Using Alice to Quickly Prototype Video Game Mechanics and Ideas

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1 Abstract

This poster briefly describes the advantages of using the 3D programming environment Alice to prototype video game mechanics and ideas. We found that undergraduate students and high school students with little or no programming experience were able to develop reasonable 3D game prototypes within weeks of their first exposure to Alice.

2 Introduction

Alice is a free 3D programming environment developed at Carnegie Mellon University which makes it simple to create interactive animations and video games. We found that students developed reasonable game prototypes within weeks of their first exposure to Alice. Alice is a useful tool for quickly prototyping video game ideas.

3 Alice Features

- User Interface (Fig1)
  - Drag and drop interface to avoid syntax errors
  - Tailored for those learning to program and for experience programmers to concentrate effort on game design

- 3D Models (Fig2)
  - Hundreds of low polygon models of different objects

- 3D model manipulations
  - Arranging, sizing, rotating, copying & turning 3D objects thru mouse controls

- Automatic handling of computer graphics

- Importing art assets
  - Can import objects created with Blender or 3D Studio Max

- Automatic camera control

- Physics simulations
  - Users can create physics functions for rolling or falling objects

4 Drawbacks

- No support for dynamic creation of and destruction of objects
- No support for external rendering engines
- Large files can be unstable
- Tool for prototyping, not final products

5 Course Experience

- Alice has been used to teach, very successfully, a “Computer Animation” course at NMSU for 4 semesters and 2 High School Summer workshops

6 Conclusions

- Students can create an animation or game prototype very quickly, within weeks time
- Gives development time advantages over using C++ or Java
- Built in rendering gives time advantages over using rendering and physics engines
- Experienced programmers can make expandable prototypes and get a good start on making a full game

7 References

W. Dann, S. Cooper, and R. Pausch, Learning to Program with Alice, Pearson Prentice Hall, 2006


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