What is Claimed:

1. A computer-implemented method for performing line clearance and monitoring, comprising:

receiving, by one or more processors, a first set of images of a manufacturing line during a run-time operation of the manufacturing line, the first set of images representing a first field of view (FOV) that is oriented to capture objects while falling from the manufacturing line;

receiving, by the one or more processors, a second set of images of the manufacturing line during the run-time operation of the manufacturing line, the second set of images representing a second FOV that is different from the first FOV and oriented to capture objects positioned below the manufacturing line;

analyzing, by the one or more processors, the first set of images and the second set of images to identify (i) a falling object within the first FOV or (ii) a stationary object within the second FOV; and

responsive to identifying the falling object or the stationary object, causing, by the one or more processors, a display to present a notification, wherein the notification includes an image of the falling object or the stationary object.

2. The computer-implemented method of claim 1, wherein generating the notification further comprises:

responsive to identifying the falling object or the stationary object, triggering, by the one or more processors, a recording of multiple images from either the first set of images or the second set of images, each image of the multiple images depicting the falling object or the stationary object; and

causing, by the one or more processors, a display to present the notification, wherein the notification includes the recording.

3. The computer-implemented method of claims 1 or 2, further comprising:

masking a portion of the first set of images or the second set of images prior to analyzing the first set of images or the second set of images, the portion of the first set of images or the second set of images corresponding to one or more moving components of the manufacturing line.

4. The computer-implemented method of any one of the preceding claims, wherein generating the notification further comprises:

generating the notification substantially in real-time for display at a user computing device in response to identifying the falling object or the stationary object, wherein the notification comprises at least one of: (i) an email message, (ii) a text message, or (iii) a line monitoring application alert.

5. The computer-implemented method of any one of the preceding claims, wherein analyzing the first set of images and the second set of images further comprises:

analyzing, by the one or more processors, the first set of images by applying a first algorithm and the second set of images by applying a second algorithm to identify (i) the falling object within the first FOV or (ii) the stationary object within the second FOV.

6. The computer-implemented method of claim 5, wherein:

the first algorithm is (i) a motion detection algorithm or (ii) a machine learning (ML) algorithm trained with a plurality of training data comprising a plurality of training images representing the manufacturing line, and wherein the ML algorithm is configured to receive image data of the manufacturing line as input and to output an anomaly score corresponding to a confidence level associated with detection of the falling object or the stationary object; and

the second algorithm is (i) the motion detection algorithm or (ii) the ML algorithm.

7. The computer-implemented method of claim 6, wherein the ML algorithm is at least one of (i) an anomaly detection algorithm, (ii) an image classification algorithm, or (iii) an object detection algorithm.

8. The computer-implemented method of claim 6, further comprising:

training the ML algorithm using the plurality of training images representing the manufacturing line, wherein the plurality of training images represent the manufacturing line operating (i) without a falling object within the first FOV and (ii) without a stationary object within the second FOV.

9. The computer-implemented method of any one of the preceding claims, wherein the notification includes a heatmap image that comprises a heatmap portion superimposed over the image of the falling object or the stationary object, the heatmap portion being positioned over the falling object or the stationary object within the image.

10. The computer-implemented method of any one of the preceding claims, wherein:

the falling object and the stationary object are a same object.

11. The computer-implemented method of any one of the preceding claims, wherein the one or more processors include one or more cloud-based processors.

12. The computer-implemented method of any one of the preceding claims, further comprising:

capturing the first set of images and the second set of images by at least one of: (i) a variable zoom imaging device, (ii) a fixed zoom imaging device, (iii) a wide angle imaging device, and (iv) a gyroscopic imaging device.

