THE VICTORY GAME ENGINE

Adam Cubitt, Michael Beeson, Dominic Carus, Georgios Cherouveim, 
David Hopkins, Leigh McLoughlin and Jun Shimoda 
The National Centre For Computer Animation 
Bournemouth University, Talbot Campus 
Fern Barrow, Poole, Dorset BH12 5BB, UK 
E-mail: { b1490006,b1432174,b1350852,b1439936,b1421781, 
b1425046,b1432051 }@bournemouth.ac.uk

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ABSTRACT

We present the “Victory” game engine, a modern multi-platform capable engine that was developed as a 
group project at the National Centre for Computer Animation. Essentially the aim of this project was an 
exploration of the concepts surrounding computer game design. The final game engine features include:
• A non-linear animation system for in-game objects and characters.
• A modular and fully node-based architecture.
• Scripting support using the Lua extension language, allowing complete control of all aspects of the game 
  engine.
• A renderer using the OpenGL API and NVIDIA’s Cg shading language (http://developer.nvidia.com) for 
  hardware-accelerated programmable shaders.
In addition to the game engine itself, a number of tools to aid content creation for games using the engine 
were created. These tools include:
• An animation exporter for the Maya 3D modelling and animation system (http://www.alias.com) to 
  export animations in a custom format for use by the non-linear animation system.
• A Maya plug-in to check if the geometry of models is valid for the game engine before they are exported 
  and to correct the geometry if necessary.
• A “Collision Tree” Maya plug-in for setting up and exporting collision trees for in-game objects by 
  assigning collision primitives to parts of the objects.
Finally, we also present a sample game application that was implemented using the engine to demonstrate its 
capabilities.