Collaborative Robotics Lab

UVA ENGINEERING | UVA LINK LAB

iSpy a Humorous Robot: Evaluating the Perceptions of Humor Types in a Robot Partner

Haley N. Green
PhD Student
hng9vf@virginia.edu

Md Mofijul Islam
PhD Student
mi8uu@virginia.edu

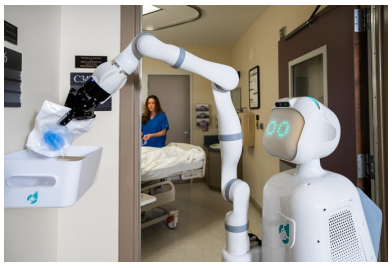
Shahira Ali
Undergraduate Researcher
sma6zw@virginia.edu

Tariq Iqbal
Assistant Professor
tiqbal@virginia.edu

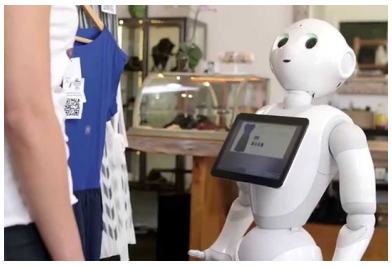
1

Background – Interactive Robots

Social robots are being used as interactive partners across various domains.



Healthcare



Customer Service

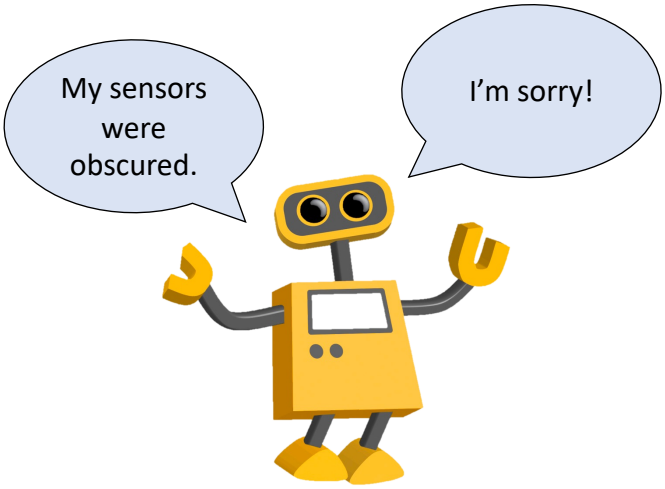
Education

2

2

Background – Failure Recovery Tactics

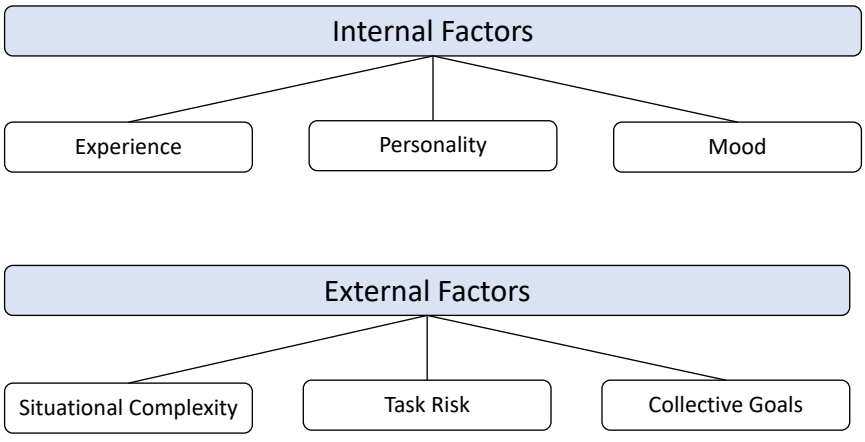
- Expressive Emotions
- Explainability
- Personal Anecdotes



