

# Supplementary Material

### 1 APPENDIX: BACKGROUND QUESTIONNAIRE

## Q1 What is your age?

- Under 18
- 18 to 24
- 25 to 34
- 35 to 44
- 45 to 54
- 55 to 64
- 65 or older

### Q2 What is your gender?

- Female
- Male
- Other: \_
- Prefer not to answer

### Q3 What is your dominant hand?

- Left
- Mostly left
- About equal
- Mostly right
- Right

### Q4 Which of the following categories best describes your race/ethnicity?

- American Indian or Alaskan Native
- Black, Afro-Caribbean or African American
- East Asian
- Hispanic or Latino
- Middle Eastern or Arab
- Native Hawaiian or Other Pacific Islander
- South Asian or Indian
- White
- Other: \_
- Prefer not to answer

### Q5 What field best describes your educational background?

- Design, Arts, Entertainment and Recreation
- Software Engineer
- Human Resources
- Hardware Engineer
- Social Science
- Finance, Insurance or Legal Services
- Perception, Cognition, and UIUX
- Operations
- Product oriented
- Other: \_

### Q6 Which of the following best describes your work experience in an AR/VR related field?

- Less than 2 years
- Between 2 and 5 years
- Between 5 and 10 years
- More than 10 years
- Zero (I have never worked in an AI/AR related field)

### Q7 How familiar are you with Virtual Reality (VR)?

- Never or rarely use VR
- Used VR several times
- Use VR semi regularly
- Regular VR user
- Heavy user of VR

#### Q8 When it comes to technology, what best describes you?

- I am skeptical of new technologies and use them only when I have to
- I am usually one of the last people I know to use new technologies
- I usually use new technologies when most people I know do
- I like new technologies and use them before most people I know
- I love new technologies and am among the first to experiment with and use them

## $\mathbf{Q9}$ - $\mathbf{Q10}$ - $\mathbf{Q11}$ Please rate the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I do not mind being the center of attention					
I feel comfortable around people					
I am the life of the party					
I start conversations					
I talk to a lot of different people at parties					
	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I am interested in people			agree nor		
I am interested in people  I sympathize with others' feelings	agree	agree	agree nor disagree	disagree	disagree
I sympathize with	agree	agree	agree nor disagree	disagree	disagree
I sympathize with others' feelings	agree	agree	agree nor disagree	disagree	disagree

Frontiers 3

I make people feel at

ease

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I consider myself to be a more "touchy" person than most of my friends					
I feel more comfortable initiating touch than most					
When talking to people, I often touch their arm					
I do not mind if someone touches my arm					
During conversation I don't mind if people touch me					
I do not mind receiving touch from another person					

Q12 This is the	last question,	please	write	below	if you	have	any	comments	regarding	this
questionnaire:										

## 2 APPENDIX: USER STUDY 1

## 2.1 Participants' background

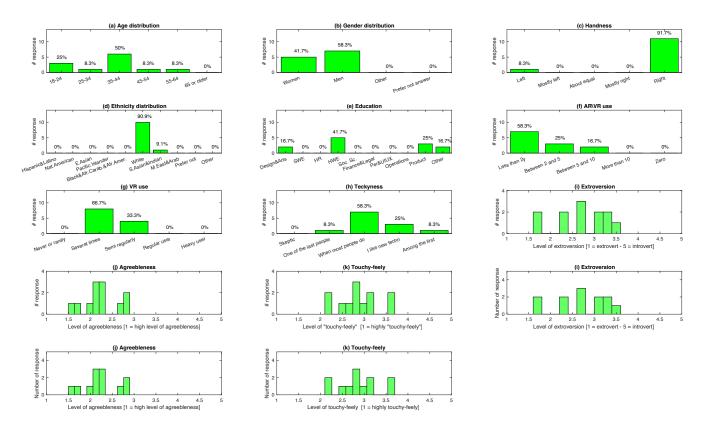


Figure S1. Results of the participants background questionnaire for the first user study

