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Professor Alan Wing

Professor of Human Movement

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Qualifications

BSc (Edinburgh), PhD (McMaster)

Research

Sensory processes and internal models for movement control.

I am interested in anticipatory aspects of human movement control evident in tasks ranging from fine adjustments in grip when manipulating an object with the hands to whole body postural adjustments in keeping balanced when lifting an object while standing. Such actions are critically dependent on the orderly, coordinated recruitment of many muscles. However also important is the selection and integration of sensory information coming from visual, vestibular, and proprioceptive sources. This sensory input may be used as feedback to adjust movements that fail to attain their target. But the information also serves to correct inaccurate stored information about the environment and/or the effector system, so reducing the likelihood of correction being required on another occasion. An important goal for research is to understand how the brain uses sensory input to develop and maintain accurate representations (internal models) for adaptive planning and control of movement. When we imagine an action, there is a feeling of it taking place that has a distinct time course; indeed it has been shown that the duration of imagined action is very similar to the corresponding real movement. It is conceivable that internal models that underlie overt movement contribute to imagining movement and current research asks whether imagined movement evolves in parallel with sensory induced changes in internal models.

Publications

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