3

3

Background – Trust Dynamics



4

4

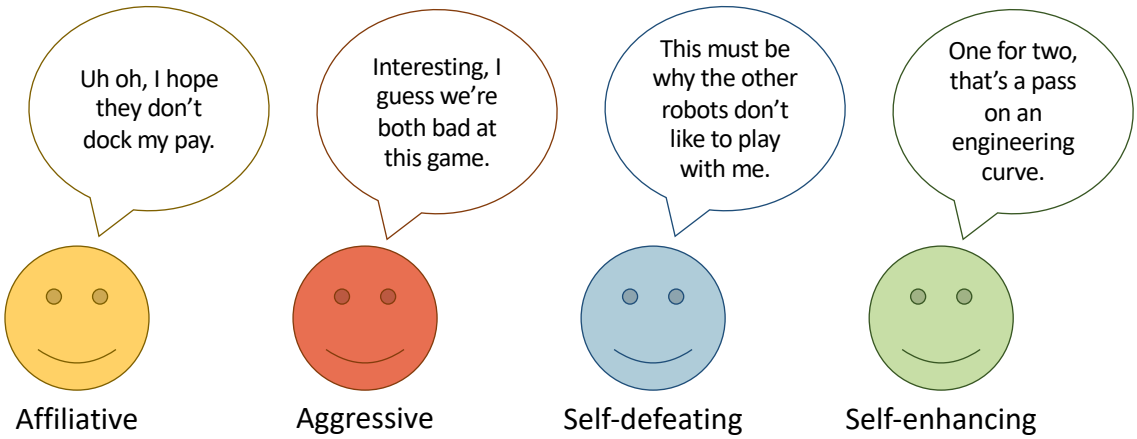
Background – Humor and Trust

- Resolve Conflicts
- Relieve Stress
- Strengthen Relationships
- Illustrate Competence

5

5

Method – The Four Humor Types



R.A. Martin, P. Puhlik-Doris, G. Larsen, J. Gray, K. Weir, "Individual differences in uses of Humor and their relation to psychological well-being: Development of the Humor Styles Questionnaire," Journal of Research in Personality, 2003.

6

6

Study 1: Approach

- SoftBank Robotics' NAO Robot
- Amazon Polly's *Ivy*

7

7

Research Questions

RQ 1. What is the effect of humor type on joke rating?

RQ 2. What is the effect of gender on joke rating?

RQ 3. What is the effect of age on joke rating?

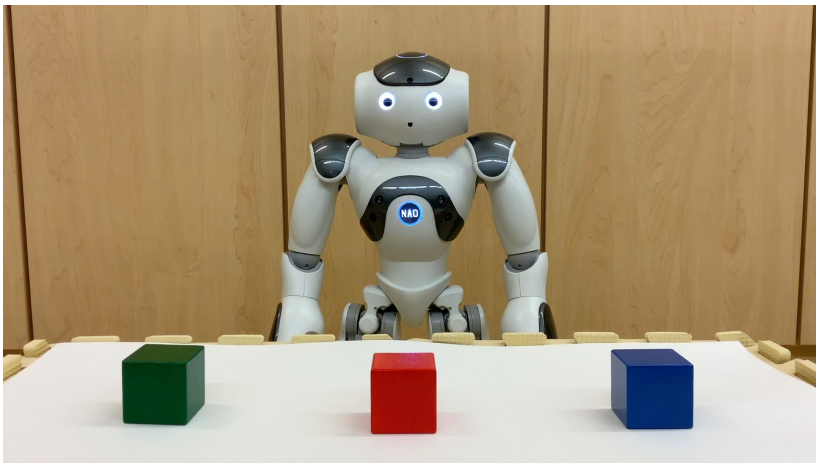
RQ 4. What is the effect of previous NAO robot experience on joke rating?

RQ 5. What is the effect of previous robot experience on joke rating?

