CLAIMS

1. A method for grading a jewelry item, the method comprising:

capturing, using an image capturing device, an image of the jewelry item, wherein the jewelry item includes a gem;

analyzing, using a processing unit, the image of the jewelry item to identify, within the image, one or more inclusions in the jewelry item and at least one of: one or more colors of the one or more inclusions, respective light transmission characteristics of the one or more inclusions, and one or more dimensions of the one or more inclusions;

evaluating, using the processing unit, a quality of the jewelry item based on features of the one or more inclusions among a subset of features identified from the image including: one or more sizes of the one or more inclusions, one or more placements of the one or more inclusions relative to another portion of the jewelry item, one or more color characteristics of the one or more inclusions, and the respective light transmission characteristics of the one or more inclusions, respectively, wherein the evaluating step includes:

representing at least a portion of the jewelry item within a grid having a total number of subsections, wherein the representing step includes mapping the one or more inclusions within a subset of the subsections of the grid and representing the one or more sizes, the one or more placements, the respective light transmission characteristics, and the one or more color characteristics of the one or more inclusions, respectively, within the grid; and

determining a percentage associated with the subsections that correspond to the inclusions relative to the total number of subsections; and

determining, using the processing unit, a grading of the jewelry item in which the quality of the jewelry item is quantified by the percentage corresponding to the inclusions of the jewelry item in relation to a plurality of additional gradings concerning a corresponding plurality of additional jewelry items, wherein the quantified grading is calculated with regard to differences in the evaluated quality of the subset of features of the one or more inclusions of each respective jewelry item.

2. The method of claim 1, wherein the evaluating step takes into account the one or more color characteristics of the one or more inclusions and the respective light transmission characteristics of the one or more inclusions including

assigning a weight to each inclusion, wherein the weighting of each inclusion is determined from the light blockage of each inclusion, an edge proximity multiplier of each inclusion, a distance of each inclusion from another inclusion, placements of the inclusions, colors inside the inclusions, light transparency inside the inclusions, and proximities of the inclusions to one another; and

determining a composite weighting of a plurality of inclusions from the weighting of each inclusion, wherein the composite weighting reflects a combined impact of multiple inclusions on the quality and grading of the jewelry item.

3. The method of claim 1, wherein the evaluating step includes removing or evaluating, from the image, at least one of a shadow, a lighting variation, a reflection, or a flash emitted from the jewelry item.

4. The method of claim 1, wherein the determining step includes:

determining a first grading of a first jewelry item using a first grading technique;

determining a second grading of a second jewelry item using a second grading technique different from the first grading technique; and

modifying the second grading to be a modified grading adhering to the first grading technique, wherein the modified grading is within a threshold difference from the first grading of the first jewelry item.

5. The method of claim 1, wherein the evaluating step takes into account the one or more placements of the one or more inclusions by taking into account the following: a proximity of a first one of the one or more inclusions to a second one of the one or more inclusions, a proximity of at least one of the first inclusion or the second inclusion to an edge of the jewelry item, and a proximity of at least one of the first inclusion or the second inclusion to a portion of the jewelry item that will be obscured during use of the jewelry item.

6. The method of claim 1, wherein the evaluating step includes:

determining, using the grid including the information mapped and represented therein, at least one of the one or more sizes of the one or more inclusions or the one or more placements of the one or more inclusions based on at least one of a number of subsections of the grid covered by the one or more inclusions or a proximity of subsections of the grid covered by the one or more inclusions.

7. The method of claim 1, wherein the evaluating step includes:

representing one or more characteristics of each of at least two of the one or more inclusions using a first numerical string and a second numerical string, respectively, as determined percentages; and

performing calculations using the first numerical string and the second numerical string as part of the step of evaluating the quality of the jewelry item.

8. The method of claim 1, wherein the determining step includes updating at least one of the plurality of additional gradings concerning the plurality of additional jewelry items based on the grading of the jewelry item.

9. The method of claim 1, wherein the jewelry item is a first jewelry item, the method further comprising analyzing the plurality of additional gradings to identify a second jewelry item from among the plurality of additional jewelry items as being a jewelry item that is similar to the first jewelry item.

10. A system for grading a jewelry item, the system comprising:

an image capturing device configured to capture an image of the jewelry item including a gem;

an external storage component configured to store data corresponding to the image of the jewelry item and of a plurality of additional jewelry items; and

a processing unit configured to:

analyze the image of the jewelry item to identify, within the image, one or more inclusions in the jewelry item and at least one of a color of the one or more inclusions, a

respective light transmission characteristics of the one or more inclusions, and one or more dimensions of the one or more inclusions;

evaluate a quality of the jewelry item based on features of the one or more inclusions identified from the image including: one or more sizes of the one or more inclusions, one or more placements of the one or more inclusions relative to another portion of the jewelry item, one or more color characteristics of the one or more inclusions, and the respective light transmission characteristics of the one or more inclusions, respectively, wherein evaluating includes:

representing at least a portion of the jewelry item within a grid having a total number of subsections, wherein the representing step includes mapping the one or more inclusions within a subset of the subsections of the grid and representing the one or more sizes, the one or more placements, the respective light transmission characteristics, and the one or more color characteristics of the one or more inclusions, respectively, within the grid; and

determining a percentage associated with the subsections that correspond to the inclusions relative to the total number of subsections;

access, from the external storage component, data indicative of at least one of: one or more inclusions in the plurality of additional jewelry items, one or more colors of the plurality of additional jewelry items, and one or more dimensions of the plurality of additional jewelry items in order to determine a plurality of additional gradings of the plurality of additional jewelry items; and

determine a grading of the jewelry item that quantifies the evaluated quality of the jewelry item by the percentage corresponding to the inclusions of the jewelry item in relation to the plurality of additional gradings each concerning the plurality of additional jewelry items, wherein the quantified grading is calculated with regard to differences in the evaluated quality of the subset of features of the one or more inclusions of each respective jewelry item.

