

# Super Mario Motion - Help Page

Welcome to the help page for Super Mario Motion.

## Quick Navigation

The user interface	2
Modes explained	3
Simple Mode	3
Full-body Mode	4
Collect Mode	4
Frequently Asked Questions	5

# The user interface

The UI is the main way the user interacts with the application. Here is an overview of each UI-element what what it does.

1. Preview Image: Shows a preview of your webcam.

**2. Action Buttons:** Clicking the launch game button, will start RetroArch with the ROM of the game, (Note: paths to each need to be set beforehand).

The Help button will lead you to this document.

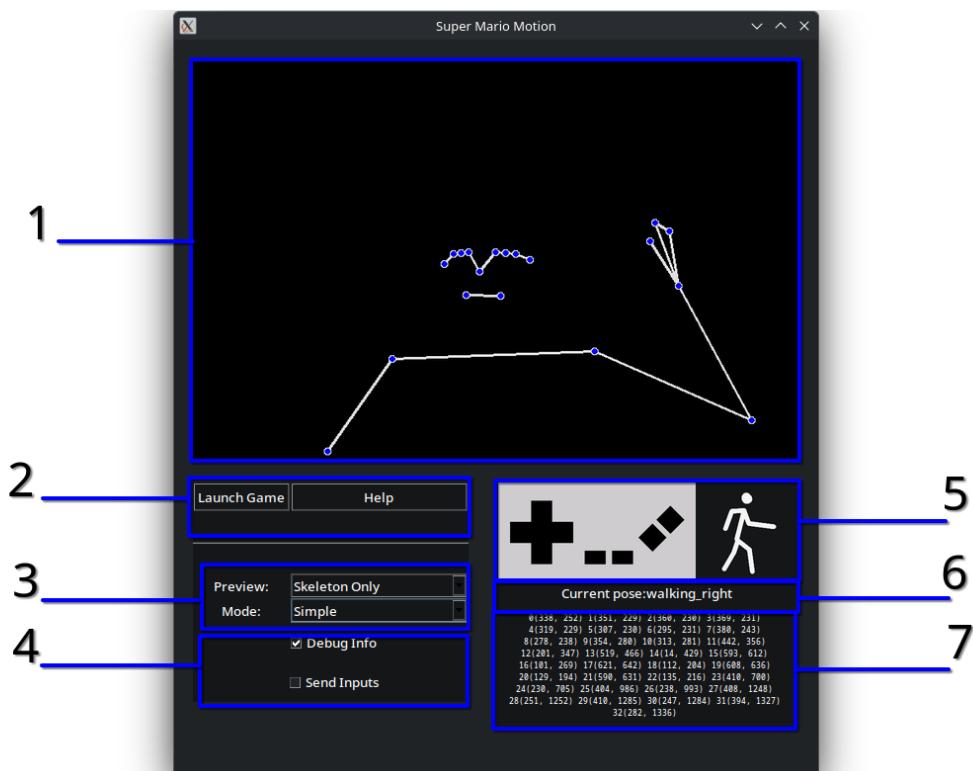
**3. Dropdown menus:** Use the first menu to change the display of the preview image (1). Use the second dropdown menu to select the mode, for more information on what each mode does, see the chapter “[Modes explained](#)”.

**4. Checkboxes:** The first one enables debug information when checked, the second checkbox enables the application to simulate button presses to control the game.

5. **Virtual Gamepad & Pose Indicator:** This panel displays a virtual gamepad that shows in real time which buttons are pressed. Next to it is an icon indicating the current pose.

