Interactive Robotics Learning: Implementing Face Tracking with Curio

Start of Block: Start

Q1.1 Thank you for participating in the face-tracking activity with Curio! This survey should take 10 minutes and aims to gather your feedback on the learning experience, challenges, and insights you gained during the task. Your responses will help us evaluate the effectiveness of this activity in teaching robotics and computer vision concepts.

End of Block: Start

Start of Block: Personal

Q2.1 What is your current academic status?

- Undergraduate Student (1)
- Master's Student (2)
- PhD Student (3)
- Researcher (e.g., Lecturer, Post-Doctoral Researcher) (4)

Q2.2 Have you previously participated in robotics or machine learning studies/workshops?

- Yes (7)
- No (8)

Q2.3 What is your level of experience with robotics?

- ○ I have no experience with robotics. (5)
- ○ I have basic experience (e.g., introductory courses or minor projects). (6)
- ○ I am moderately experienced (e.g., hands-on projects or coursework). (7)
- ○ I am highly experienced (e.g., extensive projects, research, or professional work). (8)

Q2.4 What is your level of experience with machine learning and related fields (e.g., AI, computer vision)?

- ○ I have no experience with robotics. (5)
- ○ I have basic experience (e.g., introductory courses or minor projects). (6)
- ○ I am moderately experienced (e.g., hands-on projects or coursework). (7)
- ○ I am highly experienced (e.g., extensive projects, research, or professional work). (8)

End of Block: Personal

Start of Block: System Usability Scale

Q3.1 For each of the following statements about Curio, please indicate how much you agree or disagree using the scale.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I think that I would like to use Curio frequently. (1)	○	○	○	○	○
I found Curio unnecessarily complex. (2)	○	○	○	○	○
I thought Curio was easy to use. (3)	○	○	○	○	○
I think that I would need the support of a technical person to use Curio. (4)	○	○	○	○	○
I found the various functions in Curio were well integrated. (5)	○	○	○	○	○
I thought there was too much inconsistency in Curio. (6)	○	○	○	○	○
I would imagine that most people would learn to use Curio very quickly. (7)	○	○	○	○	○
I found Curio very cumbersome to use. (8)	○	○	○	○	○

I felt very confident using Curio. (9)	○	○	○	○	○
I needed to learn a lot of things before I could get going with Curio. (10)	○	○	○	○	○

End of Block: System Usability Scale

Start of Block: Negative Attitude toward Robots Scale

Q4.1 For each of the following statements about Curio, please indicate how much you agree or disagree using the scale.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I would feel uneasy if I was given a job where I had to use Curio. (1)	○	○	○	○	○
The word “robot” means nothing to me. (2)	○	○	○	○	○
I would feel nervous operating Curio in front of other people. (3)	○	○	○	○	○
I would hate the idea that Curio or artificial intelligences were making judgments about things. (4)	○	○	○	○	○
I would feel very nervous just standing in front of Curio. (5)	○	○	○	○	○
I would feel paranoid talking with Curio. (6)	○	○	○	○	○
I would feel uneasy if Curio really had emotions. (7)	○	○	○	○	○

Something bad might happen if Curio developed into something with its own intelligence. (8)	○	○	○	○	○
I feel that if I depend on Curio too much, something bad might happen. (9)	○	○	○	○	○
I feel that in the future, society will be dominated by robots like Curio. (10)	○	○	○	○	○

End of Block: Negative Attitude toward Robots Scale

Start of Block: Engagement and Motivation

Q5.1 For each of the following statements about Curio, please indicate how much you agree or disagree using the scale.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I found the face-tracking activity with Curio engaging. (1)	○	○	○	○	○
Working with Curio has made me more interested in robotics and computer vision. (2)	○	○	○	○	○
I felt motivated to complete the face-tracking task. (3)	○	○	○	○	○
I am likely to participate in similar robotics and computer vision tasks in the future. (4)	○	○	○	○	○
The hands-on nature of the activity helped me understand the concepts of computer vision and robotics. (5)	○	○	○	○	○

End of Block: Engagement and Motivation

Start of Block: Learning Outcome

Q6.1 For each of the following statements about the activity, please indicate how much you agree or disagree using the scale.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I feel confident about implementing face detection using a neural network after this activity. (1)	○	○	○	○	○
This activity helped improve my understanding of controlling robots based on real-time image data. (2)	○	○	○	○	○
The coding tasks were appropriately challenging for my level of knowledge. (3)	○	○	○	○	○

Q6.2 What were your main reasons for selecting the specific functions you chose among the available options for the face-tracking activity with Curio? *(Select all that apply)*

- [ ] **Ease of Implementation**: The function was straightforward to understand and integrate into the code. (1)
- [ ] **Accuracy**: The function produced the most reliable or accurate tracking results based on testing. (2)
- [ ] **Performance Efficiency**: The function required fewer resources or processed frames faster, leading to smoother tracking. (3)
- [ ] **Flexibility**: The function was adaptable and allowed for better handling of different lighting or environmental conditions. (4)
- [ ] **Stability**: The function provided more consistent tracking, minimizing unexpected movements or errors. (5)
- [ ] **Prior Experience**: I had used similar techniques before and felt confident in implementing them. (6)

Q6.3 In your experience with implementing face tracking, what did you find to be the most important considerations for successful tracking? *(Select all that apply)*

- [ ] **Maintaining Target Visibility**: Ensuring that the detected face stays within the camera's field of view. (1)
- [ ] **Processing Speed**: Choosing functions that keep tracking smooth and responsive in real-time. (2)
- [ ] **Environmental Conditions**: Selecting functions that adapt well to changing lighting or background conditions. (3)
- [ ] **Stability of Movement**: Reducing unexpected or erratic movements to keep tracking consistent. (4)
- [ ] **Minimizing False Positives**: Selecting options that help avoid tracking non-face objects or background elements. (5)
- [ ] **Ease of Debugging**: Using functions that make it easier to identify and fix errors quickly. (6)

End of Block: Learning Outcome

Start of Block: Open Ended

Q7.1 Do you have any additional feedback about the activity?

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End of Block: Open Ended
