Alice: Beyond the Basics

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Center of an object

- An object is positioned in the world around its center.
- The center of an object can be:
  - At the center of its mass, or

  - Where it stands on the ground, or

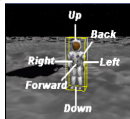 - Where it is held or connected (a hinge joint)

Motion

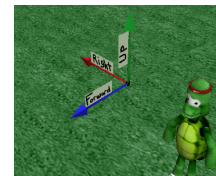- Motion of an object is relative to
  - its orientation

  - its center

Translational Motion

- *Change of position of the entire object in the world*
- The **direction** of translational motion is stated relative to the orientation of the object.
  - Objects are *ego-centric,* motion based on orientation of the object
  - Six possible directions
    - **move**
      - **left**
      - **right**
      - **up**
      - **down**
      - **forward**
      - **backward**

Rotational Motion

- Rotational motion occurs around the *center (pivot point)* of the object or subpart of the object.
- Directions are divided among two instructions:
  - **turn**
    - **forward, backward**
    - **left, right**
  - **roll**
    - **left, right**
- **No up and down directions!**

Demo

- Rotational Motion
  - Note that the movement is around the center of the object.
  - *turn*
    - **forward orientation changes**
  - **roll**
    - **forward orientation remains the same**
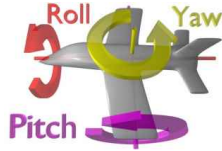
Aeronautical Terminology

- **Pitch:** turn forward or backward – rotation is like a hinged lid on a box
- **Yaw**: turn left and right – rotation is like a door on hinges
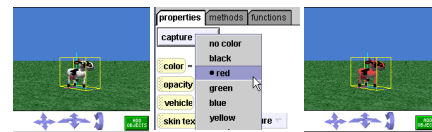- **Roll** (a.k.a. **Bank**); roll left or right – rotation is like a doorknob

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Customize Your Objects!

- All of the objects in Alice have properties that can be changed.
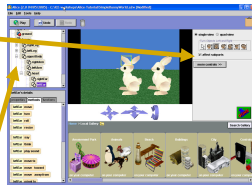- For example, I can change my cow's color to red!

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Posing an Object

- You can move just a part of an object
  - □ Click affect subparts box under mouse controls
- Select a part to move with the mouse
  - □ Mouse controls will affect just that part
- Or use the object tree
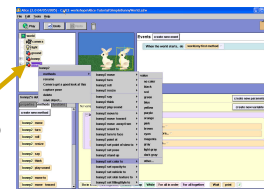 - □ To pick the part to move

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Posing an Object using the Menu

- You can also use a popup menu to pose an object
  - □ Right click on an object in the object tree to bring up the methods
    - Select a method to execute it
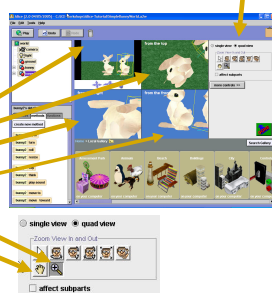   - Click on the Undo button to undo this action

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Quad View

Click here to see Quad View

- Use the Quad View to get multiple views of your objects
  - □ Normal camera view
  - □ From the top
  - □ From the right
  - □ From the front
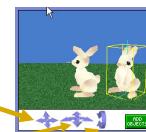- Can zoom
- And move the view

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Camera Controls

- Use camera controls to change the starting camera view
  - □ Move up, down, left, right
  - □ Drive forwards, backwards, rotate left, rotate right
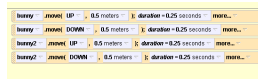 - □ Tilt (rotate) camera forwards or backwards

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Change the speed of a command

- You can click on the down arrow next to a command
  - And select duration
  - And change how long it takes to do that command
- You can also change the style of the animation
  - Also by clicking on the down arrow
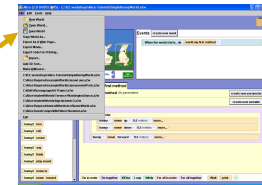

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Saving a World

- Click on File and Save World
- Tell it where you want to save it
  - Give it a name
- To open a saved world
  - Click on File, Open World
    - Pick the saved world
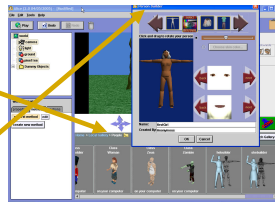

