

# Dance Like Me

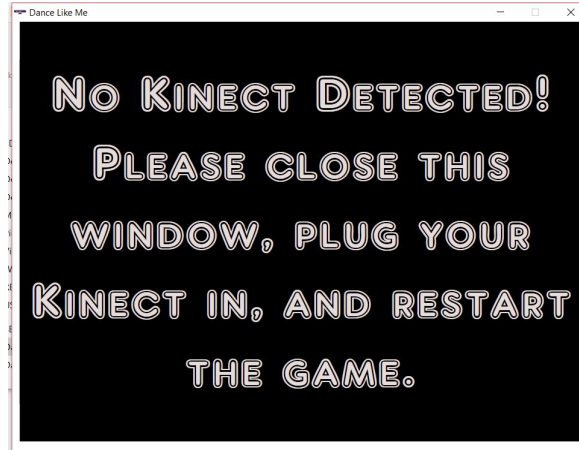
## Instruction Manual

### Getting Set Up:

- 1) This application operates with a **Kinect For Windows v1**. It has not been tested with a **v2** model. Plug this in before starting the application to avoid receiving an error message.
- 2) If you have never used the Kinect for your computer, follow steps 3 and 4
- 3) Get the correct Kinect software for the **v1**. You will need the **Kinect for Windows SDK v1.8** and the **Kinect for Windows Developer Toolkit v1.8**
  - a) **Kinect SDK v1.8:**  
<https://www.microsoft.com/en-us/download/details.aspx?id=40278> allows for setup
  - b) Agree to the terms and conditions and click “Install”
  - c) Once the **SDK** is finished installing, there is a link that says “**Download the Developer Toolkit**” - click that
    - i) Or click the link here:  
<https://www.microsoft.com/en-us/download/details.aspx?id=40276>
  - d) Agree to the terms and conditions and click “Install”
- 4) Test to make sure everything is set up correctly by opening the **Developer Toolkit** and running an application to make sure the Kinect is up and running
  - a) Suggested apps: “Face Tracking Basics - WPF” and “Shape Game”
- 5) NOTE: This program was created to be placed at a height of 29 inches from the ground and those involved in the testing process were between 5’7” and 6’ tall.
- 6) Now, you can run the program.

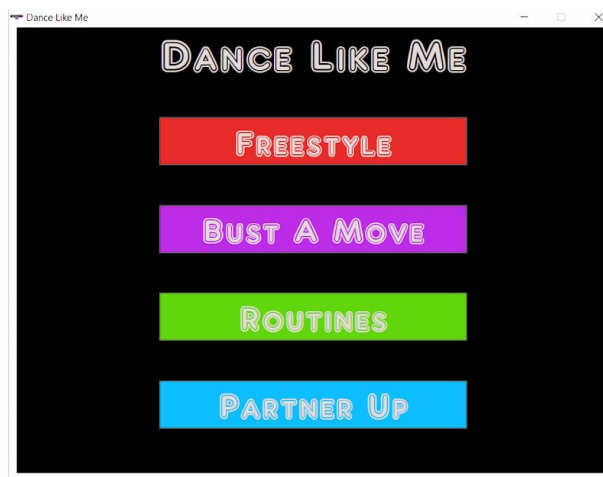
### Compile & Link

- 1) This program was made in **Microsoft Visual Studio 2017**, so the project solution (labeled “Dance Like Me.sln” in the “Dance Like Me” folder) can be loaded into that environment and built from there if you would like to see the code specifics of the program.
- 2) Otherwise, the **executable** is located in the file path “Dance Like Me\bin\Debug\Dance Like Me” and can be run from there.
  - a) If the Kinect is not plugged into the machine at runtime, the following screen will pop up:



### Running the Application

- 1) When you open the application (so long as the Kinect is plugged in), you will get the following screen:



- 2) Each button corresponds to a different mode of the game. Each mode will have its own section in this manual, but below are brief descriptions of these modes:
  - a) Freestyle- Essentially, "dance like no one's watching" where users can get acquainted with how the Kinect tracks movement.
  - b) Bust A Move- Allows users to record dance moves for the program to use to assemble routines
  - c) Routines- Takes 3 of the recorded moves and assembles full routines with them
  - d) Partner Up- Similar to "Routines," but a dance partner is mirrored over the center vertical line
- 3) If you hover over the buttons, brief instructions will appear. Some modes feature their own instructions once you click on the button as well.
- 4) The skeleton that appears on screen is called **Tiny Dancer** - it will be referred to as such throughout this manual and in the game as well.

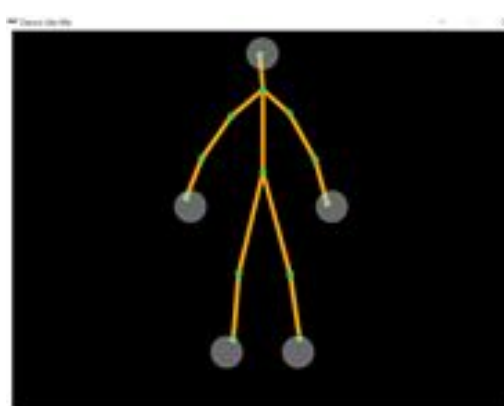
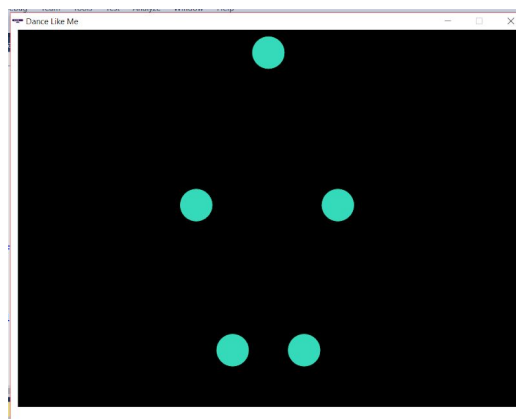
- 5) The color of the skeleton changes depending on the mode you're in - Tiny Dancer is changed to the color of the button you clicked on to get to that mode (with the exception of Bust A Move, which starts with an orange skeleton before turning purple).