11. The system of claim 10, wherein the processing unit is configured to take into account the one or more color characteristics of the one or more inclusions and the respective

light transmission characteristic of the one or more inclusions to evaluate the quality of the jewelry item by assigning a weight to each inclusion,

wherein the processing unit determines the weighting of each inclusion from the light blockage of each inclusion, an edge proximity multiplier of each inclusion, and a distance of each inclusion from another inclusion; and

wherein the processing unit determines a composite weighting of a plurality of inclusions from the weighting of each inclusion, wherein the composite weighting reflects a combined impact of multiple inclusions on the quality and grading of the jewelry item.

12. The system of claim 11,further comprising:

a trained neural network configured to remove or evaluate, from the image, at least one of a shadow, a lighting variation, a reflection, or a flash emitted from the jewelry item.

13. The system of claim 11, wherein the processing unit is configured to:

determine a first grading of a first jewelry item using a first grading technique;

determine a second grading of a second jewelry item using a second grading technique different from the first grading technique; and

modify the second grading to be a modified grading adhering to the first grading technique, wherein the modified grading is within a threshold difference from the first grading of the first jewelry item.

14. The system of claim 11, wherein the processing unit is configured to take into account at least one of the following so as to take into account the one or more placements of the one or more inclusions: a proximity of a first one of the one or more inclusions to a second one of the one or more inclusions, a proximity of at least one of the first inclusion or the second inclusion to an edge of the jewelry item, and a proximity of at least one of the first inclusion or the second inclusion to a portion of the jewelry item that will be obscured during use of the jewelry item.

15. The system of claim 11, wherein the processing unit is configured to:

determine at least one of the one or more sizes of the one or more inclusions or the one or more placements of the one or more inclusions based on at least one of a number of subsections of the grid covered by the one or more inclusions or a proximity of subsections of the grid covered by the one or more inclusions.

16. The system of claim 10, wherein the processing unit is configured to update at least one of the plurality of additional gradings concerning the plurality of additional jewelry items based on the grading of the jewelry item.

17. The system of claim 10, wherein the jewelry item is a first jewelry item, and wherein the processing unit is configured to analyze the plurality of additional gradings to identify a second jewelry item from among the plurality of additional jewelry items as being a jewelry item that is similar to the first jewelry item.

18. A method for identifying similarly graded jewelry items, the method comprising:

analyzing, using a processing unit, data indicative of one or more inclusions in the jewelry item and at least one of: a respective color of the one or more inclusions, a respective light transmission characteristic of the one or more inclusions, and one or more respective placements of the one or more inclusions;

evaluating, using the processing unit, a quality of the jewelry item based on features of the one or more inclusions among a subset of features identified from the image including: one or more sizes of the one or more inclusions, one or more placements of the one or more inclusions relative to another portion of the jewelry item, one or more color characteristics of the one or more inclusions, and the respective light transmission characteristics of the one or more inclusions, respectively, wherein the evaluating step includes:

representing at least a portion of the jewelry item within a grid having a total number of subsections, wherein the representing step includes mapping the one or more inclusions within a subset of the subsections of the grid and representing the one or more sizes, the one or more placements, the respective light transmission characteristics, and the one or more color characteristics of the one or more inclusions, respectively, within the grid; and

determining a percentage associated with the subsections that correspond to the inclusions relative to the total number of subsections;

determining, using the processing unit, a grading of a first jewelry item that is indicative of a quality of the first jewelry item using a first grading technique that is based on the data indicative of the one or more inclusions in the first jewelry item and the at least one of the respective color of the one or more inclusions, the respective light transmission characteristics of the one or more inclusions, and the one or more respective placements of the one or more inclusions relative to another portion of the first jewelry item;

accessing, from a remote computing device, data indicative of a second jewelry item having a grading that is indicative of a quality of the second jewelry item and that is determined using a second grading technique that does not adhere to the first grading technique; and

determining, using the processing unit, that when the grading of the second jewelry item is modified to adhere to the first grading technique, the modified grading of the second jewelry item that adheres to the first grading technique is within a threshold difference from the grading of the first jewelry item.

19. The method of claim 18, wherein determining that the modified grading of the second jewelry item is within the threshold difference from the grading of the first jewelry item includes: determining that modifying the grading of the second jewelry item, such that at least one of size, placement, or color characteristics of one or more inclusions in the second jewelry item are accounted for according to the first grading technique, results in the modified grading of the second jewelry item being within the threshold difference from the grading of the first jewelry item.

20. The method of claim 18, wherein determining the grading of the first jewelry item takes into account at least one of the following: a size of a first one of the one or more inclusions in the first jewelry item, a proximity of the first inclusion to a second one of the one or more inclusions in the first jewelry item, a proximity of at least one of the first inclusion or the second inclusion to an edge of the first jewelry item, a visibility of the first inclusion in a first color light, a visibility of the first inclusion in a second color light, and a difference between a color of the first inclusion and a color of the first jewelry item.