What is claimed is:

1. An automated slide imaging system, comprising:

an imager configured for acquiring images of a specimen affixed to a surface of a slide, the specimen comprising a plurality of objects distributed within a three-dimensional volume, and for generating a whole specimen image from the acquired images,

wherein the objects are depicted in focus in the whole specimen image regardless of individual locations of the respective objects within the three-dimensional volume.

2. The imaging system of claim 1, the three-dimensional specimen volume has a length, a width and a thickness, the thickness defining a z-axis relative to the slide surface, wherein respective objects of the specimen are located at differing locations along the z-axis.

3. The imaging system of claim 2, wherein the acquired images include a macro image of the specimen, and a plurality of micro images of the specimen.

4. The imaging system of claim 3, wherein the macro image includes one or more fiducial markers located on the slide surface, and wherein the imager is configured to determine a relative location and boundaries of the specimen on the slide surface based at least in part on the one or more fiducial markers.

5. The imaging system of claim 4, wherein the imager is configured to acquire the micro images based at least in part on the relative location and boundaries of the specimen on the slide surface determined from the macro image.

6. The imaging system of claim 4 or 5, wherein the imager comprises

a first imaging platform configured for seating the slide, and a first camera configured to acquire the macro image when the slide is seated on the first imaging platform, and

a second imaging platform configured for seating the slide, and a second camera configured to acquire the micro images of a specimen affixed to a slide seated on the second imaging platform.

7. The imaging system of claim 6, wherein the imager is configured to automatically move at least one of the second camera and second imaging platform relative to the other for acquiring the micro images.

8. The imaging system of claim 6 or 7, wherein an optical axis of the second camera forms a non-orthogonal angle with the second imaging platform.

9. The imaging system of any of claims 6-8, wherein the imager is configured to acquire the micro images of the specimen at a same z-axis of the three-dimensional specimen volume.

10. The imaging system of any of claims 6-9, the slide having a thickness, wherein the micro images each includes at least a portion of the slide underlying the surface.

11. The imaging system of any of claims 6-10, wherein the specimen is covered with a coverslip that is sufficiently transparent to acquire the micro images of the specimen through the coverslip, the coverslip having a thickness, wherein the micro images each includes at least a portion of a depth of the coverslip.

12. The imaging system of any of claims 6-11, the slide having a width defining an x-axis, and a length defining a y-axis, wherein the imager is configured to translate the slide along the y-axis relative to the second camera as the second camera acquires the micro images at respective y-axis locations, each micro image including an entire x-axis width of the specimen based on the determined specimen boundaries on the slide surface.

13. The imaging system of any of claims 6-12, the imager comprising

one or more slide holder receptacles, each slide holder receptacle configured to receive a slide holder comprising a plurality of slots, each slot configured to hold an individual slide, the imager, and

a robotic arm assembly configured to

engage and remove the slide from a slot of a slide holder in the slide holder receptacle,

transport and seat the slide on the first imaging platform for acquisition of the macro image,

re-engage and remove the slide from the first imaging platform,

transport and seat the slide on the second imaging platform for acquisition of the micro images, and

re-engage and remove the slide from the second imaging platform.

14. The imaging system of claim 13, wherein the robotic arm assembly is further configured to

transport the slide to a same or a different slide holder from which the slide was removed, and

release the slide into a slot of the respective same or different slide holder.

15. The imaging system of claim 14, wherein the slot of the respective same or different slide holder is the same slot from which the slide was removed by the robotic arm assembly.

16. The imaging system of any of claims 6-15, the imager further comprising an image processor configured to generate the whole specimen image from the micro images, wherein the image processor determines a respective best focus image for individual objects in the micro images, and wherein the best focus images of the objects are incorporated into the whole specimen image.

17. The imaging system of claim 16, wherein the image processor is configured to identify objects of interest in the specimen, and to store images of said identified objects of interest with the whole specimen image.

18. The imaging system of any of claims 3-17, wherein the macro image of the specimen includes an image of a bar code on the slide surface, and wherein the imager is configured to obtain information regarding the specimen from the bar code.

19. The imaging system of any of claims 1-18, wherein the specimen is a cytological cellular specimen and the objects are cells.

20. The imaging system of any of claims 1-18, wherein the specimen is a pathologic tissue specimen and the objects are tissue structures.

~~21. The imaging system of any of claims 1-20,~~ further comprising a review station including a display monitor, a user interface, and a processor operatively coupled with the respective display monitor and user interface, wherein the processor is configured to display the whole specimen image on the display monitor along with separate images of individual objects within the specimen image~~.~~.

