

Evaluation of Robot Behavior



How do you perceive the behavior and reactions of a robot during physical interaction? Your responses will help assess the robot’s safety, naturalness, and human-like behavior.

ID *

Short-answer text

Age *

Short-answer text

Gender *

- ☐ Male
- ☐ Female
- ☐ Other

How often do you interact with robots or robotic systems? *

- ☐ Never
- ☐ Rarely (a few times a year)
- ☐ Sometimes (monthly)
- ☐ Often (weekly or more)

Have you previously interacted with a robotic arm? *

- ☐ No
- ☐ Yes - briefly
- ☐ Yes - extensively

How would you describe your general attitude toward robots? *

1

2

3

4

5

Very negative

☐

☐

☐

☐

☐

Very positive

Experiment 1



Please rate your impression of the robot on these scales

Anthropomorphism

Description (optional)

Fake – Natural *

	1	2	3	4	5	
Fake	☐	☐	☐	☐	☐	Natural

Machinelike – Humanlike *

	1	2	3	4	5	
Machinelike	☐	☐	☐	☐	☐	Humanlike

Unconscious – Conscious *

	1	2	3	4	5	
Unconscious	☐	☐	☐	☐	☐	Conscious

Artificial – Lifelike *

	1	2	3	4	5	
Artificial	☐	☐	☐	☐	☐	Lifelike

Moving rigidly – Moving elegantly *

	1	2	3	4	5	
Moving rigidly	☐	☐	☐	☐	☐	Moving elegantly

Animacy

Description (optional)

Dead – Alive *

...

	1	2	3	4	5	
Dead	☐	☐	☐	☐	☐	Alive

Stagnant – Lively *

	1	2	3	4	5	
Stagnant	☐	☐	☐	☐	☐	Lively

Mechanical – Organic *

	1	2	3	4	5	
Mechanical	☐	☐	☐	☐	☐	Organic

Artificial – Lifelike *

	1	2	3	4	5	
Artificial	☐	☐	☐	☐	☐	Lifelike

Inert – Interactive *

	1	2	3	4	5	
Inert	☐	☐	☐	☐	☐	Interactive

Apathetic – Responsive *

	1	2	3	4	5	
Apathetic	☐	☐	☐	☐	☐	Responsive



Likeability

Description (optional)

Dislike — Like *

1

2

3

4

5

Dislike

☐☐☐☐☐

Like

Unfriendly — Friendly *

1

2

3

4

5

Unfriendly

☐☐☐☐☐

Friendly

Unkind — Kind *

1

2

3

4

5

Unkind

☐☐☐☐☐

Kind

Unpleasant — Pleasant *

1

2

3

4

5

Unpleasant

☐☐☐☐☐

Pleasant

Awful — Nice *

1

2

3

4

5

Awful

☐☐☐☐☐

Nice

Perceived Safety

Description (optional)

Anxious — Relaxed *

	1	2	3	4	5	
Anxious	☐	☐	☐	☐	☐	Relaxed

Calm — Agitated *

	1	2	3	4	5	
Calm	☐	☐	☐	☐	☐	Agitated

Still — Surprised *

	1	2	3	4	5	
Still	☐	☐	☐	☐	☐	Surprised

Experiment 1 - continuation

Please rate how much you agree with the following statements about the robot's behavior.

...

Naturalness & Realism *

1 (Strongly Dis...

2

3

4

5 (Strongly Agr...

The robot's rea...

☐☐☐☐☐

The robot's mo...

☐☐☐☐☐**Safety & Comfort ***

1 (Strongly Dis...

2

3

4

5 (Strongly Agr...

The robot's res...

☐☐☐☐☐

I felt in control ...

☐☐☐☐☐

I would feel co...

☐☐☐☐☐**Perception ***

1 (Strongly Dis...

2

3

4

5 (Strongly Agr...

The robot's mo...

☐☐☐☐☐

The robot's beh...

☐☐☐☐☐

The robot react...

☐☐☐☐☐

Experiment 2



Rate the robot on the following scales. Choose the number that best represents your impression.

Anthropomorphism

Description (optional)

Fake – Natural *

	1	2	3	4	5	
Fake	☐	☐	☐	☐	☐	Natural

Machinelike – Humanlike *

	1	2	3	4	5	
Machinelike	☐	☐	☐	☐	☐	Humanlike

Unconscious – Conscious *

	1	2	3	4	5	
Unconscious	☐	☐	☐	☐	☐	Conscious

Artificial – Lifelike *

	1	2	3	4	5	
Artificial	☐	☐	☐	☐	☐	Lifelike

Moving rigidly – Moving elegantly *

	1	2	3	4	5	
Moving rigidly	☐	☐	☐	☐	☐	Moving elegantly

Animacy

Description (optional)

Dead — Alive *

	1	2	3	4	5	
Dead	☐	☐	☐	☐	☐	Alive

Stagnant — Lively *

	1	2	3	4	5	
Stagnant	☐	☐	☐	☐	☐	Lively

Mechanical — Organic *

	1	2	3	4	5	
Mechanical	☐	☐	☐	☐	☐	Organic

Artificial — Lifelike *

	1	2	3	4	5	
Artificial	☐	☐	☐	☐	☐	Lifelike

Inert — Interactive *

	1	2	3	4	5	
Inert	☐	☐	☐	☐	☐	Interactive

Apathetic — Responsive *

	1	2	3	4	5	
Apathetic	☐	☐	☐	☐	☐	Responsive

Likeability

Description (optional)

