

**CLAIMS:**

1. A face orientation system of a ride, comprising:  
one or more sensors; and  
a controller configured to:  
receive ride cart data from the one or more sensors, the ride cart data indicative of a presence and position of the ride cart on the ride;  
determine ride cart orientation based on the ride cart data;  
receive position data of a guest from the one or more sensors, the position data indicative of a position of a body, a face, or a combination thereof, of the guest;  
determine face orientation, face rotation, or a combination thereof, of the guest based at least in part upon the ride cart orientation and the position data; and transmit data indicative of the determined face orientation, face rotation, or a combination thereof to a downstream controller for subsequent control based upon the determined face orientation, face rotation, or the combination thereof.
2. The face orientation system of claim 1, wherein the position data comprises a skeletal image determined by skeletal tracking.
3. The face orientation system of claim 2, wherein determining the skeletal image by skeletal tracking comprises determining a position of essential joints, bones, and limbs of the guest to generate the skeletal image.
4. The face orientation system of claim 2, wherein the face orientation, face rotation, or a combination thereof, is predicted based on the ride cart orientation, the skeletal image, show scene features within a viewing range, or a combination thereof.
5. The face orientation system of claim 2, wherein the controller is configured to disregard ride cart data or face position data in response to the one or more sensors detecting an absence of the guest in the ride cart.
6. The face orientation system of claim 5, wherein the detecting the absence of the guest in the ride cart is based on the skeletal image, a pattern recognition, a radio frequency identification (RFID) tag, or a combination thereof.
7. The face orientation system of claim 5, comprising detecting the absence of the guest in the ride cart based on a recognized pattern of a continuous solid color, design, or a combination thereof, on a ride cart seat.
8. The face orientation system of claim 1, comprising the downstream controller, wherein the downstream controller comprises a show scene controller that controls one or more scene features based upon the determined face orientation, face rotation, or the

combination thereof, wherein the show scene controller, the controller, or a combination of the show scene controller and the controller are configured to:

determine if the guest is within a particular distance of one or more show scene features of the ride;

in response to determining that the guest is within the particular distance, determine a change to the one or more show scene features based on the face orientation; and

transmit a control signal to trigger a change to the one or more show scene features.

9. The face orientation system of claim 8, wherein the one or more show scene features comprise an animated figure, a display, a light effect, or a combination thereof.

10. The face orientation system of claim 9, wherein the change comprises an animation of the animated figure, a displayed image on the display, a lighting of the light effect, or a combination thereof.

11. The face orientation system of claim 10, wherein the change is determined in response to the face orientation of the guest facing the one or more show scene features within a viewing range.

12. A method, comprising:

receiving ride cart data from one or more sensors indicative of a presence and position of a ride cart on a ride;

determining a ride cart orientation based on the ride cart data;

receiving position data of a guest from the one or more sensors, the position data indicative of a position of a body, a face, or a combination thereof, of the guest;

determining face orientation, face rotation, or a combination thereof, of the guest based at least in part upon the ride cart orientation and position data; and

transmitting data indicative of the determined face orientation, face rotation, or a combination thereof to a downstream controller for subsequent control based upon the determined face orientation, face rotation, or the combination thereof.

13. The method of claim 12, wherein the position data comprises a skeletal tracking image, a facial recognition image, a body recognition image, or a combination thereof.

14. The method of claim 12, wherein the one or more sensors include radio frequency identification (RFID) tags, proximity sensors, infrared (IR) markers, weight sensors, cameras, or a combination thereof.

15. The method of claim 14, wherein the RFID tags, the IR markers, or a combination thereof, are placed on a ride path of the ride at one or more points of interest to track or predict the position of the ride cart within the ride path.

16. A tangible, non-transitory, machine readable medium comprising machine-readable instructions that, when executed by one or more processors of the machine, cause the machine to:

receive ride cart data from one or more sensors indicative of a presence and position of a ride cart on a ride;

determine a ride cart orientation based on the ride cart data;

receive position data of a guest from the one or more sensors, the position data indicative of a position of a body, a face, or a combination thereof, of the guest;

determine face rotation of the guest based at least in part upon the ride cart orientation and the position data; and

transmit data indicative of the determined face orientation, face rotation, or a combination thereof, to a downstream controller for subsequent control based upon the determined face orientation, face rotation, or the combination thereof.

17. The machine readable medium of claim 16, wherein the position data comprises a skeletal tracking image, a facial recognition image, a body recognition image, or a combination thereof.

18. The machine readable medium of claim 16, wherein the determined face rotation of the guest is based on: a relatively less granular analysis comprising a facial recognition analysis for a fast paced portion of the ride; and a relatively more granular analysis that uses the ride cart orientation, the position data of the guest, or both as a known base orientation for a slow paced portion of the ride.

19. The machine readable medium of claim 16, wherein a 3D map of the guest on the ride is generated based on the ride cart data, guest position data, and the ride cart's position data, wherein the 3D map indicates the determined face orientation of the guest relative to show scene features of the ride.

