

# Smooth Transitioning Between two Walking Metaphors for Virtual Reality Applications

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Virtual navigation should be as similar as possible to how we move in the real world, however the limitations of hardware and physical space make this a challenging problem. Tracking natural walk is only feasible when the dimensions of the virtual environment match those of the real world. The problem of most navigation techniques is that they produce motion sickness because the optical flow observed does not match the vestibular and proprioceptive information that appears during real physical movement. Walk in place is a technique that can successfully reduce motion sickness without losing presence in the virtual

environment. It is suitable for navigating in a very large virtual environment but it is not usually needed in small virtual spaces. Most current work focuses on one specific navigation metaphor, however in our experience we have observed that if users are given the possibility to use walk in place for large distances, they tend to switch to normal walk when they are in a confined virtual area (such as a small room). Therefore, in this paper we present our ongoing work to seamlessly switch between two navigation metaphors based on leg and head tracking to achieve a more intuitive and natural virtual navigation.