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Creating People

- You can use the she builder and he builder to build custom people
  - In the people category
  - Control the skin color, hair, eyes, body, and clothes

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Challenge

- Create several objects of a class and pose them so that they look different
  - Also change some of the properties of the objects
    - Like color
- Create a custom person and add it to your world
- Save your finished world

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Saving a Position

- Click the more controls button
- Drop a dummy
  - At the camera
  - Or at an object
- Can move the camera to a dummy
- Can set an object to the dummy's position
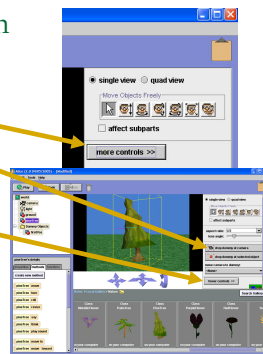
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Adding Sounds!

- Most of the objects in Alice have the ability to play a sound!
- Locate the method that says object.playSound
- You can either play one of the sounds in the Alice library or import one of your own!

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Importing Sounds!

- Using the drop-down menu, select Import Sound.
- Navigate to the sound file on your computer that you'd like to use.
- You can only use .wav or .mp3 audio files in Alice animations.

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Recording Sounds!

- You can record your own sounds to use in Alice by selecting record new sound in the drop-down menu.
- Give your sound file a name, so you will be able to find it later.
- When you're ready, press the record button and speak into the microphone!

edu.cmu.cs.stage3.alice.authoringtool.dialog.SoundRecorder

Name: unnamedSound

Duration: 0:00.000

| Record | Play |

OK   Cancel

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Background Music!

- If you'd like to have a soundtrack play for the duration of your animation, you will have to create new event, and select When the world starts.
- You can attach the method to any object that is in your world. Even the ground can play your background music!
- Finally, import the .wav or .mp3 file you'd like to play!

Events   create new event

When the world starts, do   world.my first method

When the world starts,
do   ground   play sound   world.The Black Eyed Peas - Lets Get It Started (Radio Edit) (?:??)   more...

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Add 3-D Text

- You can add a title for your animation by using the 3-D text object.
- Add an object to your world, and scroll to Create 3-D Text in the local gallery.

Create 3D Text

3D TEXT

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Add 3-D Text

- Type in your text; choose your font and size.
- Once the text is on the screen, you can use the Properties tab to change the color of the text.
- You can also use the tools to position your text in your movie.

Red Cow

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Making Your 3-D Text Disappear

- You will probably want to use the text as a title screen, so you'll want to fade the title out after an amount of time.
- There are two ways you can do this – by changing the isShowing property or by changing the opacity property
  - use a duration to get it to fade out

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Challenge

- Add a title screen to your movie
  - And make the 3d text fade out over 2 seconds
- Add at least one sound to your movie
- Add a soundtrack to your movie
- Have at least one camera move

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What can you teach with Alice?

- Basics of Object-Oriented Programming
  - Objects and Classes
  - Methods and Parameters
  - Inheritance
    - Alice doesn't fully support inheritance
  - Iteration (looping)
  - Conditionals
  - Recursion
  - Lists and list processing
  - Arrays
  - Algorithm design, implementation, and testing
- Basics of Event-driven programming

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Alice Tutorials

- Click on File then Open World
- Click on the Tutorial tab
  - And then click on a tutorial to run
  - When you finish with one tutorial do the next the same way
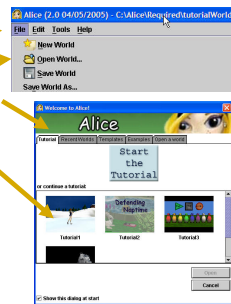
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Resources

- Web site
  - http://www.alice.org
- Book: Learning to Program with Alice
  - Wanda Dann, Stephen Cooper, Randy Pausch
- Short Workshops at Georgia Tech
  - Check web site for teacher workshops http://coweb.cc.gatech.edu/ice-gt/
- Summer 2-day workshops across the country
- Curricular materials
  - http://aliceprogramming.net/

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