CLAIMS

1. A computer-implemented method of training an athlete, comprising:

generating position data based on image data of an athlete during a first performance of a movement, the position data indicating position of the athlete over time during the first performance of the movement;

applying the position data to an artificial neural network (ANN) trained via a reference data set representing a plurality of recorded performances of the movement, the reference data set including position data and a reference rank value for each of the plurality of recorded performances;

determining, via the ANN, a rank value for the performance of the first movement, the rank value indicating a relationship between the first performance of the movement and a subset of the plurality of recorded movements;

determining instructions for a second performance of the movement based on the rank value, the second performance corresponding to the first performance with the exception of a correction to form of the first performance, the instructions for the second performance including instructions to perform the second performance in a manner distinct from the first performance; and

notifying the athlete of the instructions for the second performance of the movement.

2. The method of claim 1, further comprising:

capturing image data of an athlete during the second performance;

determining, via the ANN, a rank value for the second performance, the rank value indicating a relationship between the second performance and a subset of the plurality of recorded movements;

comparing the rank values of the first and second performances

; and

notifying the athlete based on the comparison.

3. The method of claim 1, further comprising notifying the user of a distinction between the first performance and at least one of the recorded performances.

4. The method of claim 3, wherein the at least one of the recorded performances has a respective rank value greater than the rank value of the performance.

5. The method of claim 3, wherein the instructions for the second performance include instructions for traversing the distinction.

6. The method of claim 1, further comprising determining instructions for a third performance based on the rank value, the third performance corresponding to a movement distinct from the first movement.

7. The method of claim 1, wherein the second performance includes a plurality of subset movements, the instructions specifying at least one of 1) a number of repetitions of the subset movements, 2) a time over which to perform the subset movements, and 3) a distance over which to perform the subset movements.

8. The method of claim 1, wherein determining the instructions for the second performance is further based on an input by the athlete identifying a prospective improvement in the performance of the first performance.

9. The method of claim 1, further comprising determining a measure of fatigue of the athlete during the first performance based on the position data.

10. The method of claim 9, wherein determining instructions for the second performance is based on the measure of fatigue.

11. The method of claim 9, further comprising determining an estimation of muscle fiber type for the athlete based on the measure of fatigue.

12. The method of claim 1, further comprising determining a group of movements based on the rank value, the instructions including instructions for performance of at least one of the group of movements based on a selection, by the athlete, among the group of movements.

13. The method of claim 1, wherein the reference rank value is based on a manual assessment of the respective recorded performance.

14. The method of claim 1, further comprising capturing the image data of the athlete during the first performance.

15. The method of claim 14, further comprising calibrating a camera used for capturing the image data of the athlete, the calibrating including identifying a color of apparel worn by the athlete.

16. A computer-implemented method of training an athlete, comprising:

generating position data based on image data of an athlete during performance of a movement, the position data indicating position of the athlete over time during the performance of the movement;

applying the position data to an artificial neural network (ANN) trained via a reference data set representing a plurality of recorded performances of the movement, the reference data set including position data and a reference rank value for each of the plurality of recorded performances;

determining, via the ANN, a rank value for the performance of the movement, the rank value indicating a relationship between the performance of the movement and a subset of the plurality of recorded movements;

determining a group of distinct movements based on the rank value;

determining instructions for a further movement based on a selection, by the athlete, among the group of distinct movements; and

notifying the athlete of the instructions for the further movement.

17. The method of claim 16, wherein the further movement includes a plurality of subset movements, the instructions specifying at least one of 1) a number of repetitions of the subset movements, 2) a time over which to perform the subset movements, and 3) a distance over which to perform the subset movements.

18. The method of claim 16, wherein the reference rank value is based on a manual assessment of the respective recorded movement.

19. The method of claim 16, further comprising determining a measure of fatigue of the athlete during the performance of the movement based on the position data.