8

8

The *iSpy* Testbed



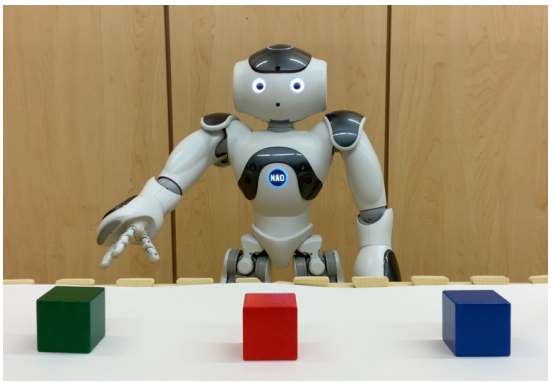
9

9

Study 1: Participants

- 50 MTurk Participants
- 20 Jokes

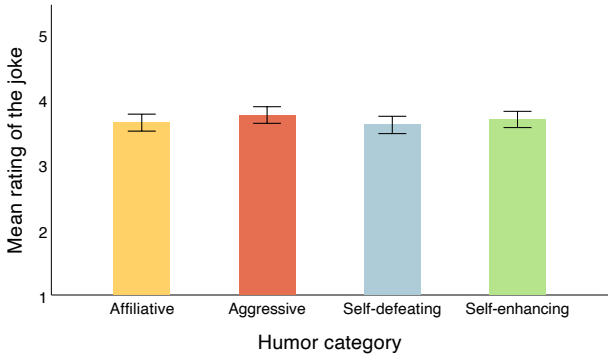
- Demographic Features
  - Age
  - Gender
  - Previous Robot Experience



10

10

Results – RQ1: Effect of Humor Type



Mean ratings for the jokes selected for the main study on a scale from 1 (not funny) to 5 (very funny).

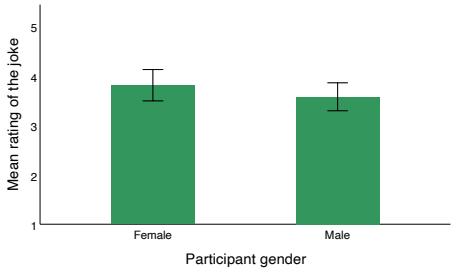
Affiliative	3.80
Aggressive	3.79
Self-defeating	3.68
Self-enhancing	3.78

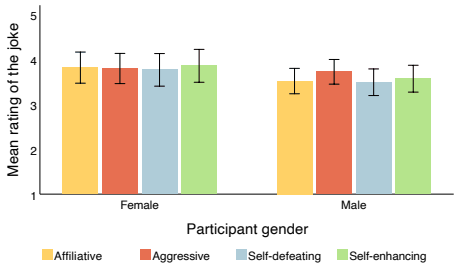
- The results suggest that the joke ratings were not significantly affected by the type of joke.

11

11

Results – RQ2: Effect of Gender



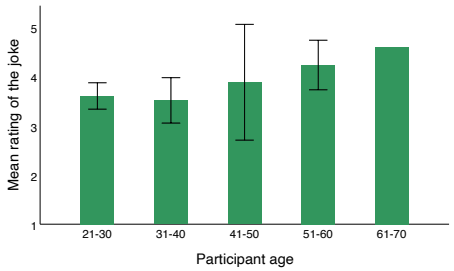


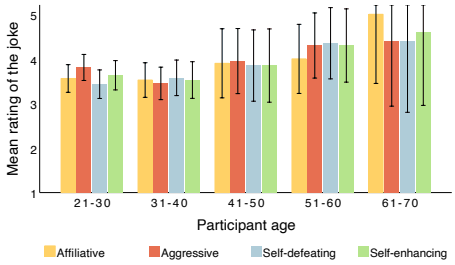
- Participant gender did not significantly affect the joke ratings.

12

12

Results – RQ3: Effect of Age



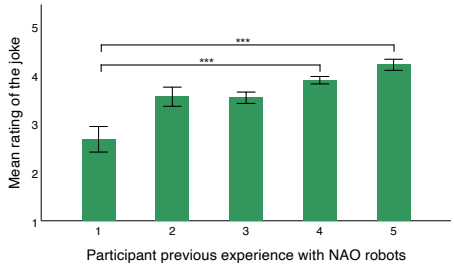


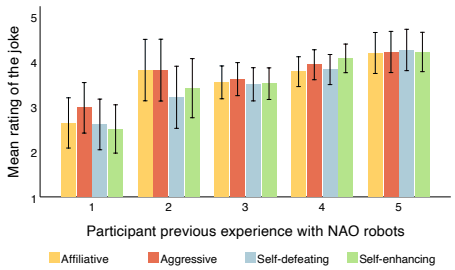
- Participant age did not significantly affect the joke ratings.

