.org/img/deep_autoencoder.png
- http://ufldl.stanford.edu/wiki/index.php/Stacked_Autoencoders