CLAIMS

1. A head-mounted display testing system comprising:

a mount configured to receive a head-mounted display, wherein the head-mounted display comprises a display screen;

at least one camera coupled to the mount and positioned to capture the display screen when the head-mounted display is on the mount;

an actuator coupled to the mount;

an actuator controller configured to drive motion of the actuator to cause the mount to simulate motion of a ride according to a motion pattern;

a feature associated with the head-mounted display and positioned in a field of view of the at least one camera when the head-mounted display is on the mount; and

a controller configured to:

receive captured images of the display screen of the head-mounted display from the at least one camera;

identify deviations from an expected display on the display screen based on the captured images; and

determine that the head-mounted display is secured to the mount based on identification of a presence of the feature in the captured images.

2. The system of claim 1, comprising the head-mounted display, wherein the display screen comprises a left eye display screen and a right eye display screen.

3. The system of claim 2, wherein the at least one camera comprises a left eye camera positioned to capture the left eye display screen and a right eye camera positioned to capture the right eye display screen.

4. The system of claim 1, wherein the mount comprises a humanoid mannequin head.

5. The system of claim 1, comprising a cable coupled to the head-mounted display at one end and to a fixed structure at another end.

6. The system of claim 1, wherein the controller is configured to generate an indication of a display quality of the head-mounted display based upon the deviations from the expected display on the display screen.

7. The system of claim 6, wherein the controller is configured to generate a notification when a change in the display quality is detected.

8. The system of claim 1, wherein the controller uses an image recognition algorithm and comparison of the captured images to reference images to identify deviations from the expected display.

9. The system of claim 1, comprising a robotic arm configured to move the mount according to the motion pattern.

10. The system of claim 1, wherein the actuator controller is configured to select the motion pattern from a plurality of motion patterns.

11. The system of claim 1, wherein the feature comprises a marker positioned on the head-mounted display.

12. The system of claim 11, wherein the marker comprises a sticker, a printed marker, a fiducial marker, or any combination thereof.

13. A method of testing head-mounted displays comprising:

receiving an indication that head-mounted display is on ride motion simulator;

controlling the ride motion simulator to move according to a ride motion pattern;

capturing data from a display screen on the head-mounted display using at least one camera of the ride motion simulator during movement in the ride motion pattern;

identifying deviations from an expected display on the display screen based on the data captured by the at least one camera; and

generating a time of failure for the head-mounted display in response to identifying the deviations, wherein the time of failure is determined based on a number of repeated cycles of the ride motion pattern executed by the ride motion simulator an indication of head-mounted display quality based on the identified deviations.

14. The method of claim 13, comprising, generating a notification that the head-mounted display quality has changed based on the identified deviations.

15. The method of claim 13, comprising, generating a notification that the head-mounted display is improperly mounted based on a marker on the head-mounted display not being indicated by the data.

16. The method of claim 13, comprising comparing the data to reference image data to identify deviations from the expected display, wherein the reference image data is also provided to the head-mounted display to be displayed as associated imagery on the display screen.

17. The method of claim 16, wherein identifying deviations from the expected display on the display screen based on the data captured by the at least one camera comprises generating an image similarity value for one or more image frames in the data.

18. The method of claim 13, wherein the indication of the head-mounted display quality is associated with a malfunctional operating state of the head-mounted display and comprises controlling the ride motion simulator to stop moving upon identification of the malfunctional operating state.

19. The method of claim 13, wherein the data captured by the at least one camera comprises a marker positioned on the head-mounted display.

20. The method of claim 19, wherein the marker comprises a sticker, a printed marker, a fiducial marker, or any combination thereof.

21. A method of testing head-mounted displays comprising:

receiving an indication that head-mounted display is on ride motion simulator;

controlling the ride motion simulator to move according to a ride motion pattern;

monitoring a display screen on the head-mounted display using at least one camera of the ride motion simulator during movement in the ride motion pattern;

identifying, while the ride motion simulator is moving, deviations from an expected display on the display screen based on data captured by the at least one camera; and

generating a time of failure for the head-mounted display in response to identifying the deviations, wherein the time of failure is determined based on a number of repeated cycles of the ride motion pattern executed by the ride motion simulator.