### Freestyle

- 1) In Freestyle mode, users are meant to get acquainted with the Kinect and all of its functionality.
- 2) Users should make note of *inferred joints*, which are yellow joints with gray bones drawn between them, meant to show users that sometimes the Kinect cannot tell where a body part is. When body parts are inferred, the Kinect is guessing where they are. This is especially evident when a user stands with one leg behind the other. Since the Kinect cannot know where these body parts are, it attempts to fill in the gaps.
- 3) Freestyle features a "Home" button that will take you back to the home screen. This button is pink and is placed in the upper left corner of the screen.
- 4) Users can tell how close is too close with this mode as well, with red bars showing users how close they are to the edges of their frame. This is, again, a guide for users to see how close they are to the edge of their frame.

### Bust A Move

- 1) Bust A Move allows users to record their own dance moves for the Kinect.
- 2) NOTE: This is a **one-player** mode for Dance Like Me. Do NOT attempt to record a dance move when more than 1 person is in frame.
- 3) After clicking on this mode, users are given an instruction screen that informs them that they must stand in the 5 dots displayed on screen until Tiny Dancer (AKA: their skeleton) turns from orange to purple.
  - a) NOTE: Once they advance further past the instructions, the user can no longer go backwards to the home screen. At the instruction screen, they can click "Nevermind!" to return to the home screen, but once they "Start Dancing!" they do not have a back button.



- 4) Once they have turned Tiny Dancer purple (which will take 2 seconds so long as they are lined up and stay in place for the whole 2 seconds), the program begins tracking the coordinates of each joint.
- 5) Once a user wants to stop the dance, they simply line up with the (now green) dots and hold that position for 2 seconds until a screen pops up telling the user that their dance move was recorded.
- 6) Users must be standing between **1.9 and 2.5 meters** from the Kinect in order for the program to allow you to start and stop a dance move.
- 7) The program is processing *inferred* body parts and is storing them along with the regular tracked joints.
- 8) There is no time limit for the length of your dance move.

### **Routines**

POTENTIAL SEIZURE WARNING: The flickering effect of the screen may cause issues for those bothered by flashing/flickering lights. If this application is projected, the quality of the animation is reduced, causing a potentially nauseating flickering effect.

- 1) Routines allows for the program to assemble its own routines based on the moves users have taught it.
- 2) Users have very little interaction with this mode. There is a pink back button in the upper left corner for users to stop watching dance moves whenever they get bored of them.
  - a) If a user uses the back button and then clicks on Routines again, the routine starts over with 3 new moves selected.
- 3) The program randomly selects 3 dance moves to create the routine with. Once those moves are done, users are shown a screen to tell that that it is complete.

### **Partner Up**

POTENTIAL SEIZURE WARNING: The flickering effect of the screen may cause issues for those bothered by flashing/flickering lights. If this application is projected, the quality of the animation is reduced, causing a potentially nauseating flickering effect.

- 1) Partner Up is similar to Routines where the program assembles routines based on 3 randomly selected moves.
- 2) Again, users have a pink back button that can be used to cut a routine short if they want to use another mode in the program.
  - a) If a user uses the back button and then clicks on Partner Up again, the routine starts over with 3 new moves selected.
- 3) The program randomly selects 3 dance moves to create the routine with. Once those moves are done, users are shown a screen to tell that that it is complete.

## Exceptions & FYIs

- 1) If you are too close to the edges of the Kinect's frame, red lines will appear to warn you that you are now out of range. This can promote inferred joints, but will not stop the application.
- 2) Dance Like Me was built to be a one-player game. Up to 2 skeletons can be drawn on the screen, no matter how many people are in view. The program will draw the two people that it perceives to be closest to the Kinect. There is no issue in playing with a second person in Freestyle mode. However, Bust A Move *must* be played with just one person in front of the screen for Tiny Dancer to replicate.
  - a) Why This Is: The Kinect has a skeleton array that it adds to every time it detects a skeleton in frame. A second skeleton cannot be blocked from being on screen because, every time a skeleton exits the frame and re-enters, that is registered as a new skeleton and the old skeleton is forgotten. This game involves a lot of stepping out of frame, so a user would not be recognized again after stepping out of frame. This prevents the idea of just blocking a second skeleton being drawn, as old skeletons are not referenced once they've left the frame. A second skeleton can only be blocked if the user would not be leaving the frame during the entire application execution.
- 3) The size of the application window does not scale or adjust. It would be best to project this application via the HDMI port on your computer.
- 4) Depending on the fonts available for your computer, the chosen font for this program may not appear on your device, meaning that the text will look different.
  - a) The font used for Dance Like Me is "AR Delaney"
- 5) This program has not been comprehensively tested with people of varying heights and there is no way currently in the application to account for that.
- 6) Adding onto (5), the Kinect was programmed to be at 29 inches, so if it is at a different height, there could be issues (unless you adjust the neck of the Kinect).

## Saved Moves

- 1) Moves you've saved are stored in the folder "Dance Like Me\SavedMoves" and every move is shown there numerically. Moves cannot be deleted if they are not the last move numerically in the folder because they are named based on the last recorded move's name plus one.
  - a) Every move has its own folder, each with 13 **txt** files that have the coordinates for each joint (as each file corresponds with each joint of Tiny Dancer). There are the same amount of lines in each file per dance move.