

CLAIMS

What is claimed is:

1. A computing system for processing ultrasound images, the computing system comprising:
 - a communication interface configured to receive an ultrasound image that includes image data representing subdermal tissue;
 - at least one processing circuit configured to:
 - apply a trained neural network to the ultrasound image to generate at least one pliability parameter value which indicates pliability of the subdermal tissue, wherein the trained neural network has been trained with ultrasound images which have been defined as representing healthy subdermal tissue, and have been trained with ultrasound images which have been defined as representing damaged subdermal tissue;
 - apply the trained neural network to the ultrasound image to generate an indication of whether any entrapped nerve is present in the subdermal tissue represented by the ultrasound image; and
 - a display device configured to output the at least one pliability parameter value and the indication of whether any entrapped nerve is present in the subdermal tissue represented by the ultrasound image.
2. The computing system of claim 1, wherein the at least one processing circuit is further configured to apply the trained neural network to the ultrasound image to generate information which indicates one or more regions in the ultrasound image that represents damaged subdermal tissue.
3. The computing system of claim 2, wherein the trained neural network is trained to recognize, from the ultrasound image, clusters of tissue which are more dense than surrounding tissue and which lack a symmetric shape or a laminar structure, and wherein the one or more regions indicated by the information generated by the trained neural network represent at least one cluster of subdermal tissue which is more dense than surrounding subdermal tissue in the ultrasound image and which lacks a symmetric shape or a laminar structure.

4. The computing system of claim 3, wherein the trained neural network is trained to recognize clusters that lack laminar structure by recognizing a lack of distinct layers of different densities the ultrasound image representing the subdermal tissue, or by recognizing non-contiguous lines in the ultrasound image.

5. The computing system of claim 2, wherein the subdermal tissue represented in the ultrasound image includes connective tissue and muscle tissue, and wherein the at least one pliability parameter value includes a first pliability parameter value indicating pliability of the connective tissue, and includes a second pliability parameter value indicating pliability of the muscle tissue.

6. The computing system of claim 5, wherein the at least one pliability parameter value includes a third pliability parameter value which indicates overall pliability of a combination of the connective tissue and the muscle tissue.

7. The computing system of claim 1, wherein the trained neural network is trained with pliability scores that are based on a ratio of how much of subdermal tissue represented in ultrasound images is less dense than a defined density threshold and how much of the subdermal tissue is more dense than the defined density threshold.

8. The computing system of claim 1, wherein the at least one processing circuit is configured to determine tissue density information which indicates how much of the subdermal tissue is less dense than a defined density threshold, and how much of the subdermal tissue is more dense than the defined density threshold.

9. The computing system of claim 8, wherein the at least one processing circuit is configured to determine the tissue density information by determining a tissue density value which indicates an overall density of a connective tissue layer of the subdermal tissue represented by the ultrasound image.

10. The computing system of claim 8, wherein the at least one processing circuit is configured to determine tissue density information by determining a spatial density value which indicates an amount of space occupied by the one or more regions representing

damaged connective tissue within the connective tissue layer, wherein the method further comprises outputting the tissue density value and the spatial density value.

11. A method performed by a computing system, the method comprising:
receiving an ultrasound image that includes image data representing subdermal tissue;
apply a trained neural network to the ultrasound image to generate at least one pliability parameter value which indicates pliability of the subdermal tissue, wherein the trained neural network has been trained with ultrasound images which have been defined as representing healthy subdermal tissue, and have been trained with ultrasound images which have been defined as representing damaged subdermal tissue;
apply the trained neural network to the ultrasound image to generate an indication of whether any entrapped nerve is present in the subdermal tissue represented by the ultrasound image; and
displaying the at least one pliability parameter value and the indication of whether any entrapped nerve is present in the subdermal tissue represented by the ultrasound image.

12. A computing system for processing ultrasound images, the computing system comprising:
a communication interface configured to receive an ultrasound image that includes image data representing subdermal tissue;
at least one processing circuit configured to apply a trained neural network to the ultrasound image to generate at least one pliability parameter value which indicates pliability of the subdermal tissue, wherein the trained neural network has been trained with ultrasound images which have been defined as representing healthy subdermal tissue, and have been trained with ultrasound images which have been defined as representing damaged subdermal tissue; and
a display device configured to output the at least one pliability parameter value.