An Introduction to Alice (Short Version)

Edited By Chris Brown
under the direction of Professor Susan Rodger
Duke University, November 2012
This is a shorter version of the full tutorial by Jenna Hayes in June 2009
Hello! I’m Alice, and I’m going to teach you how to use the Alice program. With Alice, you can make your own animations, using tons of different characters.
Topics

• This Alice world will tell a story about an astronaut on the moon. In this tutorial, you will learn how to add objects, move and adjust objects, use methods, create new methods, create events, and use the “vehicle” property.

• This tutorial takes 25-30 minutes. Topics that are not covered in this version but are in the complete version are creating dummy camera views, moving the camera, using Do Together in a method, and turning “as seen by” another object.
Starting Off

• Our first step is to choose a background.
• When you open Alice, a box will pop up that has six different choices of background. It looks like the box to the right.
• Select the space background, because our world will be in space.
• Click on space and then click Open.
After you click **Open**, your screen will look like this:
Saving your world

• Before we do anything else, let’s save our world. You should also always do this before you close out of Alice.

• Click on File at the top left-hand corner of your screen, and then click on Save World.
Saving your world

• In the box that pops up, name your world `spaceWorld`, and save it in a place that you will be able to find again, such as in a folder on your Desktop.
Saving your world

• Also, while you’re working on your Alice world, this box will pop up about every 15 minutes.

• You should always click Save right now. This way, if Alice crashes, or if your computer crashes, you will have backups of your world and will not lose all of your work!
Adding objects to your world

• Now, we will add some objects to the world.
• Just below the picture of your empty space world, there is a small green button that says **Add Objects**.
• Click on this button.
Adding objects to your world

A new screen will appear, on which there is a large selection of objects below the space screen that you can add into your world. This is called the Local Gallery. Each folder of objects in the gallery has a different theme.
Adding objects to your world

• Scroll to the right until you see the Vehicles folder, and click on it.

• Scroll to the right again until you see the Humvee.
  • Click on the Humvee.
  • On the box that pops up, click Add instance to world.
  • The humvee will appear in the center of the space screen.
Adding objects to your world

The humvee takes up most of your screen, but we will re-size it later. First, let’s add another object to your world.

• Click on Local Gallery above the pictures of objects to go back to the gallery starting screen.
Adding objects to your world

• Next, scroll to the right until you see the Space folder.
• Click on this folder.
• Click on the Astronaut.

• Click Add instance to world on the box that pops up.
• The astronaut will be added to your world, but you won’t be able to see him/her yet.
Adding objects to your world

Your space world will look the same after adding the astronaut. This is because he/she is being hidden by the humvee!
The Object Tree

• When you add objects to your world, they will appear in a list on the left of your screen, called the Object Tree.
• The humvee that you added will be on the object tree.
• Even though you can’t see the astronaut yet, his/her name will also appear in the object tree. That way you know that he/she is actually there.
Now we have added two objects to our world. The next step is to position them!
Positioning the objects

• Look at the right side of your screen.
• There is a group of buttons with faces on them.
• These buttons are used to position objects.
• The first thing we will do is make the humvee smaller. Click on the resize button, which is the one with the four arrows coming out of the face.

• Click on the humvee, and hold down your mouse. Move your mouse around, and the humvee will get bigger and smaller!
• Downsize the humvee until you can see the astronaut’s feet.
Positioning the objects

• Now, click on the button with the white arrow on it, as pictured above. Click on the humvee and move it to the left of the astronaut.
• Then, click on the astronaut and move him/her to the right.
• Move the humvee to the right so that it is completely on the screen. Your screen should look something like this:
Positioning the objects

- This button will move your objects up and down.
- Click on this button, and then move the humvee up and down. Position it so that its wheels are directly on the ground.
- Here’s a hint: Move it down so that its wheels disappear into the ground, and then slowly move it back up. You may have to use the white arrow button again to move the humvee back if it starts to disappear off of the screen. The second you see all of its wheels appear out of the ground, you know it is directly on the ground.

Try doing the same thing with the astronaut!
The Undo button is your friend!

• What if you make a mistake, like accidentally clicking on the ground and moving it?
• You can click on the Undo button above the object tree to undo the last thing you did.
• Use this button whenever you mess up, or want to get rid of something you just did.
Positioning the objects

• This button is used to spin your objects around.

• Try spinning your humvee so that it is parallel to the screen.
• Your screen should look something like this:
Positioning the objects

• This button will turn your character backwards or forwards.

• This button will turn and rotate your object in pretty much any direction.

• If you want to, try these buttons out on your objects. When you’re finished, click Undo until your screen looks like this again.
Now that we are done positioning the objects, we can start to animate the characters in the world!
Methods

• The large tan rectangle in the center of your screen is called the Method Editor. Right now, it is blank.
Methods

• The method editor is where you can make your characters do things.

• Your characters already know how to do certain things.

• These are some of the things that your astronaut already knows how to do. To find this list, click on astronaut in the object tree. Then look below the object tree at the box that says astronaut’s details, and click on the methods tab. This list will appear.
Methods

• To tell your astronaut to do something, click on one of these methods, hold down your mouse, and drag and drop it into your method editor. Try dragging a few of them to see what they look like. For most of them, such as **move**, you will have to select a direction or a distance when you drop it. These are called *parameters* for the methods.
Methods

• Now press the Play button in the upper left-hand corner of the screen to see what these methods will look like in your world.