## 2.2 Confidence and realism mean and standard deviation per cluster

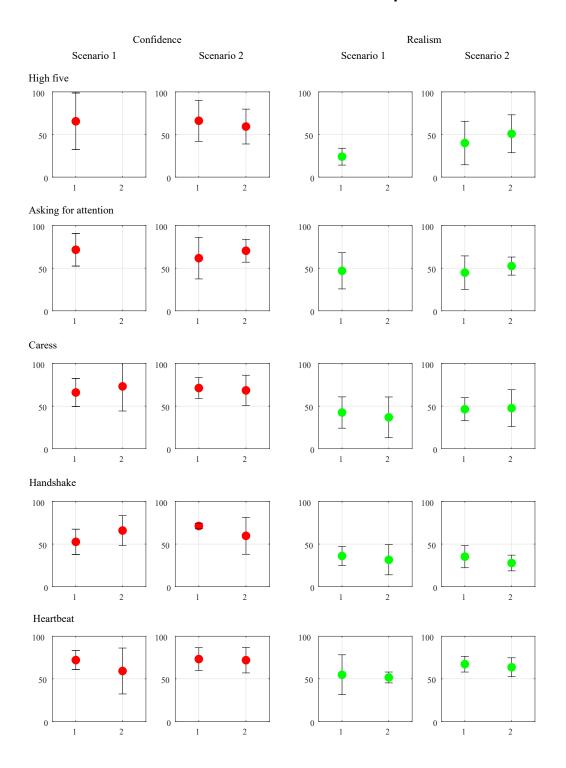
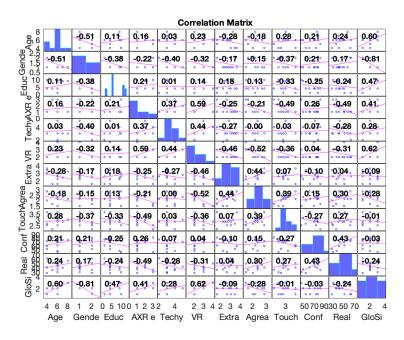
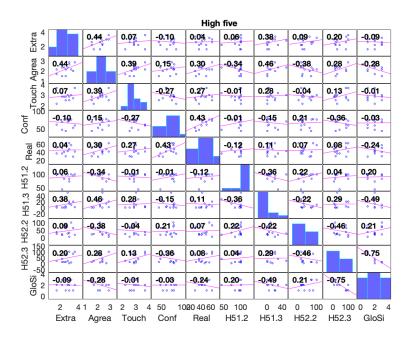


Figure S2. Confidence and realism mean and standard deviation per cluster

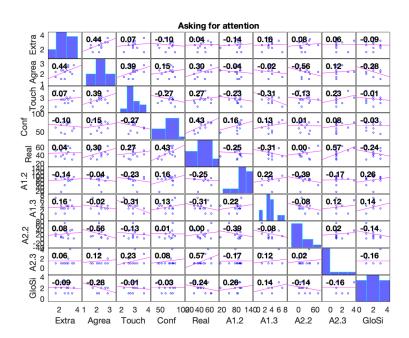
### 2.3 Data analysis - Correlation



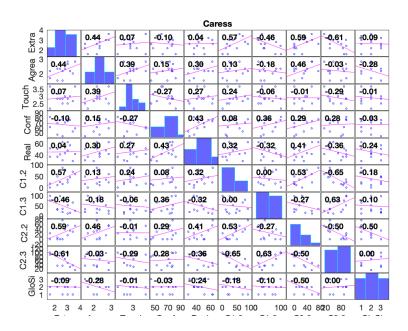
**Figure S3.** Results of the correlation analysis between the participants' background, their confidence and realism rating, and their glove size



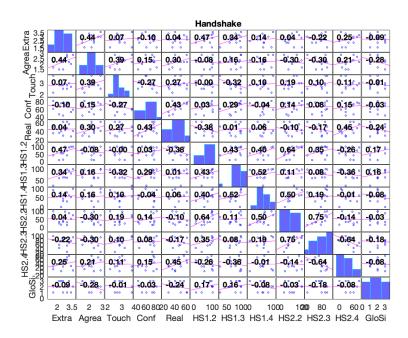
**Figure S4.** Results of the correlation analysis between the participants' background, their confidence and realism rating, their sliders values for high five, and their glove size



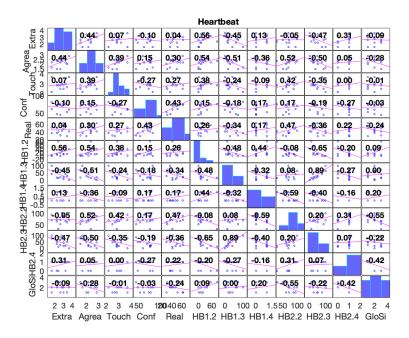
**Figure S5.** Results of the correlation analysis between the participants' background, their confidence and realism rating, their sliders values for asking for attention, and their glove size



