What is claimed is:

1. A non-transitory computer-readable storage medium including instructions that, when executed by a processor, cause the processor to perform the steps of:

analyzing a first test image to detect a first set of points; calculating a geometric plane equation based on the first set of points;

projecting a second set of points onto a first curved screen model based on the geometric plane equation to generate a third set of points;

comparing the third set of points to a fourth set of points included in the first test image to determine at least one error value; and

determining a screen curvature value based on the at least one error value.

2. The non-transitory computer-readable storage medium of claim 1, further comprising transforming a sequence of calibration images based on the screen curvature value to generate a sequence of transformed images.

3. The non-transitory computer-readable storage medium of claim 2, further comprising performing one or more calibration procedures based on the sequence of transformed images.

4. The non-transitory computer-readable storage medium of claim 1, wherein comparing the third set of points to the fourth set of points comprises, for each point included in the third set of points, calculating a distance to a corresponding point included in the fourth set of points to determine an individual error value, and further comprising determining a first aggregate error value based on the individual error values.

5. The non-transitory computer-readable storage medium of claim 4, further comprising:

projecting a fifth set of points associated with a second curved screen model based on the geometric plane equation to generate a sixth set of points, wherein a first screen curvature value of the first curved screen model is different than a second screen curvature value of the second curved screen model;

comparing the sixth set of points to the fourth set of points included in the first test image to determine a second aggregate error value.

6. The non-transitory computer-readable storage medium of claim 5, further comprising:

projecting a seventh set of points associated with a flat screen model based on the geometric plane equation to generate an eighth set of points;

comparing the eighth set of points to the fourth set of points included in the first test image to determine a third aggregate error value.

7. The non-transitory computer-readable storage medium of claim 6, wherein determining the screen curvature value comprises:

comparing the first aggregate error value, the second aggregate error value, and the third aggregate error value to determine a lowest aggregate error value; selecting the screen curvature value associated with the lowest aggregate error value; and

transforming at least one image based on the screen curvature value to generate a transformed image.

8. The non-transitory computer-readable storage medium of claim 1, wherein the test image comprises a checkerboard pattern displayed on a curved display screen.

9. The non-transitory computer-readable storage medium of claim 8, wherein the first set of points comprises at least three outer points of the checkerboard pattern, and the fourth set of points comprises a plurality of inner points of the checkerboard pattern.

10. A method, comprising:

analyzing a first test image to detect a set of outer points;

calculating a geometric plane equation based on the set of outer points;

projecting a first set of points associated with a first curved screen model based on the geometric plane equation to generate a second set of points;

comparing the second set of points to a set of inner points included in the first test image to determine at least one error value; and

determining a screen curvature value based on the at least one error value.

11. The method of claim 10, further comprising transforming a sequence of calibration images based on the screen curvature value to generate a sequence of transformed images.

12. The method of claim 11, further comprising performing one or more calibration procedures based on the sequence of transformed images.

13. The method of claim 10, wherein comparing the second set of points to the set of inner points comprises, for each point included in the second set of points, calculating a distance to a corresponding point included in the set of inner points to determine an individual error value, and further comprising determining a first aggregate error value based on the individual error values.

14. The method of claim 13, further comprising: projecting a third set of points associated with a second curved screen model based on the geometric plane equation to generate a fourth set of points, wherein a first screen curvature value of the first curved screen model is different than a second screen curvature value of the second curved screen model;

comparing the fourth set of points to the set of inner points included in the first test image to determine a second aggregate error value.

15. The method of claim 14, further comprising: projecting a fifth set of points associated with a flat screen model based on the geometric plane equation to generate an sixth set of points; comparing the sixth set of points to the set of inner points included in the first test image to determine a third aggregate error value.

16. The method of claim 15, wherein determining the screen curvature value comprises:

comparing the first aggregate error value, the second aggregate error value, and the third aggregate error value to determine a lowest aggregate error value;

selecting the screen curvature value associated with the lowest aggregate error value; and

transforming at least one image based on the screen curvature value to generate a transformed image.

17. The method of claim 10, wherein the test image comprises a pattern displayed on a curved display screen.

18. The method of claim 17, wherein the set of outer points comprises at least three points of the pattern, and the set of inner points comprises a plurality of points of the pattern that are located within the set of outer points.

19. A computing device, comprising:

a memory storing a perspective correction application; and

a processor that is coupled to the memory and, when executing the perspective correction application, is configured to:

analyze a first test image to detect a first set of points; calculate a transformation matrix based on the first set of points;

project a second set of points associated with a first curved screen model based on the transformation matrix to generate a third set of points;

compare the third set of points to a fourth set of points included in the first test image to determine at least one error value;

determine a screen curvature value based on the at least one error value; and

transform a sequence of calibration images based on the screen curvature value to generate a sequence of transformed images.

20. The computing device of claim 19, wherein comparing the third set of points to the fourth set of points comprises, for each point included in the third set of points, calculating a distance to a corresponding point included in the fourth set of points to determine an individual error value, and further comprising determining a first aggregate error value based on the individual error values.