CLAIMS

1. A computer apparatus to analyze an individual's parametric computed tomography (CT) maps for pathology and generate a prescription comprising:

(a) a non-transitory memory storing one or more parametric maps of an individual, the one or more maps derived from CT scanning;

(b) a program stored in the non-transitory memory and operatively configured to analyze the one or more parametric maps for a presence of pathology; and

(c) a computer processor in communication with the non-transitory memory and configured to perform the program by executing computer executable instructions, wherein the program is operatively configured to automatically generate a prescription based at least in part on the analysis of the presence of the pathology in one or more parametric maps.

2. The computer apparatus of claim 1, wherein the one or more parametric maps is derived from a CT employing one or more of the following:

(a) dual energy computed tomography (DECT) technique;

(b) one or more convolution kernels utilized for CT reconstruction;

(c) administration of a CT contrast agent; or

(d) combinations thereof.

3. The computer apparatus of claim 1, wherein the one or more parametric maps is derived at least in part from a dual energy computed tomography (DECT) acquisition selected from a list consisting of:

(a) material decomposition;

(b) weighted average simulating single energy spectra; and

(c) combinations thereof.

4. The computer apparatus of claim 3 wherein the DECT acquisition includes a material decomposition and includes mapping or removal of at least one of the following:

(i) iodine;

(ii) calcium;

(iii) fat; or

(iv) combinations thereof.

5. The computer apparatus of claim 1, wherein the one or more parametric maps includes a contrast enhanced CT.

6. The computer apparatus of claim 5, wherein the contrast enhancement includes a perfusion related parameter.

7. The computer apparatus of claim 1, wherein the one or more parametric maps is derived from one or more convolution kernels utilized for CT reconstruction and the CT convolution kernels are selected from a list consisting of:

(b) low pass;

(c) high pass;

(d) intermediate;

(e) hybrid convolution (HCK), wherein two or more kernels are selectively applied based in part on tissue attenuation; and

(f) combinations thereof.

8. The computer apparatus of claim 1, wherein the analysis includes a search for at least one pathology selected from a list consisting of:

(a) fractures;

(b) osteoporosis;

(c) metastatic disease;

(d) degenerative disease;

(e) stroke;

(f) infarcts; and

(g) combinations thereof.

9. The computer apparatus of claim 1, wherein the automatically generated prescription directs one or more of the following:

a) further imaging;

b) therapy;

c) a notification;

d) a report;

e) labeling a region of the one more images to indicate the presence of pathology.

10. A computer system configured to analyze an individual's computed tomography (CT) or magnetic resonance (MRI) images for pathology and generate a prescription, the computer system comprising:

one or more processors; and

one or more hardware storage devices having stored thereon computer-executable instructions which are executable by the one or more processors to cause the computer system to at least:

(a) receive CT or MRI images of an individual;

(b) derive one or more parametric maps from the images;

(c) analyze one or more of the derived parametric maps for a presence of pathology; and

(d) automatically generate an output based at least in part on the analysis of the presence of the pathology in the one or more derived parametric maps, wherein the output is selected from the group consisting of (i) directions for further imaging; (ii) directions for therapy; (iii) a notification; (iv) a report; and

(v) one or more images with a region labeled to indicate the presence of the pathology.

11. The computer system of claim 10, wherein at least a portion of the CT images received are contrast enhanced images associated with the administration of a contrast agent and the parametric map is derived at least in part based on CT attenuation changes reflecting administration of the contrast agent.

12. The computer apparatus of claim 10, wherein the one or more parametric maps includes a contrast enhanced CT.

13. The computer apparatus of claim 12, wherein the contrast enhancement includes a perfusion related parameter.

14. The computer apparatus of claim 10, wherein the one or more parametric maps is derived at least in part from a dual energy computed tomography (DECT) acquisition selected from a list consisting of:

(a) material decomposition;

(b) weighted average simulating single energy spectra; and

(c) combinations thereof.

15. The computer apparatus of claim 14 wherein the DECT acquisition includes a material decomposition and includes mapping or removal of at least one of the following:

(i) iodine;

(ii) calcium;

(iii) fat; or

(iv) combinations thereof.

16. The computer apparatus of claim 10, wherein the analysis includes a search for at least one pathology selected from a list consisting of:

(a) fractures;

(b) osteoporosis;

(c) malignancy;

(d) degenerative disease;

(e) stroke;

(f) infarcts; and

(g) combinations thereof.

17. The computer apparatus of claim 10, wherein the output is one or more images with a region labeled to indicate the presence of the pathology.

18. A computer apparatus to analyze parametric maps for pathology and automatically generate an output comprising:

a) a non-transitory memory storing one or more parametric imaging maps derived from computed tomography ("CT") or magnetic resonance imaging ("MRI") scans of one or more individuals;

b) a program stored in the non-transitory memory and operatively configured to analyze at least one of the parametric imaging maps for a presence of pathology; and

c) a computer processor in communication with the non-transitory memory and configured to perform the program by executing computer executable instructions, wherein the program is operatively configured to automatically generate an action based at least in part on the analysis of the presence of the pathology in the one or more maps, wherein the output is selected from the group consisting of (i) directions for further imaging; (ii) directions for therapy; (iii) a notification; (iv) a report; and (v) one or more images with a region labeled to indicate the presence of the pathology.

19. The computer apparatus of claim 18, wherein the output is one or more images with a region labeled to indicate the presence of the pathology.

20. The computer system of claim 18, wherein the parametric imaging maps comprise multi-parametric maps and at least a portion of the multiparametric maps are associated with the administration of a contrast agent.

21. A computer apparatus to analyze a patient's magnetic resonance (“MR”) or computed tomography (“CT”) images for the presence of pathology and generate a prescription comprising:

(a) a non-transitory memory configured to receive one or more images derived from a CT or MR scan of a patient,

(b) a program stored in the non-transitory memory and operatively configured to analyze the one or more images for a presence of a pathology; and

(c) a computer processor in communication with the non-transitory memory and configured to perform the program by executing computer executable instructions, wherein the program is operatively configured to automatically generate a prescription based at least in part on the analysis of the presence of the pathology.

22. The computer apparatus of claim 21, wherein the analysis includes a search for at least one pathology selected from a list consisting of:

(a) fractures;

(b) osteoporosis;

(c) malignancy, including metastatic disease;

(d) degenerative disease;

(e) stroke;

(f) infarcts; and

(g) combinations thereof.

22. The computer apparatus of claim 21, wherein the automatically generated prescription directs one or more of the following:

a) further imaging;

b) therapy;

c) a notification;

d) a report; or

e) labeling of the identified pathology in one or more images.