**Figure S6.** Results of the correlation analysis between the participants' background, their confidence and realism rating, their sliders values for caress, and their glove size



**Figure S7.** Results of the correlation analysis between the participants' background, their confidence and realism rating, their sliders values for handshake, and their glove size



**Figure S8.** Results of the correlation analysis between the participants' background, their confidence and realism rating, their sliders values for heartbeat, and their glove size

### 3 APPENDIX: USER STUDY 2

### 3.1 Participants' background

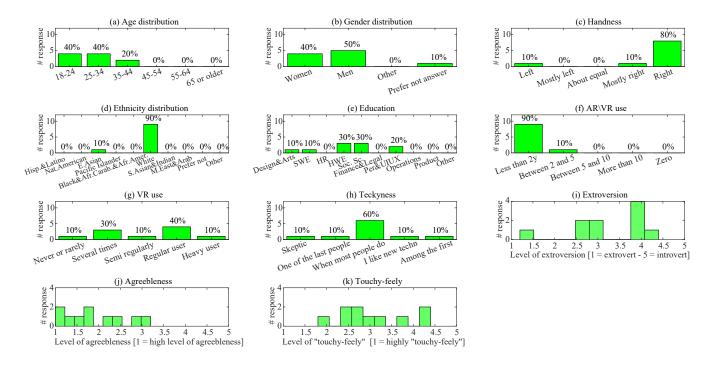
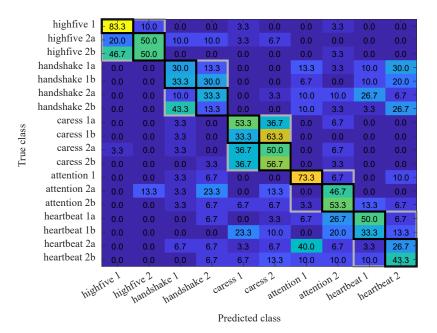
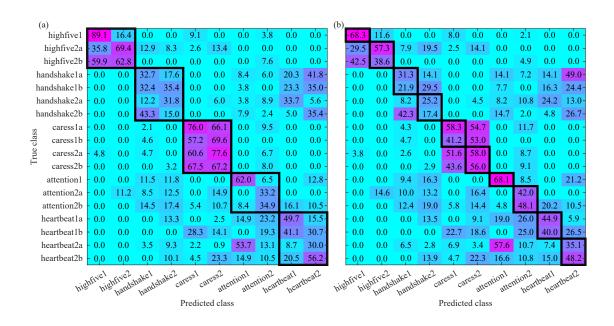


Figure S9. Results of the participants background questionnaire for the second user study

### 3.2 Tables of full dataset



**Figure S10.** Confusion table presenting the recognition rate of the emotional content of the social touch with the true class, the 18 haptic patterns, in the y-axis and the predicted class, the ten scenarios, in the x-axis. The cells outlined in grey highlight the correct social touch selection and the one in black, the correct social touch and scenario selection.

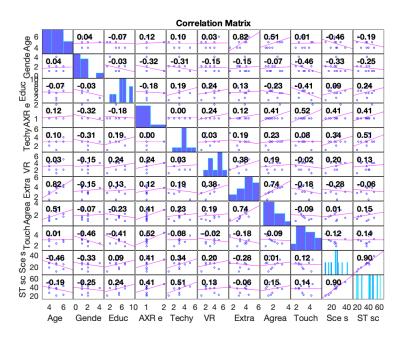


**Figure S11.** Confusion table presenting the participants' confidence rating in (a) their social touch selection, and (b) their scenario selection. The cells outlined in black highlight the correct selections

