

Human Motion Ontologies for Computer Animation

Advisors

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Context

The general context for this Master's thesis is the computer simulation of complex, goal-directed human motion of virtual actors in 3D computer animation.

Objectives

More specifically, we would like to investigate the use of motion ontologies [1,2,3,4,5] for annotating and composing human movements in 3D animation.

Using an existing ontology of anatomic structures and functions [6] as a starting point, our goal in this thesis will be to propose a general framework for creating ontologies of human movements and using them to generate 3D computer animation of the movement in the ontology. This is a difficult task that requires principled approaches for decomposing more complex movements into simpler motion primitives and for refining more general movements into more specific movements.

The proposed methodology is expected to be useful in at least two ways. First, we will use it to illustrate an existing anatomical ontology of musculo-skeletal functions of the human body [7] with interactive animation. Second, we expect that the methodology can be used to design and implement a high-level, multimodal command language for scripting and directing the actions of computer animated actors [8].

Keywords

Human movement, anatomy, ontologies, virtual actors.

References

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