20. The machine readable medium of claim 19, wherein the 3D map is used to precisely determine facial features, face position, face turning, or a combination thereof, and wherein the determined face orientation uses machine learning to accurately predict face position based on reoccurring face orientation determinations made for specific parts of the ride within the 3D map.

21. The machine readable medium of claim 16, wherein a 3D map is used to determine the ride cart orientation based on a known ride track position and a known ride track orientation within the ride.

22. A ride system, comprising:

one or more sensors;

and one or more controllers configured to:

receive position data of a guest from the one or more sensors, the position data indicative of a position of a body, a face, or a combination thereof, of the guest, on a ride;

determine face direction, face rotation, or a combination thereof, of the guest based at least in part upon the position data, wherein the position data comprises a base direction derived using skeletal tracking for a first portion of the ride and using a ride cart direction of a ride cart with the guest, the position data of the guest, or a combination thereof for a second portion of the ride, and wherein the first portion of the ride is faster paced than the second portion of the ride; and

control one or more features of the ride based upon the determined face orientation, face rotation, or the combination thereof.

23. The ride system of claim 22, wherein the position data comprises a skeletal image determined by the skeletal tracking.

24. The ride system of claim 23, wherein the face direction, the face rotation, or the combination thereof, is based at least in part on a first position of a first body joint of the guest within a threshold distance from a second position of a second body joint of the guest, on the skeletal image.

25. The ride system of claim 23, wherein the skeletal tracking comprises tracking facial features, an intersection of the facial features, or a combination thereof.

26. The ride system of claim 23, wherein the face direction, the face rotation, or the combination thereof, is based at least in part on a first position of a first facial feature of the guest within a threshold distance from a second facial feature of the guest, on the skeletal image.

27. The ride system of claim 26, wherein the threshold distance indicates a direction of a first side of the face of the guest, a second side of the face opposite the first side, or a center of the face.

28. The ride system of claim 22, wherein the one or more features comprise an animated figure, a display, a light effect, or a combination thereof.

29. The ride system of claim 22, wherein the one or more controllers are configured to:

determine that the guest is in viewing range of the one or more features of the ride based upon the face direction, face rotation, or a combination thereof; and

activate the one or more features based upon the determination that the guest is in the viewing range.

30. The ride system of claim 22, where in the one or more controllers are configured to:

receive an indication of a ride cart position along a path of the ride from the one or more sensors; and

control the one or more features of the ride based on the ride cart position.

31. The ride system of claim 30, wherein the position of the ride cart is based at least in part on a structure of the ride cart, a known ride path of the ride, or a combination thereof.

32. The ride system of claim 22, wherein controlling the one or more features comprises an animation of an animated figure, a displayed image on a display, a lighting of a light effect, or a combination thereof.

33. A method, comprising:

receiving position data of a guest from one or more sensors, the position data indicative of a position of a body, a face, or a combination thereof, of the guest, on a ride;

determining face direction, face rotation, or a combination thereof, of the guest based at least in part upon the position data, wherein the position data comprises a base direction derived using skeletal tracking for a first portion of the ride and using a ride cart direction of a ride cart with the guest, the position data of the guest, or a combination thereof for a second portion of the ride, and wherein the first portion of the ride is faster paced than the second portion of the ride; and

controlling one or more features of the ride based upon the determined face orientation, face rotation, or the combination thereof.

34. The method of claim 33, wherein the position data comprises a skeletal tracking image, a facial recognition image, a body recognition image, or a combination thereof.

35. The method of claim 33, wherein the one or more sensors comprise radio frequency identification (RFID) tags, proximity sensors, infrared (IR) markers, weight sensors, cameras, or any combination thereof.

36. The method of claim 35, wherein the RFID tags, the proximity sensors, the IR markers, the weight sensors, the cameras, or any combination thereof, are placed on a ride path of the ride at one or more points of interest to track or predict the position of the guest on the ride within the ride path.

37. A tangible, non-transitory, machine readable medium comprising machine-readable instructions that, when executed by one or more processors of a machine, cause the machine to:

receive position data of a guest from one or more sensors, the position data indicative of a position of a body, a face, or a combination thereof, of the guest, on a ride;

determine face rotation, face direction, or a combination thereof, of the guest based at least in part upon the position data, wherein the position data comprises a base direction derived using skeletal tracking for a first portion of the ride and using a ride cart direction of a ride cart with the guest, the position data of the guest, or a combination thereof for a second

portion of the ride, and wherein the first portion of the ride is faster paced than the second portion of the ride; and

control one or more features of the ride based upon the determined face orientation, face rotation, or the combination thereof.

38. The machine readable medium of claim 37, wherein the position data comprises a skeletal tracking image, a facial recognition image, a body recognition image, or a combination thereof.

39. The machine readable medium of claim 37, wherein a 3D map of the guest on the ride is generated based on the position data and a ride cart's position on the ride, wherein the 3D map indicates the determined face rotation of the guest relative to the one or more features of the ride.

40. The machine readable medium of claim 39, wherein the determined face rotation uses machine learning to accurately predict face position based on reoccurring face orientation determinations made for specific portions of the ride within the 3D map.