



Believing a Robot is a Human Improves Impression Formation

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Background

We assessed how human versus machine voice & backstory impacted judgements of speaker quality.

We manipulated Voice and Backstory:

- voice type (sounding human-like or machine-like)
- backstory (telling the participant that the computer is more closely related to a human or machine)

We measured Speaker Quality:

- Where "Speaker Quality" was a composite measure of four 1-7 Likert-scale speaker characteristics
- A high Speaker Quality score results from high trustworthiness, friendliness, intelligence, & low nervousness ratings

Method

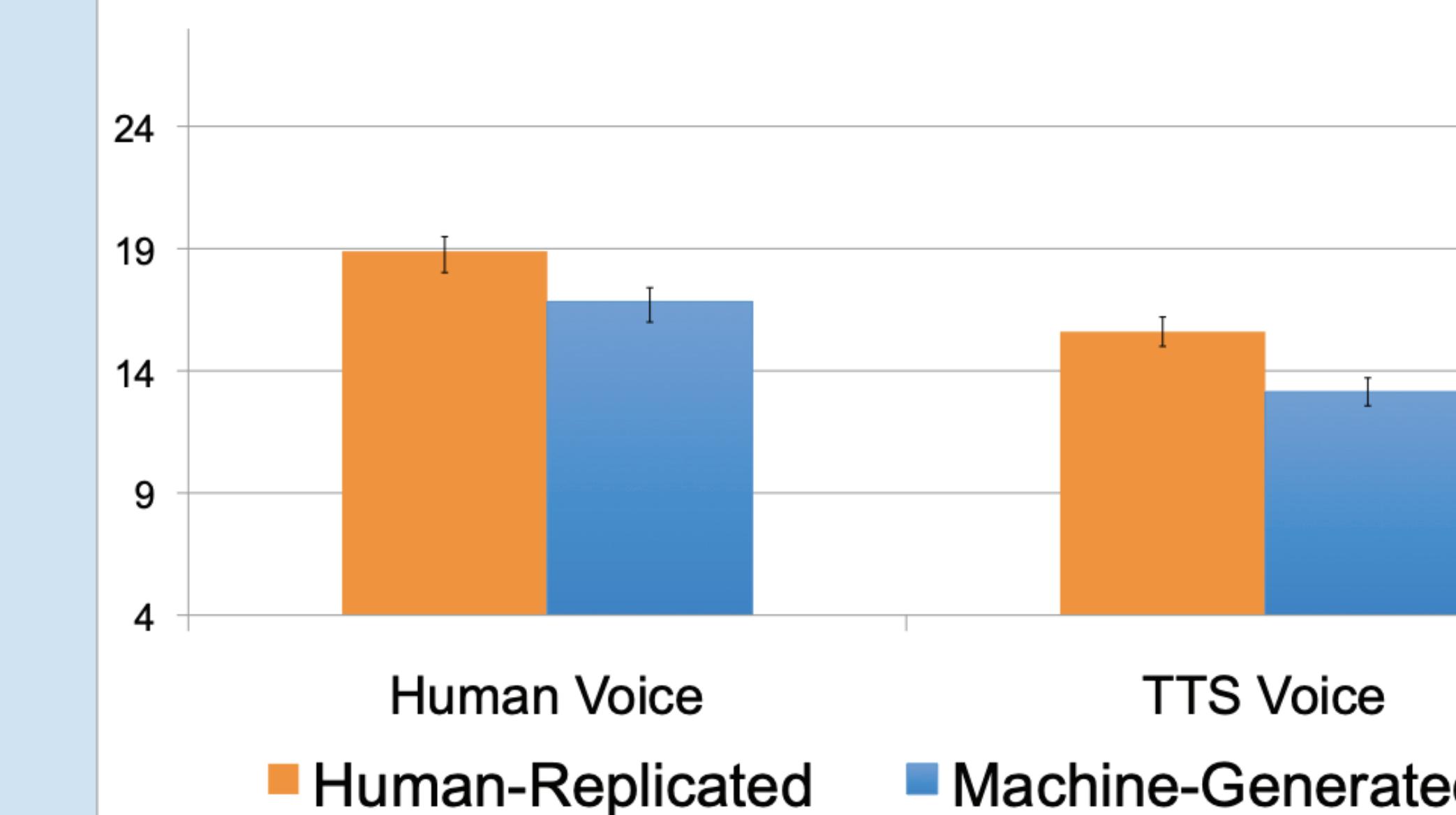
Participants listened to either a text-to-speech (TTS) or human voice with one of two backstories:

- (1) the voice was produced by a computer program to sound like a UC Santa Cruz college student
- (2) the voice was produced by a UC Santa Cruz college student using an artificial voice box designed to help those with vocal disorders

Before running tests, we removed inattentive participants (36 of 112 failed attention check)

Conducted ANOVA using combined speaker quality scale

Speaker Quality Total Score by Group

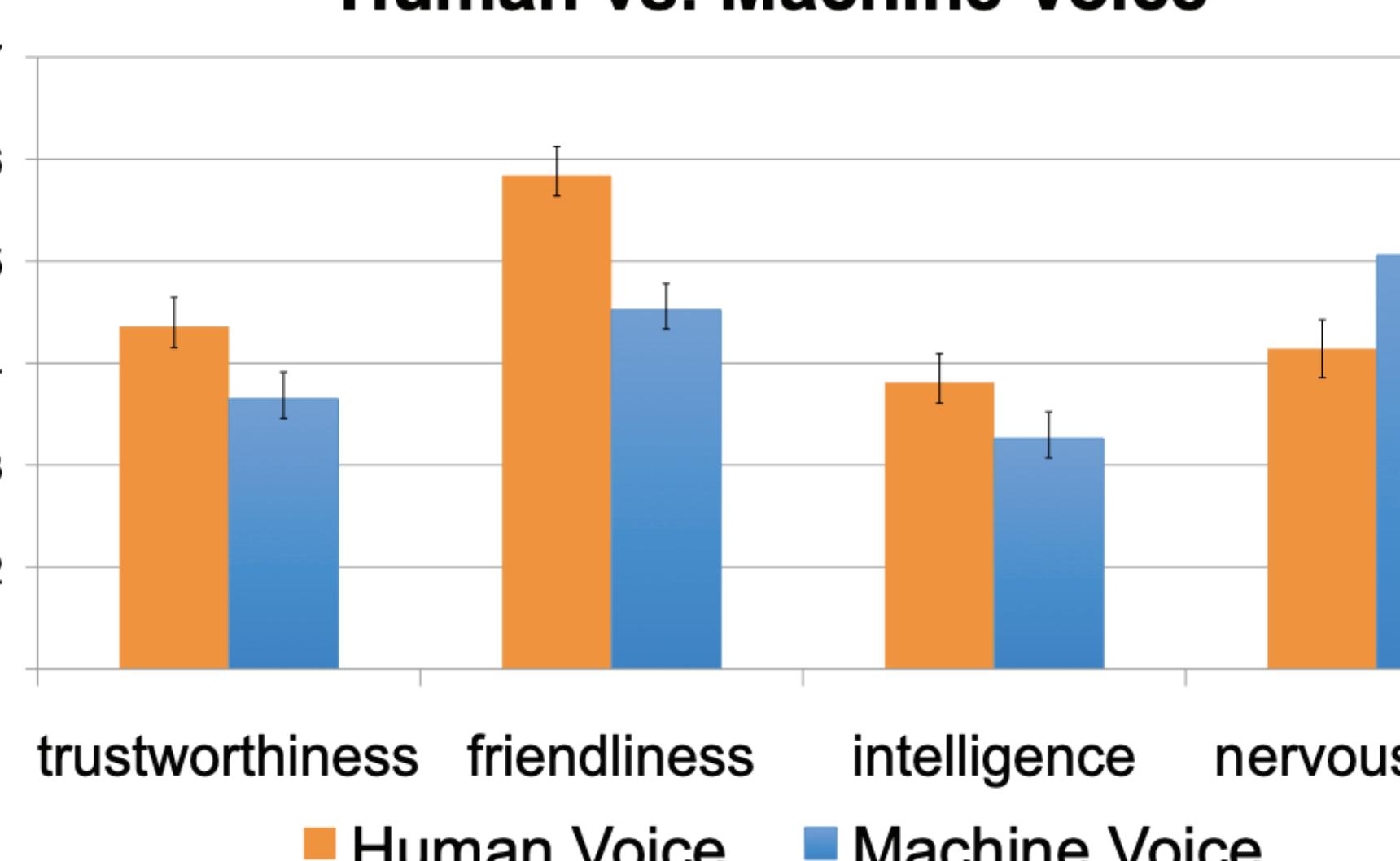


Means (and Standard Error) for the four groups of participants:

