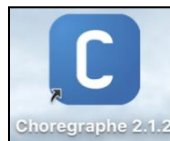


Choregraphe Next Steps: Timeline KeyFrames & Behavior Layers

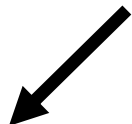


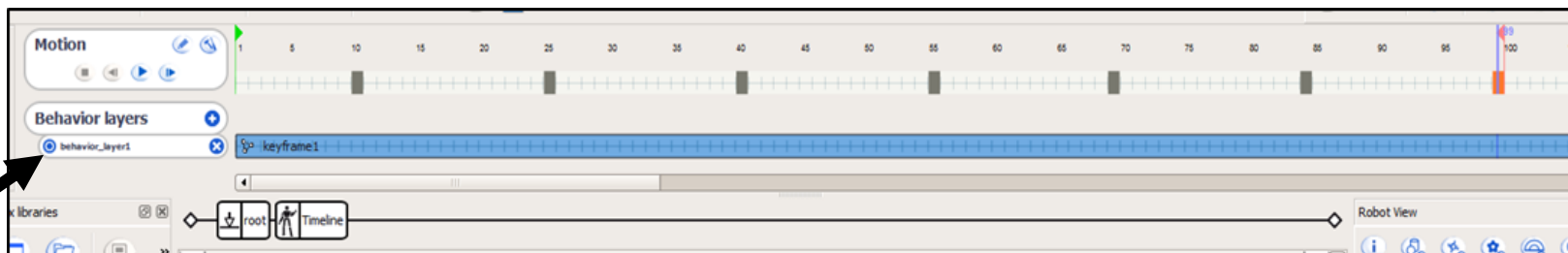
Goals for this session:

- Understand the purpose and use of behavior layers within Choregraphe's Timeline box.
- Understand the purpose and use of KeyFrames within Choregraphe's Timeline box.
- Create and save a Timeline of robot movements using multiple behavior layers and with multiple KeyFrames.
- *This lesson assumes you know the basics of Choregraphe and the basics of Timeline (box libraries, root directory, etc.).

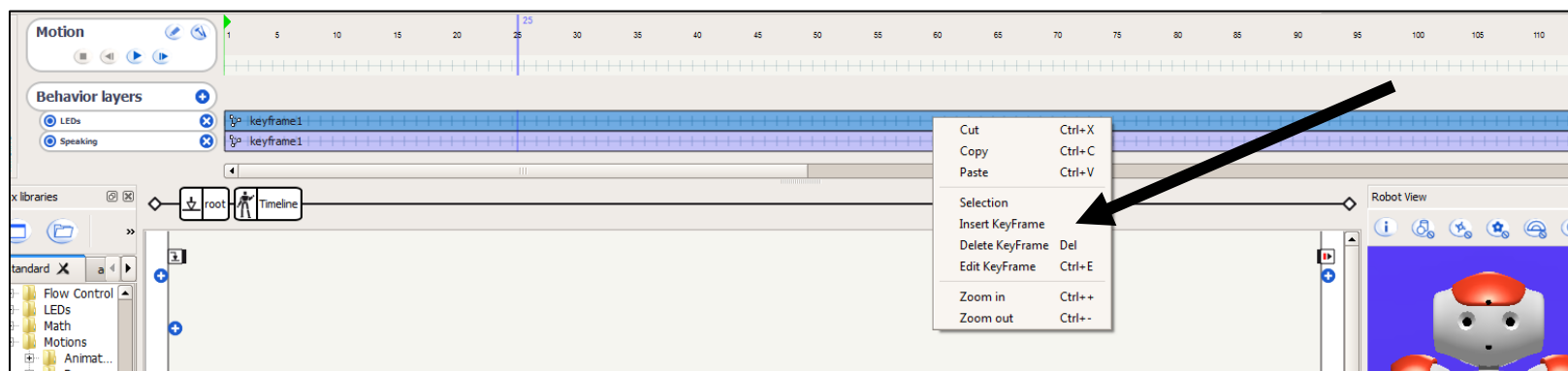
*Reminder: it is best practice to begin every program with the robot standing up.

1. This class only covers how to use the behavior layers and keyframes in Timeline, not the Motion layer.
2. For example, if you want the robot's ears to flash, but not until after it has waved, it's necessary to use KeyFrames.
3. Drag a Timeline box onto the workspace and double click to open. If a behavior layer is not automatically there, click the plus sign to make one appear. Rename the behavior layer LEDs.



