A UNIFYING MODEL FOR THE
COMPOSITION OF BEHAVIOURS IN
DISTRIBUTED VIRTUAL
ENVIRONMENTS

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Abstract

Virtual Environments can be used to enable intuitive human computer interaction in fields where traditional methods are unsuitable. Defining the behaviour of objects, however, in VEs is difficult, and is made more complex by the desire to operate in distributed environments. A variety of approaches have been adopted, including physical simulation, constraint based simulation, autonomous agents and event based. The behaviour resulting from these methods is usually implicit within the code, and hence these techniques are difficult to integrate with one another since there are no shared concepts. This limits development in the field.

By analysing the domains of behaviour and of networking requirements, a set of universal concepts can be extracted to which different mechanisms for the provision of behaviour can be explicitly mapped in a way that is sensitive to the requirements of distributed VR. This thesis presents such an analysis, and develops a framework for integrating distributed behavioural sources. A number of applications, combining behaviour from different sources are constructed to validate the framework.