WHAT IS CLAIMED IS:

1. An automated welding system comprising:

a mounting platform configured to receive an object;

a welding tool;

an imaging device configured to acquire at least one image associated with the object; and

a controller configured to:

receive the at least one acquired image;

analyze a plurality of pixels in the at least one acquired image;

compare the plurality of pixels in the at least one acquired image to predefined patterns of pixels stored in a database;

determine whether the plurality of pixels in the at least one acquired image match at least one of the predefined patterns of pixels stored in the database;

designate areas of the plurality of pixels in the at least one acquired image that match at least one of the predefined patterns of pixels as an area to be excluded from welding and areas of the plurality of pixels that do not match at least one of the predefined patterns of pixels as an area to be welded; and

generate control instructions for controlling at least one of said mounting platform and said welding tool to weld the area to be welded.

2. The automated welding system of claim 1, wherein said controller is further configured to analyze grayscale data associated with the plurality of pixels, wherein pixels of the plurality of pixels of the at least one acquired image that have a grayscale value within a predefined range of grayscale values are selected as the plurality of pixels to be compared to the predefined patterns of pixels stored in the database;

determine whether the plurality of pixels in the at least one acquired image match at least one of the predefined patterns of pixels stored in the database.

3. The automated welding system of claim 1, wherein said controller is further configured to analyze grayscale data associated with the plurality of pixels, wherein groups of pixels of the plurality of pixels of the at least one acquired image that have a grayscale value within a predefined range of grayscale values are selected as the plurality of pixels to be compared to the predefined patterns of pixels stored in the database.

4. The automated welding system of claim 1, further comprising a structure configured to receive and secure the object, the structure comprising at least one of a heating apparatus, an insulating material, a viewing window, and a temperature sensor.

5. The automated welding system of claim 4, wherein said controller is further configured to generate a control instruction for controlling a heating apparatus operable to control an internal temperature of said structure.

6. The automated welding system of claim 5, wherein the control instruction for controlling the internal temperature of said structure comprises an instruction to maintain the internal temperature of said structure at a predetermined temperature range.

7. The automated welding system of claim 5, wherein said heating apparatus is a separate component from said welding tool.

8. The automated welding system of claim 1, wherein the area to be welded includes a defect.

9. An article of manufacture including a non-transitory, tangible, computer readable storage medium having instructions stored thereon that, in response to execution by a controller configured for providing control instructions to at least one of a mounting platform and a welding tool, cause said controller to perform operations comprising:

receiving, by said controller, at least one acquired image of an object received on the mounting platform;

analyzing, by said controller, a plurality of pixels in the at least one acquired image;

comparing, by said controller during the analyzing, the plurality of pixels in the at least one acquired image to predefined patterns of pixels stored in a database;

determining, by said controller, whether the plurality of pixels in the at least one acquired image match at least one of the predefined patterns of pixels stored in the database;

designating, by said controller, areas of the plurality of pixels in the at least one acquired image that match at least one of the predefined patterns of pixels as an area to be excluded from welding and areas of the plurality of pixels that do not match at least one of the predefined patterns of pixels as an area to be welded; and

generating, by said controller, control instructions for controlling at least one of said mounting platform and said welding tool to weld the area to be welded.

10. The article of claim 9, wherein the instructions further cause said controller to perform operations comprising analyzing, by said controller, grayscale data associated with the plurality of pixels, wherein pixels of the plurality of pixels of the at least one acquired image that have a grayscale value within a predefined range of grayscale values are selected as the plurality of pixels to be compared to the predefined patterns of pixels stored in the database.

11. The article of claim 9, wherein the instructions further cause said controller to perform operations comprising analyzing, by said controller, grayscale data associated with the plurality of pixels, wherein groups of pixels of the plurality of pixels of the at least one acquired image that have a grayscale value within a predefined range of grayscale values are selected as the plurality of pixels to be compared to the predefined patterns of pixels stored in the database.

12. The article of claim 9, wherein the area to be welded includes a defect.

13. A method for operating a welding system, said method comprising:

receiving, by a controller configured to control the welding system, at least one acquired image of an object;

analyzing, by said controller, a plurality of pixels in the at least one acquired image;

comparing, by said controller during the analyzing, the plurality of pixels in the at least one acquired image to predefined patterns of pixels stored in a database;

determining, by said controller, whether the plurality of pixels in the at least one acquired image match at least one of the predefined patterns of pixels stored in the database;

designating, by said controller, areas of the plurality of pixels in the at least one acquired image that match at least one of the predefined patterns of pixels as an area to be excluded from welding and areas of the plurality of pixels that do not match at least one of the predefined patterns of pixels as an area to be welded; and

generating, by said controller, control instructions for controlling at least one of a mounting platform configured to receive the object and a welding tool to weld the area to be welded.

14. The method of claim 13, wherein the area to be welded includes a defect.