6. Pose label: Displays the current pose as raw text.

**7. Debug Information:** This only gets displayed when the “Debug Info” checkbox (4) is checked.

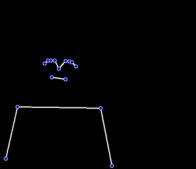
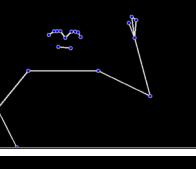
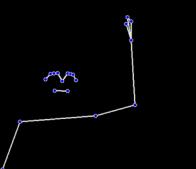
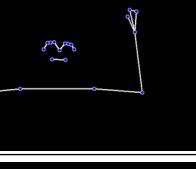
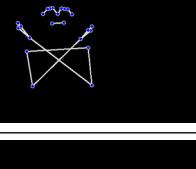
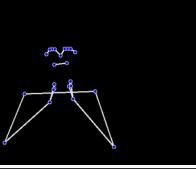
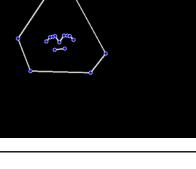


# Modes explained

The Application supports three modes, that can be selected via the dropdown menu called "Mode:"

## Simple Mode

This mode is designed to be used while sitting in front of your PC. You can control the game with the following arm gestures:

	<p><b>Standing</b> You can stand still by keeping both arms in a neutral position.</p>
	<p><b>Walking</b> You can walk to the left or right by raising the corresponding hand. The position of the wrist should be higher than your shoulders and lower than the eyes.</p>
	<p><b>Running</b> You can run to the left or right by raising your arm that corresponds to that direction. The wrist should be above the height of your eyes.</p>
	<p><b>Jumping</b> You are able to jump by holding up both of your hands. The wrists should be at least above your shoulders.</p>
	<p><b>Swimming</b> You can swim by crossing your arms.</p>
	<p><b>Crouching</b> You can crouch by putting both of your hands together. The wrists need to be below your eyes.</p>
	<p><b>Throwing</b> You can throw a fireball by putting both of your hands together above your head.</p>

## Full-body Mode

This mode is designed to be used to play the game with full body motions. This means your entire body should be visible within the camera's view.

A machine-learning model in form of a *.joblib* file is required to use this mode. The default installation includes a pre-trained model that is ready to use.

The available poses you can perform are as follows:

Standing
You stand still by having your body in a resting, neutral position.
Walking
You can walk to either side (left or right) by walking small relaxed steps, but remain in the same spot.
Running
You can run to either side (left or right) by making an exaggerated, fast running motion in the desired direction, while remaining on the same spot.
Jumping
You can jump in-game by holding your right fist up while jumping.
Swimming
You can swim while looking towards the camera and making a breaststroke motion with your arms.
Crouching
You can crouch by facing towards the camera lowering yourself onto your knees. Make sure that your hands are positioned toward the ground.
Throwing
You can throw a fireball by making a throwing motion with your right hand.

## Collect Mode

Note: This mode is not designed for players that just want to play the game with motion controls.

In this mode, you can collect samples of you doing poses, that can be used as training data to train and refine the full body pose recognition model.

A new button appears, once this mode is selected. You start the collection of data once you press it. On screen you will be informed on what kind of pose you should perform and for how long. By pressing the button again while collecting, you can preemptively stop the collection process.

You can find your collected data in the */data/* folder as *.csv* files.

# Frequently Asked Questions

*"The program instantly closes upon startup"*

→ This application needs a connected webcam to start up. Make sure your webcam is correctly plugged in and not occupied by other programs.

*"The poses are being recognized but there aren't any inputs sent to the game and the controller is also not displaying anything."*

→ Make sure that the Send Inputs checkbox is checked, otherwise the program will not send any inputs.

*"I feel a big delay in Simple Mode, especially when jumping"*

→ It takes a moment for your arms to get recognized when they've been out of view. To reduce delay, we suggest going a bit further away from the camera, so that your arms are always in view.

*"The Launch Game button is gray and is not pressable"*

→ When the button is gray, that means that either RetroArch or the ROM-file could not be found in the specified path in the config. Please make sure that the paths are correct.

*"It only shows default as the current pose when I'm in Full-body Mode"*

→ That means that no ML model was loaded. Make sure you have a `pose_model.joblib` file in the `/data/` folder. By default the application ships with a pre trained model ready to play.