13

13

Results – RQ4: Effect of Previous NAO Experience



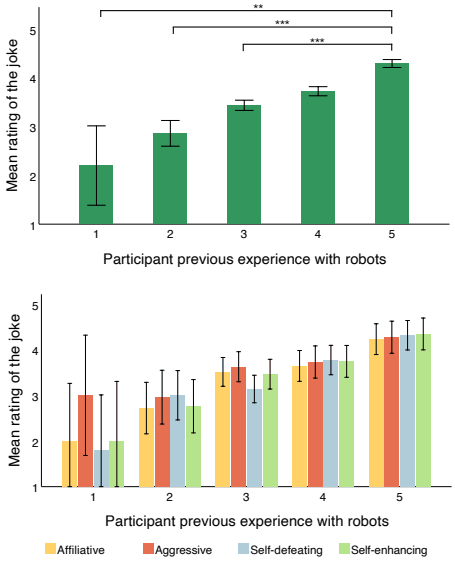


- Participants with a higher level of experience with NAO robots found the jokes funnier than participants with less experience.

14

14

Results – RQ5: Effect of Previous Robot Experience



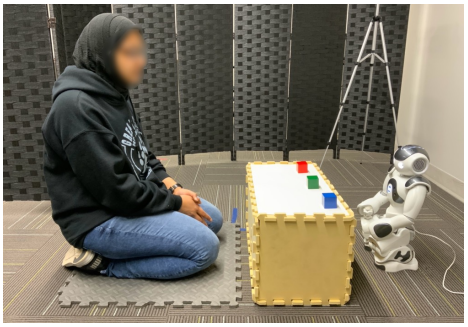
- Participants with expert-level robot experience rated the jokes significantly higher than participants with low robot experience.
- Participants with no robot experience found the robot that used aggressive humor to be funnier than the other types.

15

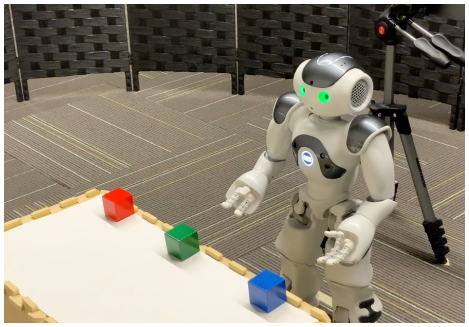
15

Study 2: Approach

Robot uses one of the four humor types to recover from failure in *iSpy* game.



Dyadic Study



Bystander Study

16

16

Research Questions

RQ 1. How do perceptions vary for a humorous and non-humorous robot?

RQ 2. What is the effect of humor type on perceptions of the robot?

RQ 3. What is the effect of previous robot experience on perceptions in a humorous and non-humorous robot?

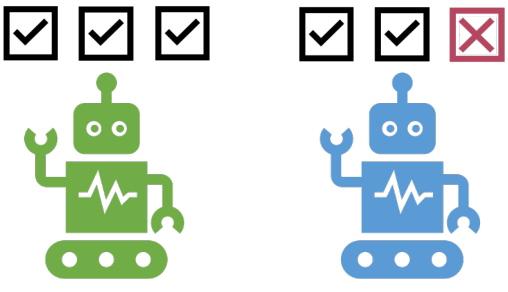
RQ 4. What is the effect of humor type and previous robot experience on perceptions of the robot?

