

The Effects of Natural Locomotion on Maneuvering Task Performance in Virtual and Real Environments



This is a NAVAL POSTGRADUATE SCHOOL MONTEREY CA report procured by the Pentagon and made available for public release. It has been reproduced in the best form available to the Pentagon. It is not spiral-bound, but rather assembled with Velobinding in a soft, white linen cover. The Storming Media report number is A375793. The abstract provided by the Pentagon follows: This thesis investigates human performance differences on maneuvering tasks in virtual and real spaces when a natural locomotion technique is used as opposed to an abstraction through a device such as a treadmill. The motivation for the development of locomotion devices thus far has been driven by the assumption that a The perfect device will result in human performance levels comparable to the real world. This thesis challenges this assumption under the hypothesis that other factors beyond the locomotion device contribute to performance degradation. An experiment was conducted to study the effects of these other factors. The experiment studied sidestepping, kneeling, looking around a corner, and backward movement tasks related to a building clearing exercise. The participants physically walked through the environment under all conditions. There were three treatments: real world (no display, physical objects present), virtual world (head-mounted display, no physical objects), and real and virtual world combined (head-mounted display, physical objects present). The results suggest that performance and behavior are not the same across conditions with the real world condition being uniformly better than the virtual conditions. This evidence supports the claim that even with identical locomotion techniques, performance and behaviors change from the real to the virtual world.

[\[PDF\] Professional Development Schools Policy & Financing: A Guide for Policymakers](#)

[\[PDF\] Essene Gospel of Archangel Gabriel I: Healing Relationships](#)

[\[PDF\] Your First Home](#)

[\[PDF\] German Military Ribbon Bars 1914-1957 \(Schiffer Military History Book\)](#)

[\[PDF\] Russian Reader, Accented Texts, Grammatical and Explanatory Notes, Vocabulary](#)

[\[PDF\] Attention Deficit Hyperactivity Disorder In Adults](#)

[\[PDF\] The Cardiovascular Cure: How to Strengthen Your Self Defense Against Heart Attack and Stroke](#)

CiteSeerX 4. TITLE AND SUBTITLE The Effects of Natural The Effects Of Natural Locomotion On Maneuvering Task. Performance In Virtual And Real Environments By Eray Unguder .pdf. Palimpsest illustrates **The Effects of Natural Locomotion on Maneuvering Task - OAI TITLE AND SUBTITLE** The Effects of Natural Locomotion on Maneuvering Task Performance in Virtual and Real Environments (2001) **Darken_Omni-Directional_ - Naval Postgraduate School** **The effects of natural locomotion on maneuvering task performance** Aug 10, 2015 This reduced spatial updating performance in virtual reality (VR) is often . in a variety of behavioral tasks such as locomotion, maneuvering, reaching, whether vection itself has a causal effect of our behavior and performance. . of target objects embedded in a natural cluttered lab environment from one **Download The Effects of Natural Locomotion on Maneuvering Task** learning transference to a real-world context such as on-the-job task performance? the consequences of their decisions play out, a natural form of feedback that can virtual locomotion control for use in first-person shooter VEs that leverages a harbor navigation, complex-maneuvering skills in open ocean, and infantry **The effects of natural locomotion on maneuvering - Calhoun Home** Mar 14, 2012 line, Modeling, Virtual Environments and Simulation The effects of natural locomotion on maneuvering task performance in virtual performance differences on maneuvering tasks in virtual and real **The Effects of Natural Locomotion on Maneuvering Task** The Omni-Directional Treadmill: A Locomotion Device for Virtual Worlds (ODT) is a revolutionary device for locomotion in large-scale virtual environments. analysis consisting of a series of locomotion and maneuvering tasks on the ODT. The effects of natural locomotion on maneuvering task performance in virtual and **The Omni-Directional Treadmill: A Locomotion Device for Virtual** Jun 1, 2002 Presence: Teleoperators and Virtual Environments archive Effect of turning strategy on maneuvering ability using the treadport locomotion interface The maneuvering task involves walking down a narrow corridor and avoiding The performance metric was the number of times a subject collided with **Download The Effects of Natural Locomotion on Maneuvering Task** An experiment was conducted to study the effects of these other factors. Locomotion on Maneuvering Task Performance in Virtual and Real Environments. **The effects of natural locomotion on maneuvering task performance** [1], and methods for natural locomotion walking, running, crawling, etc. device for locomotion in large-scale virtual environments. The device allows and maneuvering tasks on the ODT. large equipment with which they must operate in real world situations. . tiple active rollers, thus creating the effect of a flat and uni-. **The Effects Of Natural Locomotion On Maneuvering Task** The effects of natural locomotion on maneuvering task performance in virtual on maneuvering tasks in virtual and real spaces when a natural locomotion The participants physically walked through the environment under all conditions. **Proprioception and Natural Walking in Navigation Metaphors for** An experiment was conducted to study the effects of these other factors. Locomotion on Maneuvering Task Performance in Virtual and Real Environments. **Frontiers More than a cool illusion? Functional significance of self** This thesis investigates user interfaces for locomotion in virtual environments (VEs). the results of the analysis of the ODT and LocoX to real-world locomotion. The effects of natural locomotion on maneuvering task performance in virtual **Performance Based Design of a New Virtual Locomotion Control** Mar 20, 2010 Real walking allowed superior performance over the the nature and goal of the virtual environment tasks must be carefully considered to determine demands of semi-natural locomotion, Presence: Teleoperators and Virtual grounds the interface tasks of: running down the field, maneuvering in a small Jul 26, 2015 This reduced spatial updating performance in virtual reality (VR) is often . in a variety of behavioral tasks such as locomotion, maneuvering, reaching, whether vection itself has a causal effect of our behavior and performance. . of target objects embedded in a natural cluttered lab environment from one **Locomotion in virtual environments and analysis of a new virtual** We present an exploration into realistic locomotion interfaces in video games using .. Figure 18 - Mean damage taken by users in the maneuvering task . . such as real walking, have better performance in terms of precision and virtual environment more than an entirely virtual locomotion technique (Usoh, et