Dislike — Like *

	1	2	3	4	5	
Dislike	☐	☐	☐	☐	☐	Like

Unfriendly — Friendly *

	1	2	3	4	5	
Unfriendly	☐	☐	☐	☐	☐	Friendly

Unkind — Kind *

	1	2	3	4	5	
Unkind	☐	☐	☐	☐	☐	Kind

Unpleasant — Pleasant *

	1	2	3	4	5	
Unpleasant	☐	☐	☐	☐	☐	Pleasant

Awful — Nice *

	1	2	3	4	5	
Awful	☐	☐	☐	☐	☐	Nice

Description (optional)

Anxious — Relaxed *

Anxious

○○

○

○

○

Relaxed

• • •

Calm – Agitated *

Calm

○

○

○

○

○

Agitated

Still – Surprised *

Still

○

○○○○

Surprised

Experiment 2 - continuation

Please rate how much you agree with the following statements about the robot's behavior.

**Naturalness & Realism** *

1 (Strongly Dis...

2

3

4

5 (Strongly Agr...

The robot's rea...

☐☐☐☐☐

The robot's mo...

☐☐☐☐☐

The robot see...

☐☐☐☐☐**Safety & Comfort** *

1 (Strongly Dis...

2

3

4

5 (Strongly Agr...

The robot's res...

☐☐☐☐☐

I felt in control ...

☐☐☐☐☐

I would feel co...

☐☐☐☐☐**Perception** *

1 (Strongly Dis...

2

3

4

5 (Strongly Agr...

The robot's mo...

☐☐☐☐☐

The robot's beh...

☐☐☐☐☐

The robot react...

☐☐☐☐☐

Experiment 3



Rate the robot on the following scales. Choose the number that best represents your impression.

Anthropomorphism

Description (optional)



Fake – Natural *

	1	2	3	4	5	
Fake	☐	☐	☐	☐	☐	Natural

Machinelike – Humanlike *

	1	2	3	4	5	
Machinelike	☐	☐	☐	☐	☐	Humanlike

Unconscious – Conscious *

	1	2	3	4	5	
Unconscious	☐	☐	☐	☐	☐	Conscious

Artificial – Lifelike *

	1	2	3	4	5	
Artificial	☐	☐	☐	☐	☐	Lifelike

Moving rigidly – Moving elegantly *

	1	2	3	4	5	
Moving rigidly	☐	☐	☐	☐	☐	Moving elegantly

Animacy

Description (optional)

Dead — Alive *

	1	2	3	4	5	
Dead	☐	☐	☐	☐	☐	Alive

⋮

Stagnant — Lively *

	1	2	3	4	5	
Stagnant	☐	☐	☐	☐	☐	Lively

Mechanical — Organic *

	1	2	3	4	5	
Mechanical	☐	☐	☐	☐	☐	Organic

Artificial — Lifelike *

	1	2	3	4	5	
Artificial	☐	☐	☐	☐	☐	Lifelike

Inert — Interactive *

	1	2	3	4	5	
Inert	☐	☐	☐	☐	☐	Interactive

Apathetic — Responsive *

	1	2	3	4	5	
Apathetic	☐	☐	☐	☐	☐	Responsive

Likeability

Description (optional)

Dislike — Like *

1

2

3

4

5

Dislike

☐☐☐☐☐

Like

Unfriendly — Friendly *

1

2

3

4

5

Unfriendly

☐☐☐☐☐

Friendly

Unkind — Kind *

1

2

3

4

5

Unkind

☐☐☐☐☐

Kind

Unpleasant — Pleasant *

1

2

3

4

5

Unpleasant

☐☐☐☐☐

Pleasant

Awful — Nice *

1

2

3

4

5

Awful

☐☐☐☐☐

Nice

Perceived Safety

Description (optional)

Anxious – Relaxed *

1

2

3

4

5

Anxious

○

○

○

○○

Relaxed

• • •

Calm – Agitated *

1

2

3

4

5

Calm

○

○

○○○

Agitated

Still – Surprised *

1

2

3

4

5

Still

○

○

○

○

○

Surprised

Experiment 3 - continuation

Please rate how much you agree with the following statements about the robot's behavior.

Naturalness & Realism *

1 (Strongly Dis...

2

3

4

5 (Strongly Agr...

The robot's rea...

☐☐☐☐☐

The robot's mo...

☐☐☐☐☐

The robot see...

☐☐☐☐☐**Safety & Comfort ***

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1 (Strongly Dis...

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3

4

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The robot's mo...

☐☐☐☐☐

The robot's beh...

☐☐☐☐☐

The robot react...

☐☐☐☐☐

Comparison and Open Questions



Description (optional)

Which interaction felt more natural overall? *

- ☐ Condition 1
- ☐ Condition 2
- ☐ Condition 3
- ☐ No preference

Which robot behavior felt the most human-like? *

- ☐ Condition 1
- ☐ Condition 2
- ☐ Condition 3
- ☐ No preference



Which condition felt safer? *

- ☐ Condition 1
- ☐ Condition 2
- ☐ Condition 3
- ☐ No preference

Which condition reacted most appropriately to touch? *

- ☐ Condition 1
- ☐ Condition 2
- ☐ Condition 3
- ☐ No preference

What did you like most about the robot's behavior? *

Long-answer text

What felt unnatural or uncomfortable during the interaction? *

Long-answer text

Please explain your preference (or lack of preference) between the conditions.

Long-answer text

Do you have suggestions for improving the robot's reactions? *

Long-answer text