computing translational velocity components for each contact associated with a finger;
computing a translational velocity average from the computed translational velocity components and the computed translation weightings;
filtering the translational velocity average; and
transmitting the filtered translational velocity average as a control signal to an electronic or electromechanical device.

13. The method of claim **12**, wherein the computed translation weightings of innermost and outermost fingers are constant and computed translation weightings of central fingers are inversely related to polar component speeds so as to prevent vertical translation bias while performing hand scaling and rotation but otherwise include all available fingers in the computed translational velocity average.

14. The method of claim **13**, wherein the computed translational weightings are related to the ratio of each finger's speed to a speed of a fastest finger.

15. The method of claim **14**, wherein the computed translational weightings are related to the ratio of each finger's speed to a speed of a fastest finger.

16. A method for extracting multiple degrees of freedom of hand motion from successive proximity images, the method comprising:
tracking a plurality of contacts associated with a plurality of hand parts across the successive proximity images;
computing a translation weighting for each contact associated with a finger;
computing translational velocity components for each contact associated with a finger;
computing a translational velocity average from the computed translational velocity components and the computed translation weightings;
filtering the translational velocity average; and
transmitting the filtered translational velocity average as a control signal to an electronic or electromechanical device.

17. The method of claim **16**, wherein the computed translation weightings of innermost and outermost fingers are constant and computed translation weightings of central fingers are inversely related to polar component speeds so as to prevent vertical translation bias while performing hand scaling and rotation but otherwise include all available fingers in the computed translational velocity average.

18. The method of claim **17**, wherein the computed translational weightings are related to the ratio of each finger's speed to a speed of a fastest finger.

19. The method of claim **18**, wherein the computed translational weightings are related to the ratio of each finger's speed to a speed of a fastest finger.

20. The method of claim **1**, wherein filtering the computed velocity components further comprises:
downscaling each velocity component in proportion to a function of its average speed compared to other average component speeds; and
dead-zone filtering each downscaled velocity component wherein the dead-zone depends on distribution of current component speeds.

21. The method of claim **20** wherein the dead-zone filter produces zero output velocity for input velocities less than a speed threshold but produces output velocities in proportion to the difference between the input speed and the threshold for input velocities that exceed the threshold.

22. A method for extracting multiple degrees of freedom of hand motion from successive proximity images representing successive scans of a plurality of proximity sensors of a multi-touch surface, the method comprising:
tracking, through successive proximity images, a plurality of groups of pixels associated with associated with a plurality of fingers on or near the multi-touch surface;
finding an innermost finger and an outermost finger for a given hand;
computing a scaling velocity from a change in a distance between the innermost and outermost fingers;
supplementing the computed scaling velocity with a measure of scaling velocity selective for symmetric scaling about a fixed point between a thumb and other fingers of the given hand;
filtering the computed, supplemented scaling velocity; and
transmitting the filtered scaling velocity as a control signal to an electronic or electro-mechanical device.

23. The method of claim **22** further comprising:
computing a rotational velocity from a change in angle between the innermost and outermost fingers;
supplementing the computed rotational velocity with a measure of rotational velocity selective for symmetric rotation about a fixed point between the thumb and other fingers;
filtering the computed, supplemented rotational velocity; and
transmitting the filtered rotational velocity as a control signal to an electronic or electromechanical device.

24. The method of claim **23** further comprising:
computing a translation weighting for each finger;
computing a translational velocity for each finger;
computing a translational velocity average from the computed translational velocities and the computed translation weightings;
filtering the translational velocity average; and
transmitting the filtered translational velocity average as a control signal to an electronic or electromechanical device.

25. The method of claim **24**, wherein the computed translation weightings of innermost and outermost fingers are constant and computed translation weightings of central fingers are inversely related to polar component speeds so as to prevent vertical translation bias while performing hand scaling and rotation but otherwise include all available fingers in the computed translational velocity average.

26. The method of claim **25**, wherein the computed translational weightings are related to the ratio of each finger's speed to a speed of a fastest finger.

27. The method of claim **26**, wherein the computed translational weightings are related to the ratio of each finger's speed to a speed of a fastest finger.

28. The method of claim **22** further comprising:
computing a translation weighting for each finger;
computing a translational velocity for each finger;
computing a translational velocity average from the computed translational velocities and the computed translation weightings;
filtering the translational velocity average; and
transmitting the filtered translational velocity average as a control signal to an electronic or electromechanical device.

29. The method of claim **23**, wherein the computed translation weightings of innermost and outermost fingers are