17

17

Study 2: Dyadic Interaction

- 32 participants
- Played 2 games with 3 rounds



Measures

Competence

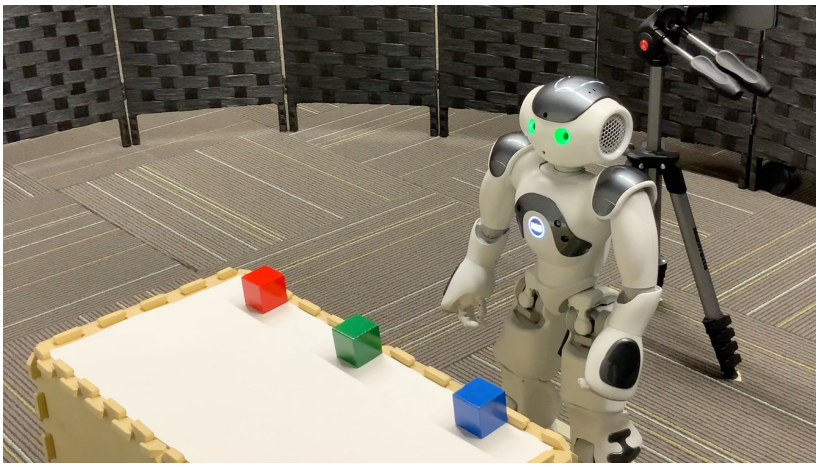
Warmth

Teammate

18

18

The *iSpy* Recordings

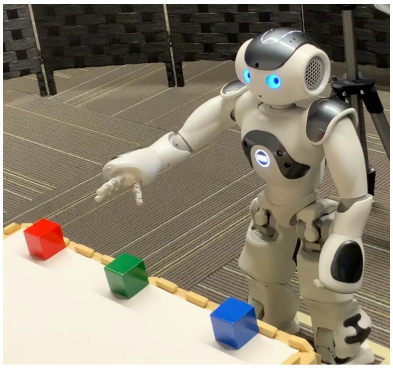


19

19

Study 2: Bystander Interaction

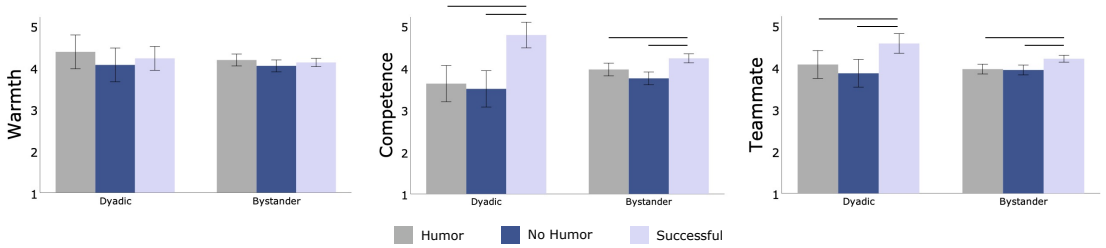
- 256 MTurk participants
- Each was randomly assigned one of the recorded dyadic interactions



20

20

Results – RQ1: Humor and Perspective

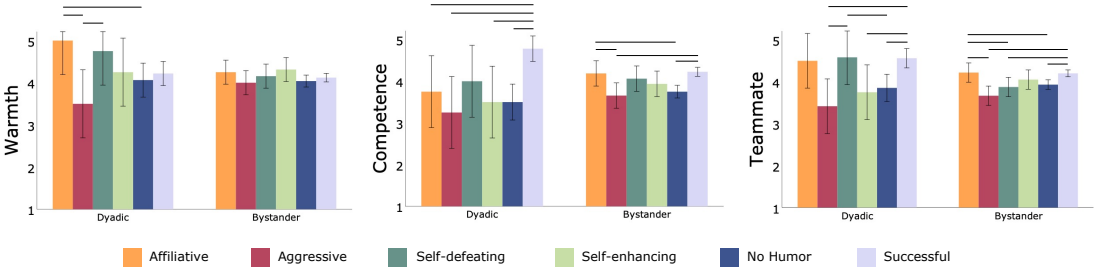


- Both the dyadic participants and the bystanders found the robot that did not experience failure to be significantly more competent than the humorous and non-humorous robots.
- Dyadic participants found the successful robot to be a better teammate than the bystanders.

