**CLAIMS**

1. A polishing apparatus, comprising:

a polishing station;

a carrier head to hold a substrate in contact with a polishing pad at the polishing station, the carrier head including a retaining ring;

a camera positioned to capture an image of a lower surface of the retaining ring when the carrier head moves away from the polishing pad; and

a controller configured to perform an image processing algorithm generated by training a machine learning system with images of normal and “defective” consumable parts on the image to determine whether the retaining ring is damaged, the image processing algorithm being implemented as a generic neural network, wherein the training is performed by operating in a backpropagation mode.

2. The polishing apparatus of claim 1, wherein the image processing algorithm comprises a trained machine learning algorithm.

3. The polishing apparatus of claim 1, comprising a transfer mechanism to load and/or unload the substrate from the carrier head, wherein the carrier head is movable between the polishing station and a load cup, and wherein the camera is positioned to capture the image of the lower surface of the retaining ring at a position between the polishing station and the load cup.

4. The polishing apparatus of claim 1, wherein the camera has a field of view that captures an entirety the lower surface of the retaining ring in a single image.

5. The polishing apparatus of claim 1, wherein the camera is configured to take multiple images of the lower surface of the retaining ring as the carrier head moves.

6. The polishing apparatus of claim 5, wherein the controller is configured to stich the multiple images into a single image that captures an entirety the lower surface of the retaining ring.

7. The polishing apparatus of claim 1, wherein the controller is configured to generate an alert to an operator if the controller detects that the retaining ring is damaged.

8. A polishing apparatus, comprising:

a polishing station;

a carrier head to hold a substrate in contact with a polishing pad at the polishing station;

a conditioner head to hold a conditioner disk in contact with the polishing pad,

a camera positioned to capture an image of a lower surface of the conditioner disk when the conditioner head moves away from the polishing pad;

a conditioner rinse station, wherein the conditioner head is movable between the polishing station and the rinse station, and the camera is positioned to capture the image of the lower surface of the conditioner disk when the conditioner disk is positioned between the polishing station and the rinse station; and

a controller configured to perform an image processing algorithm on the image to determine whether the conditioner disk is damaged.

9. The polishing apparatus of claim 8, wherein the image processing algorithm comprises a trained machine learning algorithm.

10. The polishing apparatus of claim 8, wherein the camera has a field of view that captures an entirety the lower surface of the conditioner disk in a single image.

11. The polishing apparatus of claim 8, wherein the camera is configured to take multiple images of the lower surface of the conditioner disk as the conditioner head moves.

12. The polishing apparatus of claim 11, wherein the controller is configured to stich the multiple images into a single image that captures an entirety the lower surface of the conditioner disk.

13. The polishing apparatus of claim 8, wherein the controller is configured to generate an alert to an operator if the controller detects that the conditioner disk is damaged.