13. A computer system for performing line clearance and monitoring, comprising:

one or more processors; and

a program memory coupled to the one or more processors and storing executable instructions that, when executed by the one or more processors, cause the computer system to:

receive a first set of images of a manufacturing line during a run-time operation of the manufacturing line, the first set of images representing a first field of view (FOV) that is oriented to capture objects while falling from the manufacturing line,

receive a second set of images of the manufacturing line during the run-time operation of the manufacturing line, the second set of images representing a second FOV that is different from the first FOV and oriented to capture objects positioned below the manufacturing line,

analyze the first set of images and the second set of images to identify (i) a falling object within the first FOV or (ii) a stationary object within the second FOV, and

responsive to identifying the falling object or the stationary object, cause a display to present a notification, wherein the notification includes an image of the falling object or the stationary object.

14. The computer system of claim 13, wherein the instructions, when executed, further cause the one or more processors to generate the notification by:

responsive to identifying the falling object or the stationary object, triggering a recording of multiple images from either the first set of images or the second set of images, each image of the multiple images depicting the falling object or the stationary object; and

causing a display to present the notification, wherein the notification includes the recording.

15. The computer system of claims 13 or 14, wherein the instructions, when executed, further cause the one or more processors to:

mask a portion of the first set of images or the second set of images prior to analyzing the first set of images or the second set of images, the portion of the first set of images or the second set of images corresponding to one or more moving components of the manufacturing line.

16. The computer system of any one of claims 13-15, wherein the instructions, when executed, further cause the one or more processors to generate the notification by:

generating the notification substantially in real-time for display at a user computing device in response to identifying the falling object or the stationary object, wherein the notification comprises at least one of: (i) an email message, (ii) a text message, or (iii) a line monitoring application alert.

17. The computer system of any one of claims 13-16, wherein the instructions, when executed, further cause the one or more processors to analyze the first set of images and the second set of images by:

analyzing the first set of images by applying a first algorithm and the second set of images by applying a second algorithm to identify (i) the falling object within the first FOV or (ii) the stationary object within the second FOV, wherein:

the first algorithm is (i) a motion detection algorithm or (ii) a machine learning (ML) algorithm trained with a plurality of training data comprising a plurality of training images representing the manufacturing line,

the ML algorithm is configured to receive image data of the manufacturing line as input and to output an anomaly score corresponding to a confidence level associated with detection of the falling object or the stationary object, and

the second algorithm is (i) the motion detection algorithm or (ii) the ML algorithm.

18. The computer system of claim 17, wherein the instructions, when executed, further cause the one or more processors to:

train the ML algorithm using the plurality of training images representing the manufacturing line, wherein the plurality of training images represent the manufacturing line operating (i) without a falling object within the first FOV and (ii) without a stationary object within the second FOV.

19. A tangible, non-transitory computer-readable medium storing executable instructions for performing line clearance and monitoring, that when executed by one or more processors of a computer system, cause the computer system to:

receive a first set of images of a manufacturing line during a run-time operation of the manufacturing line, the first set of images representing a first field of view (FOV) that is oriented to capture objects while falling from the manufacturing line;

receive a second set of images of the manufacturing line during the run-time operation of the manufacturing line, the second set of images representing a second FOV that is different from the first FOV and oriented to capture objects positioned below the manufacturing line;

analyze the first set of images and the second set of images to identify (i) a falling object within the first FOV or (ii) a stationary object within the second FOV; and

responsive to identifying the falling object or the stationary object, cause a display to present a notification, wherein the notification includes an image of the falling object or the stationary object.

20. The tangible, non-transitory computer-readable medium of claim 19, wherein analyzing the first set of images and the second set of images further comprises:

analyzing, by the one or more processors, the first set of images by applying a first algorithm and the second set of images by applying a second algorithm to identify (i) the falling object within the first FOV or (ii) the stationary object within the second FOV, wherein:

the first algorithm is (i) a motion detection algorithm or (ii) a machine learning (ML) algorithm trained with a plurality of training data comprising a plurality of training images representing the manufacturing line,

the ML algorithm is configured to receive image data of the manufacturing line as input and to output an anomaly score corresponding to a confidence level associated with detection of the falling object or the stationary object, and

the second algorithm is (i) the motion detection algorithm or (ii) the ML algorithm.