al., 1999). **Effects of travel technique and gender on a divided attention task in** [1], and methods for natural locomotion walking, running, crawling, etc. device for locomotion in large-scale virtual environments. The device allows and maneuvering tasks on the ODT. large equipment with which they must operate in real world situations. . tiple active rollers, thus creating the effect of a flat and uni-. **Spatial Orientation and Wayfinding in Large-Scale Virtual - UF CISE** A Virtual Environment (VE) is a computer-generated setting in which a participant of locomotion, and thus HMDs would lead to poorer performance on these kinds of tasks. . performance in an object-finding task in real world testing. Werkhoven, and Passenier (1999) examined the effects of proprioceptive feedback on. **Multimodal Integration during Self-Motion in Virtual Reality - The** Thesis and Dissertation Collection. 2001-09. The effects of natural locomotion on maneuvering task performance in virtual and real environments. Unguder, Eray **4. TITLE AND SUBTITLE The Effects of Natural Locomotion on** Mar 14, 2012 Title, The effects of natural locomotion on maneuvering task performance in virtual and real environments. URL, <http://10945/> **Effect of Turning Strategy on Maneuvering Ability Using the** Turning strategies on the Sarcos Treadport, a linear treadmill locomotion interface, The maneuvering task involves walking down a narrow corridor and avoiding The performance metric was the number of times a subject collided with the **View PDF - CiteSeerX** During almost all natural forms of self-motion, there are several sensory systems within impoverished, laboratory environments using unnatural tasks. . This tether can also be used to simulate uphill or downhill locomotion (Tristano et al. and the effects of specific flight simulation training on real-world performance **The Omni-Directional Treadmill: A Locomotion Device for Virtual** Mar 14, 2012 The effects of natural locomotion on maneuvering task performance in virtual and real environments. r, Darken, Rudy. **The Omni-Directional Treadmill: A Locomotion Device - CiteSeerX** The ability to simulate walking around in the environment is a key element A number of sensor-based techniques are widely used to maneuver through Virtual Environments but The goal is to find a virtual locomotion control technique as similar to actual the natural effect is real motion (physical displacement), and the. **Effect of turning strategy on maneuvering ability using the treadport** 1. INTRODUCTION. The quality of a virtual-environment (VE) locomotion interface that impact WIP usability: system latency (particularly troublesome A more natural motion- synthesis combined with short-distance maneuvering in the real-world, .. Chest-directed locomotion while sufficient for many tasks does not **Handbook of Virtual Environments: Design, Implementation, and - Google Books Result** [1], and methods for natural locomotion walking, running,. crawling, etc. device for locomotion in large-scale virtual environments. The device allows and maneuvering tasks on the ODT. large equipment with which they must operate in real world. situations. . tiple active rollers, thus creating the effect of a ?at and uni-.