

CLAIMS

1. A method for searching an image database, comprising:
 - receiving, by processing circuitry, an adulterated image of an object, the adulterated image including object annotations for visual reference;
 - applying, by the processing circuitry, a first neural network to the adulterated image;
 - correlating, by the processing circuitry, a result of the applying the first neural network with each image of a reference database of images, the result including an edited image of the object and each image of the reference database of images including a reference object; and
 - selecting, by the processing circuitry and as a matching image, one or more images of the reference database of images having correlation values above a threshold correlation value.
2. The method according to claim 1, wherein the applying the first neural network includes
 - editing, by the processing circuitry, the adulterated image to remove the object annotations, an output of the editing being the edited image of the object.
3. The method according to claim 1, further comprising
 - applying, by the processing circuitry, a masking process to the adulterated image.
4. The method according to claim 3, wherein the applying the masking process includes
 - performing, by the processing circuitry and via a second neural network, object recognition on the adulterated image to recognize text-based descriptive features,
 - applying, by the processing circuitry and based on the performing the object recognition, computer vision to detect callout features relative to bounding boxes containing the recognized text-based descriptive features, and
 - generating, by the process circuitry and based on the bounding boxes and the detected callout features, a contour mask of the object.
5. The method according to claim 4, further comprising
 - editing, by the processing circuitry, the adulterated image based on the result of the applying the first neural network and a result of the applying the masking process, the result of the applying the masking process being the generated contour mask of the object.

6. The method according to claim 1, wherein the first neural network is a convolutional neural network configured to perform pixel-level classification.
7. The method according to claim 4, wherein the generating the contour mask of the object includes
 - applying, by the processing circuitry, object segmentation to the adulterated image.
8. A non-transitory computer-readable storage medium storing computer-readable instructions that, when executed by a computer, cause the computer to perform a method for searching an image database, comprising:
 - receiving an adulterated image of an object, the adulterated image including object annotations for visual reference;
 - applying a first neural network to the adulterated image;
 - correlating a result of the applying the first neural network with each image of a reference database of images, the result including an edited image of the object and each image of the reference database of images including a reference object; and
 - selecting, as a matching image, one or more images of the reference database of images having correlation values above a threshold correlation value.
9. The non-transitory computer-readable storage medium according to claim 8, wherein the applying the first neural network includes
 - editing the adulterated image to remove the object annotations, an output of the editing being the edited image of the object.
10. The non-transitory computer-readable storage medium according to claim 8, further comprising
 - applying a masking process to the adulterated image.
11. The non-transitory computer-readable storage medium according to claim 10, wherein the applying the masking process includes
 - performing, via a second neural network, object recognition on the adulterated image to recognize text-based descriptive features,

applying, based on the performing the object recognition, computer vision to detect callout features relative to bounding boxes containing the recognized text-based descriptive features, and

generating, based on the bounding boxes and the detected callout features, a contour mask of the object.

12. The non-transitory computer-readable storage medium according to claim 11, further comprising

editing the adulterated image based on the result of the applying the first neural network and a result of the applying the masking process, the result of the applying the masking process being the generated contour mask of the object.

13. The non-transitory computer-readable storage medium according to claim 1, wherein the first neural network is a convolutional neural network configured to perform pixel-level classification.

14. The non-transitory computer-readable storage medium according to claim 11, wherein the generating the contour mask of the object includes

applying object segmentation to the adulterated image.

15. An apparatus for performing a method for searching an image database, comprising:

processing circuitry configured to

receive an adulterated image of an object, the adulterated image including object annotations for visual reference,

apply a first neural network to the adulterated image,

correlate a result of the applying the first neural network with each image of a reference database of images, the result including an edited image of the object and each image of the reference database of images including a reference object, and

select, as a matching image, one or more images of the reference database of images having correlation values above a threshold correlation value.

16. The apparatus according to claim 15, wherein the processing circuitry is further configured to apply the first neural network by

editing the adulterated image to remove the object annotations, an output of the editing being the edited image of the object.

17. The apparatus according to claim 15, wherein the processing circuitry is further configured to

apply a masking process to the adulterated image.

18. The apparatus according to claim 17, wherein the processing circuitry is further configured to apply the masking process by

performing, via a second neural network, object recognition on the adulterated image to recognize text-based descriptive features,

applying, based on the performing the object recognition, computer vision to detect callout features relative to bounding boxes containing the recognized text-based descriptive features, and

generating, based on the bounding boxes and the detected callout features, a contour mask of the object.

19. The apparatus according to claim 18, wherein the processing circuitry is further configured to

edit the adulterated image based on the result of the applying the first neural network and a result of the applying the masking process, the result of the applying the masking process being the generated contour mask of the object.

20. The apparatus according to claim 15, wherein the processing circuitry is further configured to generate the contour mask of the object by

applying object segmentation to the adulterated image.