

The Effects of Look-Alike Avatar Voice and Facial Expression Intensity on Emotional Recognition and User Perception

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What is a Look-Alike Avatar?

Pictured: My look-alike avatar!



Related Work



Look-Alike Avatars

- What features contribute to avatar realism and user perception?
- Lip sync alone → uncanny valley effect → low perceived realism ⁽¹⁾
- Full-body and full-face animation → high perceived realism ⁽¹⁾

Related Work

Avatar Voices & Emotion Recognition



- Voice similarity increased users' performance, competence, relatedness, and immersion in CodeBreakers ⁽²⁾
- Audio presence increased participants' ability to identify an avatar's emotion ⁽⁴⁾

Related Work



VR in Bystander Scenarios

- Customized VR prompted more user intervention than the non-customized VR ⁽³⁾
- Participants think they would have experienced greater empathy and immersion if the avatars were photorealistic ⁽³⁾

My Goal

- Investigate the role of a look-alike avatar's **vocal and facial expression intensity** on users' **perceived realism and emotional recognition** using a virtual bystander scenario
- **So what**: Virtual reality has become increasingly present in industry training. Understanding these roles will help developers ensure that VR training is as effective as possible.

Methods

- Software
 - Reallusion Character Creator
 - iClone
- Survey via Qualtrics
 - 9 variations of each character
 - 2 question types
 - Aggression/Assertion
 - Realism



Bystander Avatar



Aggressor Avatar

Results

Emotion Recognition: Aggression (Median/Mean)

	Face	High intensity	Medium intensity	Low intensity
Voice				
High intensity		4 / 3.78	3 / 2.92	3 / 2.88
Medium intensity		2 / 2.38	2 / 2.12	2 / 1.81
Low intensity		2 / 2.04	1.5 / 1.77	1 / 1.15

Results

Emotion Recognition: Assertion (Median/Mean)

	Face	High intensity	Medium intensity	Low intensity
Voice				
High intensity		4 / 3.77	4 / 3.35	3 / 3.31
Medium intensity		2 / 2.27	2 / 1.77	2 / 2.12
Low intensity		1.5 / 1.73	1 / 1.58	1 / 1.5

Results

Perceived Realism: Aggression (Median/Mean)

	Face	High intensity	Medium intensity	Low intensity
Voice				
High intensity		3 / 3.04	2 / 2.31	2 / 2.08
Medium intensity		3 / 2.96	3 / 2.73	2 / 2.23
Low intensity		3 / 2.81	3 / 2.96	2 / 2.42

Results

Perceived Realism: Assertion (Median/Mean)

	Face	High intensity	Medium intensity	Low intensity
Voice				
High intensity		3 / 2.69	3 / 2.62	2.5 / 2.62
Medium intensity		2 / 2.73	2 / 2.62	2 / 2.5
Low intensity		2 / 2.08	3 / 2.69	3 / 2.78

Challenges & Future Work

- Limitations
 - Majority of participants between 18-24 years old
 - Many incomplete responses had to be removed
 - Received feedback of survey crashing at the end
- Analyze statistical significance data
 - Non-parametric Friedman test
 - Add in new survey results



THANK YOU!

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References

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