CLAIMS

1. A method of generating thin slice images from thick slice images, the method comprising:

receiving a first image having a first resolution at a neural network;

performing a convolution on the first image with the neural network;

performing a non-linear activation function on the first image with the neural network;

repeating the convolution and non-linear activation function;

generating a residual based on the convolution; and

summing the residual and the first image with the neural network to generate a second image having a second resolution, wherein the second resolution is higher than the first resolution, further comprising acquiring the first image from an imaging system.

2. The method of claim 1, wherein the imaging system is a magnetic resonance imaging system.

3. A system for generating thin slice images from thick slices images, the system comprising:

a non-transitory computer readable medium including instructions for implementing a neural network, wherein the neural network comprises a level including a convolution block and a rectified linear unit non-linear activation block, wherein the level is configured to generate a residual from a first image having a first resolution received by the neural network, wherein the neural network is configured to sum the first image and the residual to generate a second image having a second resolution, wherein the second resolution is higher than the first resolution; and

a processor configured to execute the instructions to implement the neural network, further comprising a display configured to display the second image.

4. A system for generating high resolution images from low resolution images, the system comprising:

an image acquisition unit configured to acquire a first image of a feature of interest at a first resolution;

a computing system configured to implement a deep learning system, wherein the deep learning system is configured to receive the first image of the feature of interest and, based at least in part on the first image, generate a second image of the feature of interest at a second resolution, wherein the second resolution is higher than the first resolution; and

a display configured to display the second image of the feature of interest, wherein the image acquisition unit is a magnetic resonance imaging system.