Claims

1. A system for monitoring gaming activity in a gaming area comprising a gaming table, the system comprising:

at least one camera configured to capture images of the gaming area;

at least one processor configured to communicate with the at least one camera and a memory;

the memory storing instructions executable by the at least one processor to configure the at least one processor to:

determine presence of a first gaming object on the gaming table in a first image from a series of images of the gaming area captured by the at least one camera, the series of images comprising one or more images,

process the first image to estimate skeletal models of one or more players in the first image,

associate a hand or a distal hand periphery closest to the first gaming object as a periphery indicator region with a head or face, using the estimated skeletal models, and

based on the association, determine the head or face of a first target player associated with the first gaming object among the one or more players.

2. The system of claim 1, wherein the periphery indicator region corresponds to a distal left hand periphery or a distal right hand periphery.

3. The system of claim 1, wherein the instructions are executable to configure the at least one processor to determine the first target player associated with the first gaming object by:

estimating a distance of each periphery indicator region from the first gaming object in the first image;

identifying a closest periphery indicator region based on the estimated distance; and

determining the first target player associated with the first gaming object based on the identified closest periphery indicator region.

4. The system of claim 1, wherein estimating the skeletal models of one or more players comprises estimating key points in the first image associated with one or more of: wrists, elbows, shoulders, neck, nose, eyes or ears of the one or more players.

5. The system of claim 1, wherein the instructions are executable to further configure the at least one processor:

determine presence of a second gaming object on the gaming table in a second image from the series of images; process the second image to estimate skeletal models of players in the second image;

associate a head or face with a hand or a distal hand periphery closest to the first gaming object, using the estimated skeletal models; and

based on the association, determine the head or face of a second target player associated with the second gaming object among the players.

6. The system of claim 1, wherein the first gaming object comprises any one of: a game object, a token, a currency note or a coin.

7. The system of claim 1, wherein the memory comprises one or more skeletal model estimation machine learning models trained to estimate skeletal models of one or more players in the series of images.

8. The system of claim 7, wherein the one or more skeletal model estimation machine learning models comprise one or more deep learning artificial neural networks trained to estimate skeletal models of one or more players in the captured images.

9. The system of claim 1, wherein identifying a head or face of the first target player further comprises determining a vector representation of the image region of the head or face of the first target player using a face recognition machine learning model stored in the memory.

10. The system of claim 1, wherein the instructions are executable to further configure the at least one processor to estimate a game object value associated with the first gaming object.

11. The system of claim 1, wherein determining a presence of a first gaming object on the gaming table further comprises determining a position on the gaming table zone of the first gaming object.

12. The system of claim 1, wherein the at least one processor is further configured to execute instructions stored in the memory to identify in the series of images a plurality of head or face regions corresponding to a face of the first target player associated with the first gaming object.

13. The system of claim 12, wherein the instructions are executable to further configure the at least one processor to process the plurality of face regions to determine face orientation information of the first target player's face in each of the plurality of face regions.

14. The system of claim 13, wherein the instructions are executable to further configure the at least one processor to process the face orientation information of the first target player's face in each of the plurality of face regions to determine a most head-on face region corresponding to the target player.