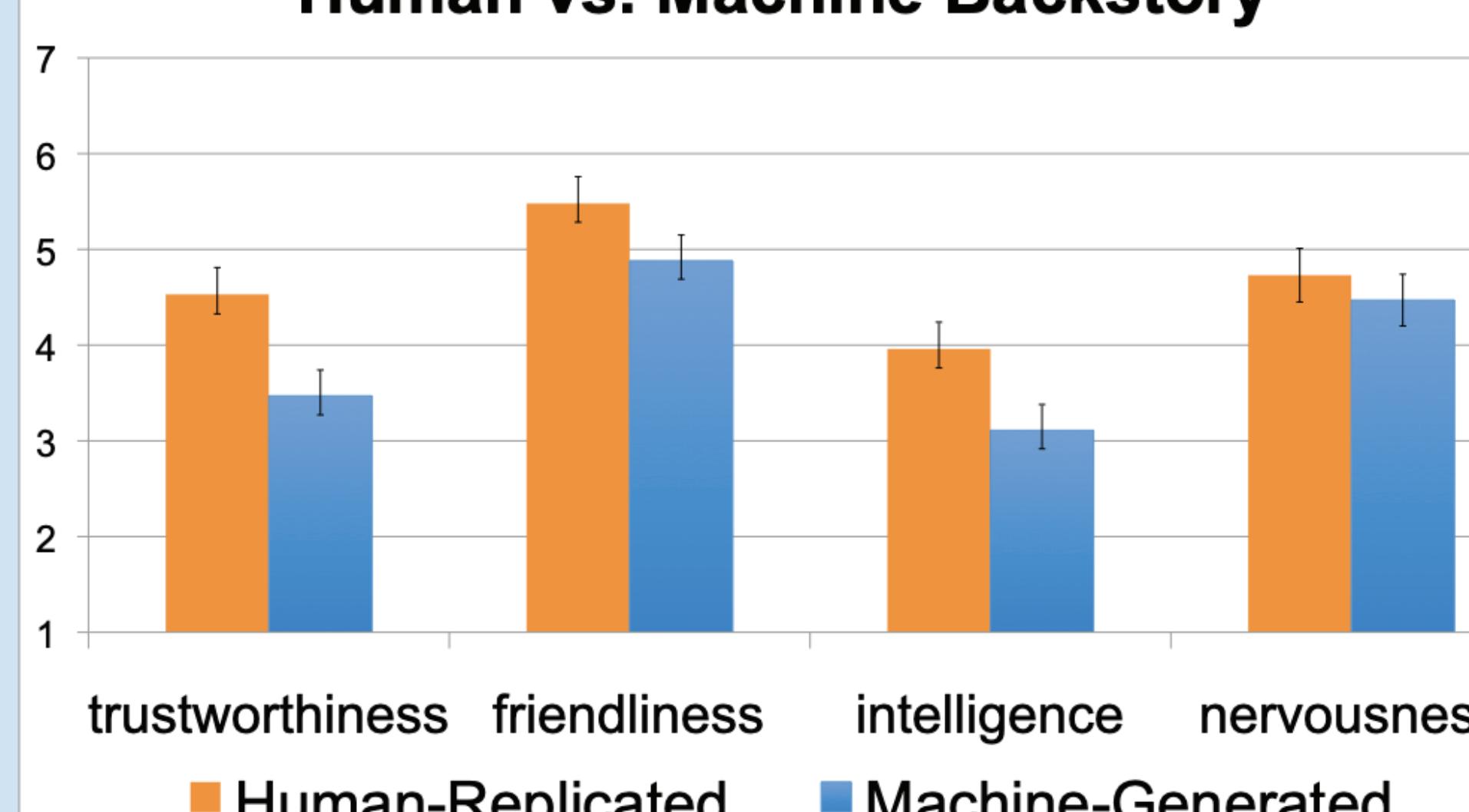
Backstory	Voice	Speaker Quality Total Score	
		Human Voice	Text-to-Speech
"Human"	Human Voice	18.88 (0.87)	15.6 (0.60)
"Computer"	Text-to-Speech	16.83 (0.84)	13.14 (0.57)

Differences between groups on the four speaker traits:

Human vs. Machine Voice



Human vs. Machine Backstory



Results

- Human voices received higher speaker quality ratings. $F(4, 69) = 7.803, p = .000; \text{Wilks' } \Lambda = .689$.
- Human backstory received higher speaker quality ratings. $F(4, 69) = 4.113, p = .005; \text{Wilks' } \Lambda = .807$
- No interaction between backstory & voice type. $F(4, 69) = .519, p = .722; \text{Wilks' } \Lambda = .971$.

Discussion

- Human voice and human backstory were rated more positively (more trustworthy, friendly, intelligent, and less nervous) than text-to-speech voice and computer backstory.
- For now at least, people still prefer human to synthesized TTS voices, even if they only imagine they are listening to humans (and there is no actual difference in recorded voice).

Take-Home Message

- Use human-like speech when possible
- Emphasize humanizing backstories for machine agents

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