

What is claimed is:

1. A computer-implemented method for identifying a diagnostic feature of a digitized pathology image, the method comprising:

receiving one or more digitized images of a pathology specimen, and medical metadata comprising at least one of image metadata, specimen metadata, clinical information, and/or patient information;

applying a machine learning model to predict a plurality of relevant diagnostic features based on medical metadata, the machine learning model having been developed using an archive of processed images and prospective patient data; and

determining at least one relevant diagnostic feature of the relevant diagnostic features for output to a display.

2. The computer-implemented method of claim 1, wherein the determining at least one relevant diagnostic feature further comprises:

determining a probability of diagnostic relevance for each of the plurality of relevant diagnostic features; and

determining a highest probability among the plurality of relevant diagnostic features for output to the display.

3. The computer-implemented method of claim 1, wherein the determining at least one relevant diagnostic feature further comprises:

determining at least one probability of diagnostic relevance that exceeds a predetermined value among the plurality of relevant diagnostic features for output to the display.

4. The computer-implemented method of claim 1, wherein the determining at least one relevant diagnostic feature further comprises:

determining a predetermined number of highest probabilities of diagnostic relevance among the plurality of relevant diagnostic features for output to the display.

5. The computer-implemented method of claim 1, further comprising:
determining a ranking of probabilities of diagnostic relevance of each of the plurality of relevant diagnostic features;

automatically focusing the display on each of the relevant diagnostic features in order based upon the determining of the ranking of probabilities of diagnostic relevance; and

receiving a user input to modify a focus of the display from a first relevant diagnostic feature to a second relevant diagnostic feature.

6. The computer-implemented method of claim 1, wherein at least one field of interest is indicated on a digitized pathology image.

7. The computer-implemented method of claim 6, wherein the at least one field of interest is indicated by an outline, a set of crosshairs, or a text descriptor.

8. The computer-implemented method of claim 1, wherein the method further comprises storing a collection of data into a digital storage device.

9. The computer-implemented method of claim 1, wherein the method further comprises generating a probability for biomarkers, cancer, and/or histological features on all points of a whole slide image.

10. The computer-implemented method of claim 1, wherein the method further comprises generating a binary output to indicate whether or not a target feature is present in a selected region.

11. The computer-implemented method of claim 10, wherein the method further comprises identifying a set of relevant areas where the target feature is present in a whole slide image.

12. The computer-implemented method of claim 11, wherein the method further comprises computing an overall score for each target feature.

13. A system for identifying a diagnostic feature of a digitized pathology image, the system comprising:

at least one memory storing instructions; and

at least one processor configured to execute the instructions to perform operations comprising:

receiving one or more digitized images of a pathology specimen, and medical metadata comprising at least one of image metadata, specimen metadata, clinical information and/or patient information;

applying a machine learning model to predict a plurality of relevant diagnostic features based on medical metadata, the machine learning model having been developed using an archive of processed images and prospective patient data; and

determining at least one relevant diagnostic feature of the relevant diagnostic features for output to a display.

14. The system of claim 13, wherein the determining at least one relevant diagnostic feature further comprises:

determining a probability of diagnostic relevance for each of the plurality of relevant diagnostic features; and

determining a highest probability among the plurality of relevant diagnostic features for output to the display.

15. The system of claim 13, wherein the determining of at least one relevant diagnostic feature further comprises:

determining at least one probability of diagnostic relevance that exceeds a predetermined value among the plurality of relevant diagnostic features for output to the display.

16. The system of claim 13, wherein the determining at least one relevant feature further comprises:

determining a predetermined number of highest probabilities of diagnostic relevance among the plurality of relevant diagnostic features for output to the display.

17. The system of claim 13, further comprising:

determining a ranking of probabilities of diagnostic relevance of each of the plurality of relevant diagnostic features;

automatically focusing the display on each of the relevant diagnostic features in order based upon the determining of the ranking of probabilities of diagnostic relevance; and

receiving a user input to modify a focus of the display from a first relevant diagnostic feature to a second relevant diagnostic feature..

18. The system of claim 13, wherein at least one field of interest is indicated on a digitized pathology image.

19. The system of claim 13, wherein the at least one field of interest is indicated by an outline, a set of crosshairs, or a text descriptor.

20. A non-transitory computer-readable medium storing instructions that, when executed by a processor to perform a method for identifying a diagnostic feature of a digitized pathology image, the method comprising:

at least one memory storing instructions; and

at least one processor configured to execute the instructions to perform operations comprising:

receiving one or more digitized images of a pathology specimen, and medical metadata comprising at least one of image metadata, specimen metadata, clinical information and/or patient information;

applying a machine learning model to predict a plurality of relevant diagnostic features based on medical metadata, the machine learning model having been developed using an archive of processed images and prospective patient data; and

determining at least one relevant diagnostic feature of the relevant
diagnostic features for output to a display.