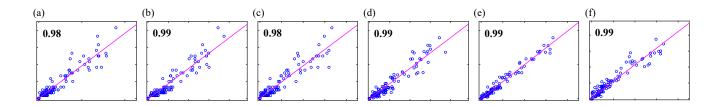
ighfive1	- 65.7	12.3	0.0	0.0	8'.9	0'.0	0.0	1'.2	0.0	0'.0 -
ghfive2a	- 30.3	53.7	9.9	8.5	3.1	12.1	0.0	0.0	0.0	0.0 -
ghfive2b	- 50.0	47.4	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0 -
lshake1a	- 0.0	0.0	20.8	15.2	0.0	0.0	6.9	6.5	15.3	38.3-
shake1b	- 0.0	0.0	22.4	24.2	0.0	0.0	0.6	0.0	19.5	21.0-
lshake2a	- 0.0	0.0	8.2	23.5	0.0	6.4	4.2	4.6	22.1	2.6 -
shake2b	- 0.0	0.0	36.3	10.7	0.0	0.0	5.0	1.7	5.9	22.8-
caress1a	- 0.0	0.0	5.1	0.0	60.3	58.0	0.0	9.1	0.0	0.0 -
caress1b	- 0.0	0.0	4.7	0.0	41.8	54.6	0.0	0.0	0.0	0.0 -
caress2a	- 3.5	0.0	3.5	0.0	47.4	57.2	0.0	8.7	0.0	0.0 -
caress2b	- 0.0	0.0	0.0	2.8	52.7	63.0	0.0	6.9	0.0	0.0 -
tention1	- 0.0	0.0	9.4	13.8	0.0	0.0	54.1	1.7	0.0	14.0-
ention2a	- 0.0	8.3	4.1	8.5	0.0	13.7	0.0	29.1	0.0	0.0 -
ention2b	- 0.0	0.0	10.3	13.5	4.7	9.1	5.5	31.6	15.3	8.2 -
rtbeat1a	- 0.0	0.0	0.0	11.0	0.0	5.6	15.6	22.2	34.4	5.5 -
rtbeat1b	- 0.0	0.0	0.0	0.0	19.8	13.9	0.0	19.4	34.0	25.2-
rtbeat2a	- 0.0	0.0	3.2	7.8	0.5	0.8	35.7	8.9	7.2	24.7
rtbeat2b	- 0.0	0.0	0.0	8.5	4.1	12.7	16.1	7.0	10.4	45.2
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				Pı	redicte	d class				
	ghfive2a ghfive2b shake1a shake1b shake2a shake2b caress1a caress2a caress2b tention1 ention2a ention2b trtbeat1a trbeat1b trbeat2a	ghfive2a ghfive2b - 50.0 shake1a shake1b shake2a - 0.0 caress1a caress2a - 3.5 caress2b - 0.0 tention2a - 0.0 ention2b - 0.0 urtbeat1a rtbeat1b - 0.0 rtbeat2a - 0.0	ghfive2a - 30.3 53.7 chfive2b - 50.0 47.4 shake1a - 0.0 0.0 shake1b shake2a shake2b - 0.0 0.0 caress1a - 0.0 0.0 caress2a - 3.5 0.0 caress2b tention1a - 0.0 0.0 shake2b - 0.0 0.0 tention2b caress2b - 0.0 0.0 0.0 0.0 tention2b caress2b - 0.0 0.0 0.0 0.0 tention2b caress2b - 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	ghfive2a	ghfive2a   ghfive2b   50.0   47.4   0.0   0.0   10.	ghfive2a	ghfive2a	ghfive2a	ghfive2a	ghfive2a

**Figure S12.** Confusion table presenting the results of the realism rating. The cells outlined in grey highlight the correct social touch selection and the one in black, the correct social touch and scenario selection

## 3.3 Data analysis



**Figure S13.** Results of the correlation analysis between the participants' background, and their social touch and scenario selection correctness



**Figure S14.** Spearman's rank correlation analysis results between (a) the recognition rate (RR) and the confidence in the social touch selection (CST), (b) the RR and the confidence in the scenario selection (CSc), (c) the RR and the realism rating (REAL), (d) the CST and the CSc, (e) the CST and the REAL, and (f) the CSc and the REAL

Spearman's rank correlation analysis demonstrated a highly significant correlation between recognition rates and the following participant ratings: confidence in the social touch selection, confidence in the scenario selection, and realism (see Fig. S14 and Table S1).

Table S1. Results of the correlation between recognition rates and the following participant ratings: confidence in the social touch selection, confidence in the scenario selection, and realism

Recognition rate and confidence in social touch	r(8) = 0.98	p < 0.001
Recognition rate and confidence scenario	r(8) = 0.99	p < 0.001
Recognition rate and Realism	r(8) = 0.98	p < 0.001
Confidence social touch and confidence scenario	r(8) = 0.99	p < 0.001
Confidence social touch and Realism	r(8) = 0.99	p < 0.001
Confidence scenario and Realism	r(8) = 0.99	p < 0.001