

Hello! Thank you for participating in our user study! You will be testing different ways of controlling the Panda robot. Specifically, you will attempt to complete a sequence of two robotics tasks where you operate a robot arm using a joystick *and/or* language instructions for a set of tasks in a kitchen area. You will be working with three different methods for each of the two tasks, and at the end compare the three methods using this form.

Here are step-by-step instructions (also copied on your user sheet):

1. On your user sheet, you will be provided a sequence of **two** tasks IDs. Find the **task slide** for each of the two IDs, where you can watch a demonstration of a human assisting the robot in performing this task, to show you how the robot arm can move to complete the task. For both of your two tasks, watch the videos for as long as you need to understand their goal.
2. On your user sheet, under the “Control Method Order” section, find the ID of your first control method (A, B, C). Go to the **control page** for the corresponding ID, and read a description of how this control method works.
3. You will next be given 3 minutes to practice using this control method in the environment.
4. Finally, you will now use this control method to complete your two tasks **in the sequence they were provided**.
 - a. For control methods that use the joystick, remember that pressing “X” on the joy-stick will return the robot to the home position.
 - b. Be gentle! Slamming any object too hard may cause the robot to stop working, which will result in automatically **failing** the task.
 - c. You will have 2 attempts to try to complete each of your two tasks.
5. Evaluate the control method you used with the corresponding section in this form.
6. Repeat Steps 2-5 for the remaining two control methods.
7. Add any final thoughts to the form.

User 1: **Name**

Tasks: **Task 1 & Task 2**

Control Method Order: **Method A, Method B, Method C**

Step-by-Step Instructions:

1. Go to the task slides for **Task 1** and **Task 2**. Watch the video of a human assisting the robot arm with this task, to understand *how* you should achieve the tasks.
2. Go to the [control page for Method A](#). Read the description of how this control method works.
3. Let us know when you are ready, and you will have 3 minutes to practice using **Method A** in the environment.
4. After 3 minutes are over, we will reset the robot arm and environment.
5. Now, use **Method A** to successfully complete **Task 1** and **Task 2** in order. You have 2 attempts.
6. Fill out the “**First Control Method**” section of the user form.
7. Go to the [control page for Method B](#). Read the description of how this control method works.
8. Let us know when you are ready, and you will have 3 minutes to practice using **Method B** in the environment.
9. After 3 minutes are over, we will reset the robot arm and environment.
10. Now, use **Method B** to successfully complete **Task 1** and **Task 2** in order. You have 2 attempts.
11. Fill out the “**Second Control Method**” section of the user form.
12. Go to the [control page for Method C](#). Read the description of how this control method works.
13. Let us know when you are ready, and you will have 3 minutes to practice using **Method C** in the environment.
14. After 3 minutes are over, we will reset the robot arm and environment.
15. Now, use **Method C** to successfully complete **Task 1** and **Task 2** in order. You have 2 attempts.
16. Fill out the “**Third Control Method**” section of the user form.
17. Fill out the remaining sections of the user form.

Control Method A

Broad Summary: The only control input you provide is on the right toggle on the joystick.

Joystick Buttons:

- **Toggle:** moves in 2 degrees of freedom, depending on the mode
- **A:** Switch control modes (which pair of 2 out of 6 degrees of freedom)
- **B:** Open/Close Gripper (binary value, just “press” not hold!)
- **X:** Return robot arm to home state
- **Start:** End/Terminate the Session.



Tips for Control:

- When “dropping” objects, you do not need to wait for the object to be perfectly close to the target - rely on gravity! :)
- Be gentle! Moving too fast against a hard object can result in an automatic fail of task completion
- For gripping, make sure the robot’s gripper is fully surrounding the area you wish to grasp before pressing B.
- You can return home by pressing X at any time.
- Please attempt the task in good faith! If you want to play around with inputs for fun, we can do so after :D

Control Method B

Broad Summary: You have two control inputs. You can first provide a language instruction at the beginning of the task. Then you can control the input on the right toggle on the joystick. You can choose to provide a new natural language instruction at any time by first pressing the button X to return home.

Joystick Buttons:

- **Toggle:** Moves in 2 degrees of freedom
- **B:** Open/Close Gripper (binary value, just “press” not hold!)
- **X:** Return robot arm to home state (and provide new instruction)
- **Start:** End/Terminate the Session.



Tips for Control:

- When “dropping” objects, you do not need to wait for the object to be perfectly close to the target - rely on gravity! :)
- Be gentle near hard objects can result in an automatic fail of task completion
- For gripping, make sure the robot’s gripper is fully surrounding the area you wish to grasp before pressing B.
- You can return home to X at any time.
- Please attempt the task in good faith! If you want to play around with inputs for fun, we can do so after :D

Control Method C

Broad Summary: The only control input you provide is a language instruction at the start of the task.

Joystick Buttons:

- B: Open/Close Gripper (binary value, just “press” not hold!)
- A: Pause/un-pause the robot arm’s movement
- Start: End/Terminate



Tips for Control:

- When “dropping” objects, you do not need to wait for the object to be perfectly close to the target - rely on gravity! :)
- For gripping, make sure the robot’s gripper is fully surrounding the area you wish to grasp before pressing B.
- Please attempt the task in good faith! If you want to play around with inputs for fun, we can do so after :D