• Challenge: What code should we add to return the astronaut to his original size and position?
world.my first method

<table>
<thead>
<tr>
<th>Action</th>
<th>Position</th>
<th>Quantity</th>
<th>Additional</th>
</tr>
</thead>
<tbody>
<tr>
<td>astronaut move up</td>
<td>1 meter</td>
<td>more...</td>
<td></td>
</tr>
<tr>
<td>astronaut resize</td>
<td>2</td>
<td>more...</td>
<td></td>
</tr>
<tr>
<td>astronaut turn right</td>
<td>2 revolutions</td>
<td>more...</td>
<td></td>
</tr>
<tr>
<td>astronaut resize</td>
<td>0.5</td>
<td>more...</td>
<td></td>
</tr>
<tr>
<td>astronaut move down</td>
<td>1 meter</td>
<td>more...</td>
<td></td>
</tr>
</tbody>
</table>
Methods

• To teach your astronaut new things, you can combine these methods that he/she already knows into new methods.

• Let’s try creating a new method. We will create a method that makes the astronaut wave. Make sure you have clicked on astronaut in the object tree. Then, go to the methods for the astronaut and click create new method.
In the box that pops up, type `wave`, then click `OK`.

You should see a new tab appear in your method editor called `astronaut.wave`. This is the space where you will create the `Wave` method.
In your object tree, click on the + sign next to astronaut. This will show you the astronaut’s parts.

Click on rightArm in the object tree so that you can get a list of the rightArm’s methods. We will use these methods to teach the arm to wave.
• Look back at the rightArm’s list of methods and find rightArm turn.

• Click on this method and hold your mouse down, and drag it over to the method editor. Then release your mouse to drop it there.
astronaut.wave

• A small gray menu of directions will appear. In this menu, select **backward**. Another menu will appear, this time of how many revolutions you want the arm to turn. Select **½ revolution**.
Now, click on the `rightArm roll` method. Drag and drop it into `astronaut.wave`. For the direction, select `left`, and for amount, select `other`. A calculator will appear. Type `.1` into this calculator, and then click `Okay`. 
Events

• Now that we have written part of a method, we want to figure out how to see it in action. When you press the Play button in the upper left-hand corner of your screen, your world will use an event that can show you your methods. An event is a way to call methods when your world is played.

• The event editor is found in the top right-hand corner of your screen.
Events

• There is one event in your event editor already. It says When the world starts do world.my first method. This tells your world what to do when you press Play.
• This means that when you press Play and your world starts, whatever methods you have in the world.my first method tab are carried out in your world.
• But if you click on your world.my first method tab in your method editor, you will see that it is empty!
Events

• This means that when you press Play, nothing will happen in your world. Try pressing Play to see that this is true.

• So how do we make astronaut.wave happen in our world?

• We could try changing the event that is already there to astronaut.wave. To do this, click on the down arrow next to world.my first method in the event editor, and then choose astronaut, and then Wave.
• Now press **Play** to see what astronaut.wave looks like so far.

• Let’s add more to the method. Drag and drop another rightArm roll, and select **right**, and then **other**…. Type in `.1`.

• Play your world again to test astronaut.wave.
Now we need one more line of code, that tells the astronaut to put his arm down. Drag and drop a rightArm turn method. Select forward, and ½ revolution. This will be the final code for your method.

Play your world one more time to test out the complete astronaut.wave.
Events

• We can make spaceWorld even more interesting by creating a new event that adds interaction in our world.

• First, let’s change the event in the event editor back to my first method.
Events

Now we are going to make an event. The event will allow you to control the humvee with the arrow keys when you play your world.

Click on create new event in the event editor. Then click on Let the arrow keys move <subject>.

Change the event from camera to humvee by clicking on the down arrow next to camera, and then selecting humvee, and then the entire humvee.
Events

• Play your world, and test out this new event by pressing the arrow keys and seeing what happens to the humvee.
• Now it’s time to pull this all together!
• In your method editor, click on the tab at the top that says `world.my first method`.
• This tab should have the very first instructions we added at the beginning, but now we are going to use it as a place where we bring all of the methods that we have written so far together.
Putting it all together

First, add astronaut.wave into world.my first method by dragging it into the method. Now, make the humvee roll left 1 revolution. Then, have the astronaut move to the entire humvee so that it will eventually be able to ride it when you drive. Your code should look like this so far:
• Now we need a way to glue the astronaut to the humvee so that when the humvee moves, the astronaut will move with it.

• We can do this using the **vehicle** property.

• To find **vehicle**, click on the astronaut’s **properties** tab, and find the button that says **vehicle**.

```plaintext
<table>
<thead>
<tr>
<th>properties</th>
<th>methods</th>
<th>functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>capture pose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>color =</td>
<td>opacity = 1 (100%)</td>
<td></td>
</tr>
<tr>
<td>vehicle = world</td>
<td></td>
<td></td>
</tr>
<tr>
<td>skin texture = astronaut.texture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fillingStyle = solid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pointOfView = position: -1.91, 0, -0.01;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>isShowing = true</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Seldom Used Properties

Sounds

Texture Maps

modeled by: Brian Levinthal

painted by: Cheryl Platz
Drive Humvee

• Click on the **vehicle** button and drag and drop it into your method.
• On the gray menu that drops down, select **humvee**, and then the entire **humvee**.
• This will set the humvee as a vehicle to your astronaut. When the humvee moves, the astronaut will go with it.
Pulling it all together

• Now, drag an astronaut say method at the bottom of your code, and click on other…. Type in, “Use the arrow keys to drive me around!”. Change the duration on the command to make the speech stay on the screen longer. To do this, click on more… on the astronaut say line of code, then choose duration, other…, and then type in 4. Your final code will look like this:
Pulling it all together

• Now test your world by pressing play. When your methods are done playing out, try steering the humvee around with the arrow keys.
Congratulations! You have just made your first Alice world. There are many more things that you can do with Alice, so keep exploring it! Check out the Duke Adventures in Alice Programming site for more tutorials and materials to try!

(http://www.cs.duke.edu/csed/alice/aliceInSchools/)