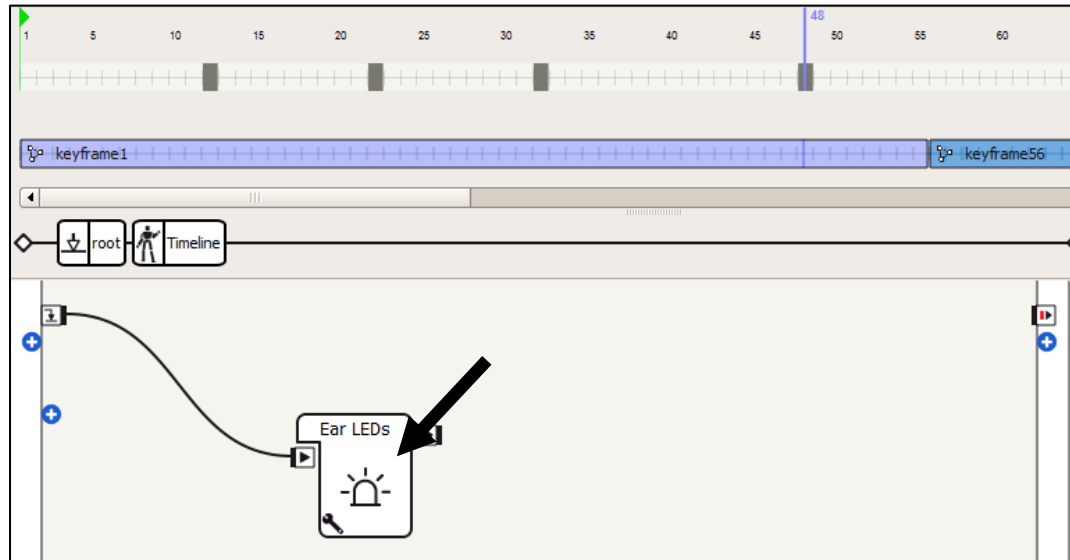


4. To add a KeyFrame, right click on the behavior layer at some point on the behavior layer to get a drop down menu. Click Insert KeyFrame.

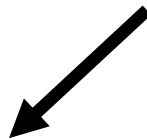


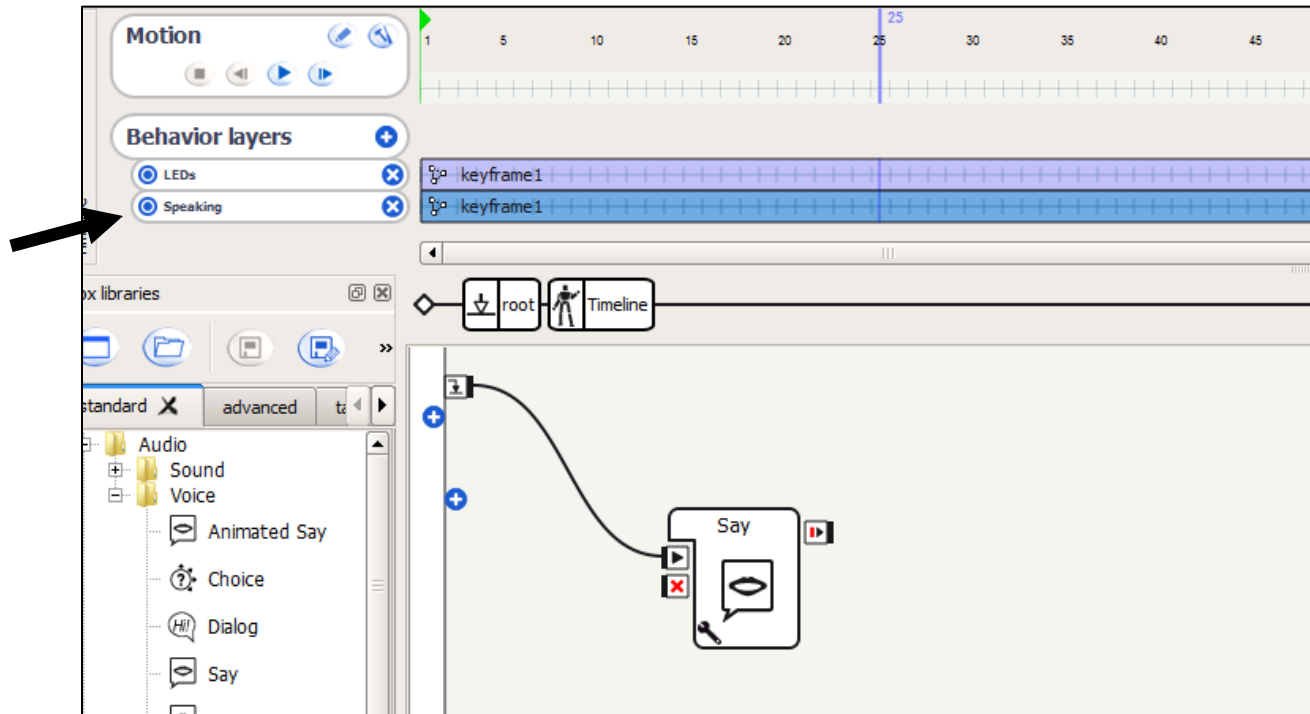
5. The behavior layer has now been subdivided. The section of the behavior layer you are working on will highlight blue. Now drag the "Ear LEDs" box onto the work space.





6. KeyFrames can be moved. To program the LEDs to start at a different moment click, hold and drag the KeyFrame section of the behavior layer along (right or left) the timeline where you want. Repeat this for as many layers and subdivisions as you desire.
7. You can tell which part of a behavior layer you are programming when it is highlighted blue. Also, the content/programming of the KeyFrame will not be visible unless that specific KeyFrame section of the behavior layer is selected.
8. To make the robot say hi and flash its LEDs, each action needs its own behavior layer. Click on the plus sign to add a behavior layer. Rename the behavior layer Speaking. Drag the Say box onto the Speaking behavior layer workspace (using the Play Sounds box is also an option). Since there is only one KeyFrame on the Speaking behavior layer, it will start immediately when the program starts.





9. To program the robot to speak after the LEDs flash, insert a KeyFrame into this layer as well. Continue to add behavior layers and KeyFrames to combine the actions, sound, and LEDs along the timeline to get the robot to move and speak exactly as you desire.