21

21

Results – RQ2: Humor Type and Perspective

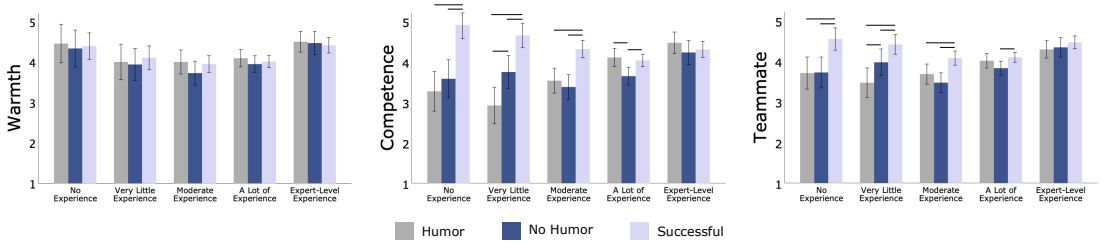


- Bystanders found the affiliative robot and the successful robot to be significantly more competent than the robots that used aggressive or no-humor.
- Dyadic participants had significantly higher ratings of the robot as a teammate than the bystanders for the robot that used self-defeating humor.

22

22

Results – RQ3: Humor and Experience

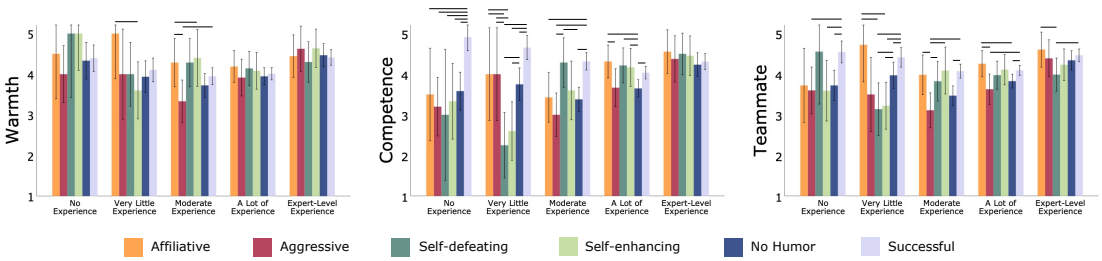


- Participants with moderate to no previous robot experience found the successful robot to be significantly more competent than the robots that failed.
- Participants with expert level experience found the humorous robot to be a significantly better teammate than the participants with less experience.

23

23

Results – RQ4: Humor Type and Experience



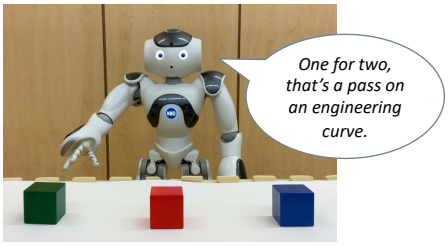
- Participants with less previous robot experience found the successful robot to be significantly more competent than the robots that failed and used no humor or one of the four humor types.
- Participants with high levels of previous robot experience had less variation in their ratings of the robot as a teammate.

24

24

Key Findings

- Participants with more robot experience and participants with more NAO robot experience found the jokes to be funnier than participants with less experience.
- Dyadic participants found the robot that used self-defeating humor to be a better teammate.
- Bystanders found the robot that used affiliative humor to be significantly more competent than the robots that used aggressive or no-humor.



26

26

Collaborative Robotics Lab

UVA ENGINEERING UVA LINK LAB

iSpy a Humorous Robot: Evaluating the Perceptions of Humor Types in a Robot Partner


Haley N. Green
PhD Student
hng9vf@virginia.edu


Md Mofijul Islam
PhD Student
mi8uu@virginia.edu


Shahira Ali
Undergraduate Researcher
sma6zw@virginia.edu


Tariq Iqbal
Assistant Professor
tiqbal@virginia.edu

27