

**33.** The method of claim 32 further comprising:  
 computing a translation weighting for each finger;  
 computing a translational velocity component 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.

**34.** The method of claim 33, 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.

**35.** The method of claim 34, wherein the computed translational weightings are related to the ratio of each finger's speed to a speed of a fastest finger.

**36.** The method of claim 35, wherein the computed translational weightings are related to the ratio of each finger's speed to a speed of a fastest finger.

**37.** 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;  
 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.

**38.** The method of claim 37, 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.

**39.** The method of claim 38, wherein the computed translational weightings are related to the ratio of each finger's speed to a speed of a fastest finger.

**40.** The method of claim 39, wherein the computed translational weightings are related to the ratio of each finger's speed to a speed of a fastest finger.

**41.** The method of any of claims 22-40, wherein filtering the computed velocity components further comprises:

downscaling each computed velocity; and  
 dead-zone filtering each downscaled velocity wherein the dead-zone depends on distribution of speeds of the velocities.

**42.** The method of claim 41 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.

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