~~22. An automated slide imaging system, comprising:~~

~~an imager configured for acquiring images of a specimen affixed to a surface of a slide, the specimen comprising a plurality of objects distributed within a three-dimensional volume having a length, a width and a thickness, the thickness defining a z-axis relative to the slide surface, wherein respective objects of the specimen are located at differing locations along the z-axis; and~~

~~an image processor configured for generating a whole specimen image from the acquired images, wherein the image processor determines a respective best focus image for individual objects in the acquired images, and wherein the best focus images of the objects are incorporated into the whole specimen image such that the objects are depicted in focus in the whole specimen image regardless of individual z-axis locations of the respective objects within the three-dimensional volume.~~

~~23. The imaging system of claim 22, wherein the acquired images include a macro image of the specimen, and a plurality of micro images of the specimen, wherein the macro image includes one or more fiducial markers located on the slide surface, and wherein the imager is configured to determine a relative location and boundaries of the specimen on the slide surface based at least in part on the one or more fiducial markers, wherein the imager is configured to acquire the micro images based at least in part on the relative location and boundaries of the specimen on the slide surface determined from the macro image.~~

~~24. The imaging system of claim 22 or 23, wherein the imager comprises~~

~~a first imaging platform configured for seating the slide, and a first camera configured to acquire the macro image when the slide is seated on the first imaging platform, and~~

a second imaging platform configured for seating the slide, and a second camera configured to acquire the micro images of a specimen affixed to a slide is seated on the second imaging platform,

wherein the imager is configured to automatically move at least one of the second camera and second imaging platform relative to the other for acquiring the micro images,

wherein an optical axis of the second camera forms a non-orthogonal angle with the second imaging platform, and

wherein the imager is configured to acquire the micro images of the specimen at a same z-axis of the three-dimensional volume.

25. The imaging system of claim 24, the slide having a width defining an x-axis, and a length defining a y-axis, wherein the imager is configured to translate the slide along the y-axis relative to the second camera as the second camera acquires the micro images at respective y-axis locations, each micro image including an entire x-axis width of the specimen based on the determined specimen boundaries on the slide surface.

26. The imaging system of any of claims 22-25, wherein the image processor is configured to identify objects of interest in the specimen, and to store images of said identified objects of interest with the whole specimen image.

27. The imaging system of claim 26, wherein the specimen is a cytological cellular specimen and the objects are cells.

28. The imaging system of claim 26, wherein the specimen is a pathologic tissue specimen and the objects are tissue structures.

29. The imaging system of any of claims 24-28, further comprising a review station including a display monitor, a user interface, and a processor operatively coupled with the respective display monitor and user interface, wherein the processor is configured to display the whole specimen image on the display monitor along with separate images of individual objects within the specimen image.

30. An automated slide imaging system, comprising:

means for acquiring images of a specimen affixed to a surface of a slide, the specimen comprising a plurality of objects distributed within a three-dimensional volume having a length, a width and a thickness, the thickness defining a z-axis relative to the slide surface, wherein respective objects of the specimen are located at differing locations along the z-axis,

means for generating a whole specimen image from the acquired images, wherein the image processor determines a respective best focus image for individual objects in the acquired images, and wherein the best focus images of the objects are incorporated into the whole specimen image such that the objects are depicted in focus in the whole specimen image regardless of individual z-axis locations of the respective objects within the three-dimensional volume.

31. A method of generating a whole specimen image of a specimen affixed to a surface of a slide, the specimen comprising a plurality of objects distributed within a three-dimensional volume, the method comprising:

acquiring a macro image of the specimen;

acquiring a plurality of micro images of the specimen based at least in part on the macro image; and

generating the whole specimen image by processing the micro images using an image processor, wherein the objects are depicted substantially in focus in the whole specimen image regardless of individual locations of the respective objects within the three-dimensional volume.

32. The method of claim 31, the three-dimensional volume has a length, a width and a thickness, the thickness defining a z-axis relative to the slide surface, wherein respective objects of the specimen are located at differing locations along the z-axis.

33. The method of claim 31 or 32, wherein the macro image is acquired using a first camera, and the micro images are acquired using a second camera.

34. The method of claim 33, wherein at least one of the second camera and slide are automatically moved relative to the other when acquiring the micro images.

35. The method of claim 33 or 34, further comprising acquiring the micro images while an optical axis of the second camera forms a non-orthogonal angle with the slide.

36. The method of any of claims 31-35, further comprising acquiring the micro images at a same z-axis of the three-dimensional volume.

37. The method of any of claims 31-36, wherein generating the whole specimen image by processing the micro images using an image processor comprises

determining a respective best focus image for individual objects in the micro images, and

incorporating the respective best focus images of the objects into the whole specimen image.

38. The method of any of claims 31-37, wherein the macro image includes one or more fiducial markers located on the slide surface, the method further comprising determining a relative location and boundaries of the specimen on the slide surface based at least in part on the one or more fiducial markers.

39. The method of claim 38, wherein the micro images are acquired based at least in part on the relative location and boundaries of the specimen on the slide surface determined from the macro image.

