Controlling bipedal locomotion for computer animation

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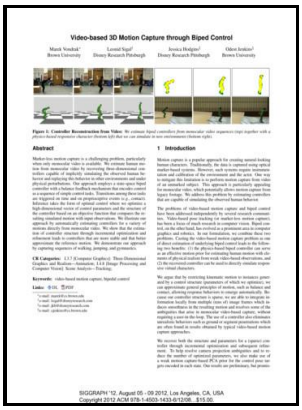

Description: -
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Notes: Thesis (M.Sc.) -- University of Toronto, 1996.
This edition was published in 1996

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CiteSeerX — Controlling Bipedal Locomotion For Computer Animation

As input, the method assumes an abstract action vocabulary consisting of balance-aware locomotion controllers. In addition to other interesting variations, the speed, stride rate and direction of a walk can each be controlled. Thesis Controlling Bipedal Locomotion for Computer Animation Abstract Some seemingly simple behaviours such as human walking are difficult to model because of their inherent instability.

Sensory state machines for physically

A constrained state exploration phase is first used to define a dynamics model as well as a finite volume of character states over which the control policy will be defined. This paper shows how the computational model, which simulates the coordinated movements of human-like bipedal locomotion, can be evolutionarily generated without elaboration of manual coding. Abstract Understanding and reproducing the processes that give rise to purposeful human and animal motions has long been of interest in the fields of character animation, robotics and biomechanics.

Sensory state machines for physically

First, a mechanism to stabilize open loop walking motions is presented.

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Lastly, we describe a control strategy for walking that generalizes well across gait parameters, motion styles, character proportions, and a variety of skills. These variations can be parameterized and potentially used to provide the animated character with the ability to perform autonomous motions such as following a path specified by the animator.

Sensory state machines for physically

Building on recent advances, this thesis presents several approaches to creating control policies that allow physically-simulated characters to demonstrate skill and purpose as they interact with their virtual environments.

Evolutionary generation of human

In this paper, we applied genetic programming to induce the model of the nervous system automatically and showed its effectiveness by simulating a human bipedal gait with the obtained model.

Sensory state machines for physically

The method integrates tracking using proportional-derivative control, foot placement adjustments using an inverted pendulum model and Jacobian transpose control for gravity compensation and fine-level velocity tuning.

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