

MIMICRY AND SYNCHRONY IN EMOTION REGULATION AND BONDING:
A HUMAN-VIRTUAL HUMAN INTERACTION STUDY

How do the form and timing of nonverbal coordination contribute to emotional and relational outcomes in human-virtual human interaction?

- Nonverbal coordination shapes communication outcomes like trust, rapport, and emotional contagion [1-3]
 - It involves two dimensions: form (mimicry) and timing (synchrony) [3-4]
 - Their individual effects are hard to separate in natural interaction.
- Virtual humans allow precise control of form and timing.
 - Insights can advance understanding of nonverbal coordination and its components...
 - While also improving virtual humans' nonverbal behavior, which lags behind verbal communication.

Conditions

- 2x2 Factorial design
 - Mimicry (on/off)
 - Synchrony (on/off)
-
- Regions: head/body
 - Synchrony → opposing
 - Mimicry → matching
 - Delay:
 - Synchrony → 0-2 seconds
 - Mimicry → 3-5 seconds

Informed Consent

5 minutes



Background

5 minutes

Age
Sex
Tech. Affinity
Trait. Emot. Contagion
Empathy
Alexithymia

Pre-Questionnaire

5 minutes

Affect
Appraisal
Closeness

VH Interaction

4x5 minutes

VH Coach
H Student
VH Coach
H Student
...

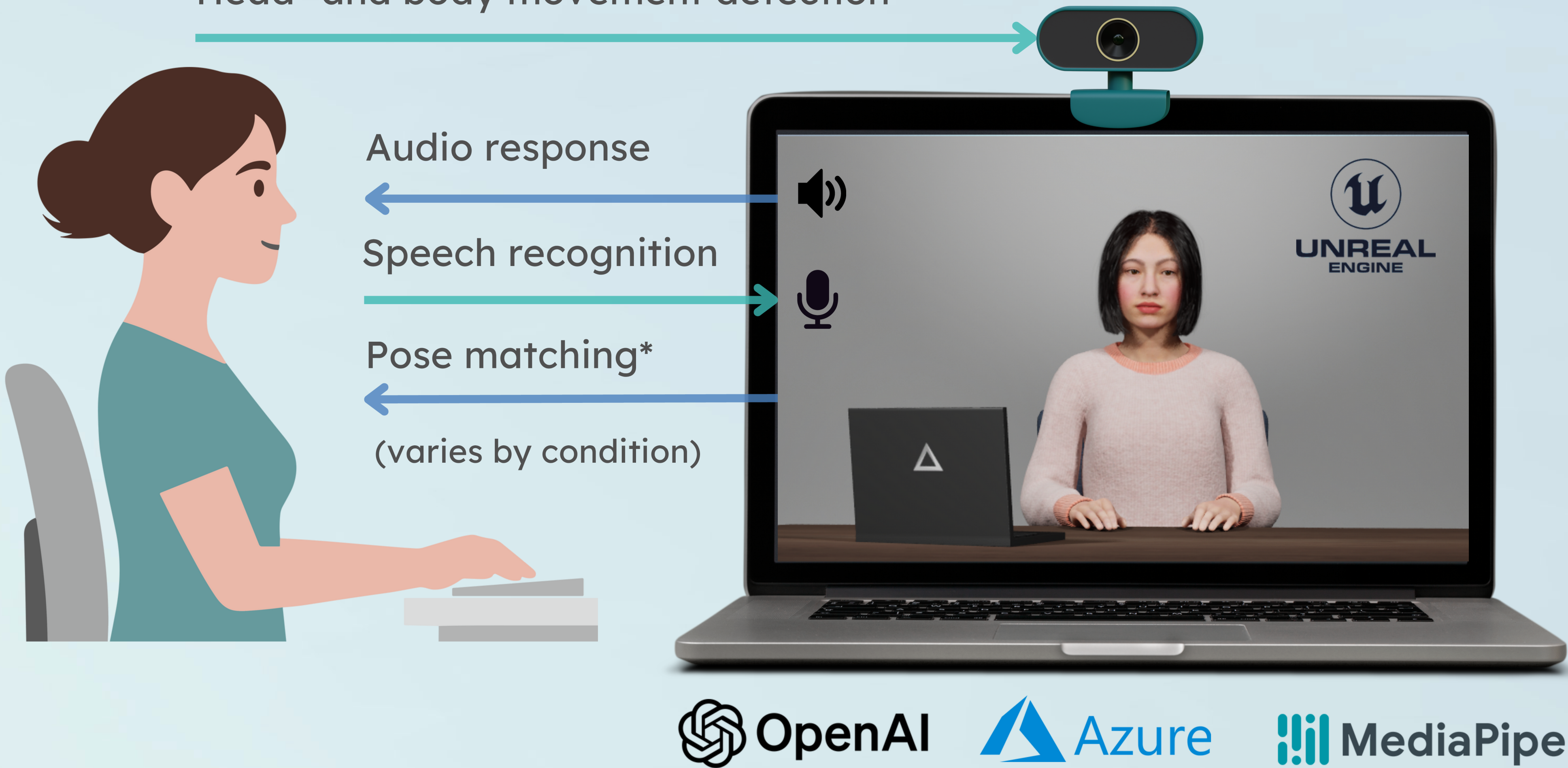
Post-Questionnaire

10 minutes

Affect
Appraisal
Closeness
Responsiveness
Emotional Contagion
Emotional Buffering
Interaction Quality
Likeability
Movement Perception

4 conditions

Head- and body movement detection



Task

- Task: Emotional discussion
 - Virtual Human: Coach
 - Participant: Student
-
- Role of VH: offering emotional support, focused on validating feelings.
-
- Topics: academic stress, loneliness, feeling down, uncertainty about future (study/career).

Participants

- N = 80
- University students

Analysis

- Primary analyses will use linear mixed-effects models with Mimicry, Synchrony, and their interaction as predictors for outcome variables related to bonding and emotion regulation.
- Participants' nonverbal behavior will be analyzed as a possible mediator for the outcomes.

References

[1] R. B. van Baaren, R. W. Holland, K. Kawakami, and A. van Knippenberg, "Mimicry and prosocial behavior," Psychological Science, vol. 15, pp. 71-74, 2004.
[2] M. Stel and R. Vonk, "Mimicry in social interaction: Benefits for mimickers, mimicees, and their interaction," British Journal of Psychology, vol. 101, no. 2, pp. 311-323, 2010.
[3] M. J. Hove and J. L. Risen, "It's all in the timing: Interpersonal synchrony increases affiliation," Social Cognition, vol. 27, no. 6, pp. 949-960, 2009.
[4] J. L. Lakin, "Behavioral mimicry and interpersonal synchrony," in Nonverbal Communication, J. A. Hall and M. L. Knapp, Eds. Berlin, Boston: De Gruyter Mouton, 2013, pp. 539-576.