40. The method of claim 39, the slide having a width defining an x-axis, and a length defining a y-axis, wherein acquiring the micro images comprises translating the slide along the y-axis relative to the second camera as the second camera acquires the micro images at respective y-axis locations, each micro image including an entire x-axis width of the specimen based on the determined specimen boundaries on the slide surface.

41. The method of any of claims 31-40, further comprising

identifying objects of interest in the specimen, and

storing images of said identified objects of interest with the whole specimen image.

42. The method of any of claims 31-41, wherein the specimen is a cytological cellular specimen and the objects are cells.

43. The method of any of claims 31-41, wherein the specimen is a pathologic tissue sample and the objects are tissue structures.

44. The method of any of claims 31-43, further comprising reviewing the whole specimen image including images of individual objects therein using a computer-controlled review station including a display and a user interface.

45. A system for reviewing a whole specimen image, the whole specimen image comprising plurality of objects depicted in focus regardless of individual locations of the respective objects within an original three-dimensional specimen volume from which the whole specimen image was obtained, the system comprising

a review station including a display monitor, a user interface, and a processor operatively coupled with the respective display monitor and user interface, wherein the processor is configured to display the whole specimen image on the display monitor along with separate images of individual objects within the specimen image.

46. The system of claim 45, wherein the specimen is a cytological cellular specimen and the objects are cells.

47. The system of claim 45, wherein the specimen is a pathologic tissue sample and the objects are tissue structures.

48. The system of any of claims 21 and 45-47, wherein the system is configured to allow the system user to choose the whole specimen image from a listing of stored whole specimen images using the user interface.

49. The system of any of claims 21 and 45-48, wherein the system is configured to allow a system user to finally characterize or otherwise forward the whole specimen image for secondary review using the user interface.

50. The system of claim 49, wherein the listing of stored whole specimen images that have not yet been finally characterized or otherwise forwarded for secondary review may be

~~organized and displayed in a plurality of differing formats based on input received through the user interface.~~

~~51. The system of claim 49, wherein the system is configured to allow an authorized third party to populate, in whole or part, the listing of stored whole specimen images for a particular system user to review.~~

~~52. The system of any of claims 21 and 48-51, wherein the system is configured to allow annotations to be added by a system user to the whole specimen image and/or a data file associated with a whole specimen image, wherein the annotations are available to subsequent system users to review along with the whole specimen image.~~

~~53. The system of claim 52, wherein the annotations are associated with individual objects in the whole specimen image.~~

~~54. The system of claim 52 or 53, wherein the annotations may be in the form of electronic markings made on the whole specimen image or on images of a portion of the whole specimen image.~~

~~55. The system of any of claims 21 and 45-54, wherein in response to a system user prompt associated with a respective object in the whole specimen image, the system is configured to display one or more additional objects that share one or more characteristics with the respective object.~~

~~56. The system of claim 55, wherein the one or more additional objects are from the whole specimen image.~~

~~57. The system of claim 55, wherein the one or more additional objects are from a library containing previously classified objects.~~

58. The system of any of claims 21 and 45-57, wherein the system is configured to allow data regarding the whole specimen image or individual objects therein to be input through the user interface and stored in a data file associated with the whole specimen image.

59. The system of any of claims 21 and 45-58, wherein the system is configured to display a magnified view of at least a portion of the whole specimen image, and to automatically scan said displayed at least a portion of the whole specimen image.

60. The system of claim 59, wherein the system automatically scans in a scanning pattern selected from the group consisting of a serpentine pattern, a row by row pattern, and a column by column pattern.

61. The system of any of claims 59 or 60, wherein the system is configured to allow a system user, via the user interface, to set a magnification level at which the system displays said scanned at least portion of the whole specimen image.

62. The system of any of claims 59-61, wherein the system is configured to allow a system user, via the user interface, to stop and start the scanning at a displayed location of the scan.

63. The system of any of claims 59-62, wherein the system is configured to allow a system user, via the user interface, to set a speed of the scanning.

64. The system of any of claims 59-63, wherein the system is configured to allow a system user to pause the scanning at each object as the respective objects are displayed during the scanning.

65. The system of any of claims 21 and 45-64, wherein the system is configured to display a review screen on the display monitor, the review screen including a main image panel in which whole specimen image is displayed, and an object panel in which separate images of individual objects within the specimen image are displayed.

~~66. The system of claim 65, wherein the system is configured to allow a system user, via the user interface, to zoom in/out and/or pan around the whole specimen image within the main image panel.~~

~~67. The system of any of claims 65 of 66, wherein the system is configured to display an area of the whole specimen image containing a respective object within the main image panel upon a system user selecting, via the user interface, a separate image of the object in the object panel.~~

~~68. The system of any of claims 65-67,~~ wherein the system is configured to allow a system user to select, via the user interface, an object in the displayed whole specimen image, wherein the system displays an image of the selected object in a system user selected image panel.