CLAIMS:

1. A method for analyzing postural balance of a person, the method comprising a processor implemented steps of:

capturing a skeleton data of the person using a 3D motion sensor;

removing a plurality of noises from the captured skeleton data by a noise cleaning module, wherein the plurality of noises comprises one or more of error due to room lighting, IR interference, subject's distance from the 3D motion sensor, location of sensor array, and quantization rounding errors, and wherein the plurality of noises are removed by:

converting the captured skeleton data into a set of features related to a physical structure of the person;

computing static features of the physical structure in each frame; and

tracking changes based on previous and following frames;

tracking ankle coordinates of the person from the captured skeleton data in x plane and y plane;

calculating a plurality of Gait parameters of the person using the tracked ankle coordinates of the person, wherein the Gait parameters are calculated using an Eigen vector based curvature analysis; and

measuring the static single limb stance (SLS) duration of the person using the plurality of Gait parameters, wherein the SLS duration is indicative of the postural balance of the person.

2. The method of claim 1, further comprising capturing a velocity profile of the person for both swing duration and stance duration.

3. The method of claim 2, further comprising the step of applying a standard peak and trough detection algorithm to detect peak and trough from the velocity profile of the person.

4. The method of claim 1, further comprising comparing the measured static SLS duration of the person with SLS measured using standard second derivative based curvature detection algorithm.

5. The method of claim 1, wherein the skeleton data comprising spatio temporal variations of the ankle joint data.

6. The method of claim 1, wherein the plurality of Gait parameters include stride length, stride time, swing time and stance time.

7. A system for analyzing postural balance of a person, the system comprises:

a 3D motion sensor for capturing a skeleton data of the person;

a noise cleaning module for removing a plurality of noises from the captured skeleton data, wherein the plurality of noises comprises one or more of error due to room lighting, IR interference, subject's distance from the 3D motion sensor, location of sensor array, and quantization rounding errors, and wherein the plurality of noises are removed by:

converting the captured skeleton data into a set of features related to a physical structure of the person;

computing static features of the physical structure in each frame; and

tracking changes based on previous and following frames;

a memory; and

a processor in communication with the memory, wherein the processor further configured to perform the steps of:

tracking ankle coordinates of the person from the captured skeleton data in x plane and y plane;

calculating a plurality of Gait parameters of the person using the tracked ankle coordinates of the person, wherein the Gait parameters are calculated using an Eigen vector based curvature analysis; and

measuring the static single limb stance (SLS) duration of the person using the plurality of Gait parameters, wherein the SLS duration is indicative of the postural balance of the person.

8. The system of claim 7, wherein the 3D motion sensor is a Kinect sensor.

9. A non-transitory computer-readable medium having embodied thereon a computer program for analyzing postural balance of a person, the method comprising:

capturing a skeleton data of the person using a 3D motion sensor;

removing a plurality of noises from the captured skeleton data using a noise cleaning module, wherein the plurality of noises comprises one or more of error due to room lighting, IR interference, subject's distance from the 3D motion sensor, location of sensor array, and quantization rounding errors, and wherein the plurality of noises are removed by:

converting the captured skeleton data into a set of features related to a physical structure of the person;

computing static features of the physical structure in each frame; and

tracking changes based on previous and following frames;

tracking ankle coordinates of the person from the captured skeleton data in x plane and y plane;

calculating a plurality of Gait parameters of the person using the tracked ankle coordinates of the person, wherein the Gait parameters are calculated using an Eigen vector based curvature analysis; and

measuring the static single limb stance (SLS) duration of the person using the plurality of Gait parameters, wherein the SLS duration is indicative of the postural balance of the person.