

TOWARDS A STUDY TO ASSESS CONVERSATION-BASED INTERACTION BETWEEN PEOPLE WITH DEMENTIA AND ROBOTS

Dagoberto Cruz-Sandoval & Jesus Favela Vara
Computer Science Department
Workshop ReHRI'17



INTRODUCTION

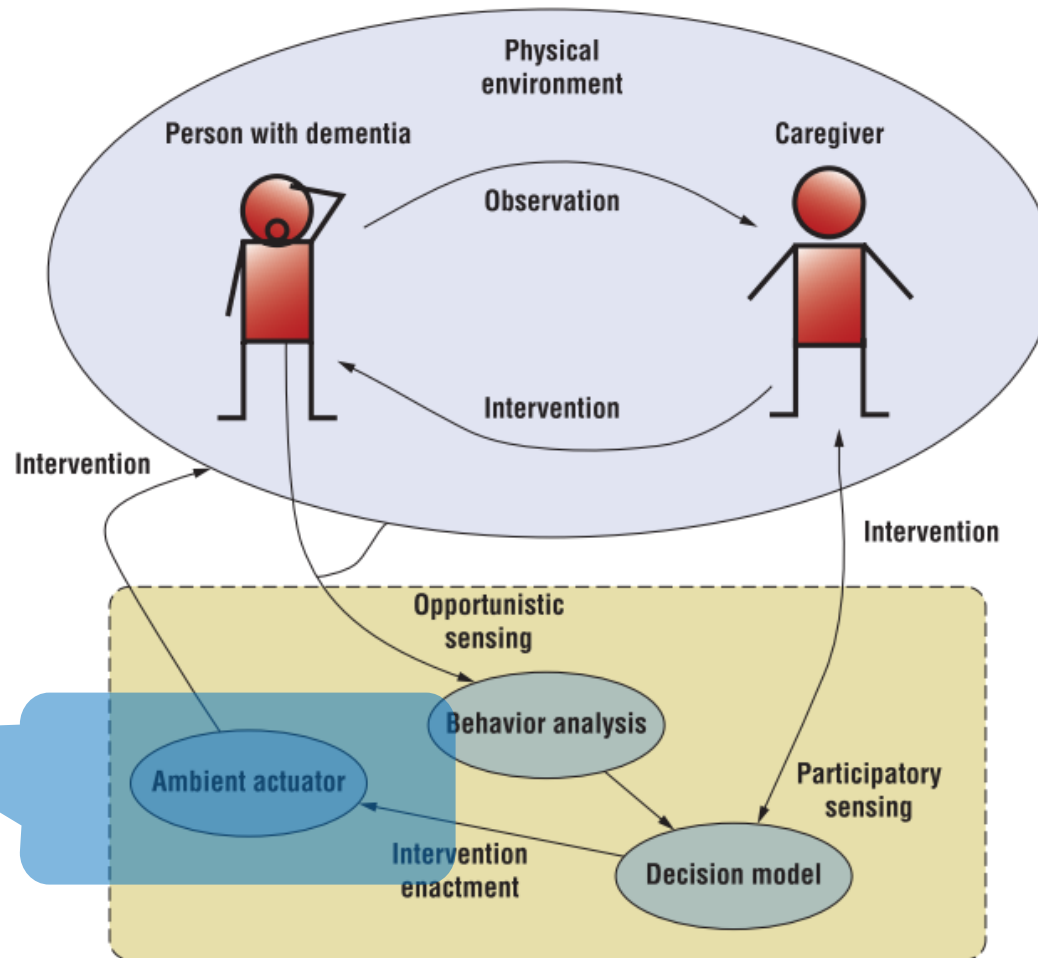
🤖 Therapies and interventions supported by Socially Assistive Robot technologies for a person with dementia (PwD)[1].



[1] Nikola Nestorov, Emer Stone, Patrick Lehane, and Richard Eibrand. 2014. Aspects of socially assistive robots design for dementia care. In Proceedings - IEEE Symposium on Computer-Based Medical Systems, 396–400.

AMBIENT-ASSISTED INTERVENTION SYSTEM (AAIS)

Can a robot enact an intervention to deal with problematic behaviors from PwD?



INTRODUCTION

 Caregivers often deal with problematic behaviors through verbal communication [3].

Category	#	Genre	Experience
Caregivers	4	Female (2) Male (2)	+6 months (2) +2 years (1) +4 years (1)
Specialist in non-pharmacological interventions	1	Female	+6 years
Specialist (female) in behavior and cognition	1	Female	+8 years
Geriatrician	1	Male	+9 years

Dementia	#	Genre	Age
Alzheimer	4	Female (3) Male (1)	Between 75 to 85 years
Lewy bodies cognitive impairment	1	Male	
	1	Female	



[3] Dagoberto Cruz-Sandoval and Jesus Favela. 2016. Human-Robot Interaction to Deal with Problematic Behaviors from People with Dementia. In Proceedings of the 10th EAI International Conference on Pervasive Computing Technologies for Healthcare.



STUDY GOALS

- 🤖 We propose the use a robot to enact a personalized conversation to deal with problematic behaviors from a PwD.
- 🤖 Better understand of PwD-Robot interaction in terms of :
 - 🤖 Adoption
 - 🤖 Engagement
 - 🤖 Application Scenarios





Research Questions

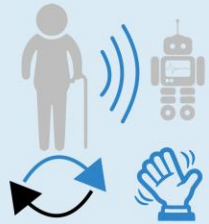
- 1 Can a person with dementia engage in a conversation with a robot?
- 2 How effectively are the conversation strategies proposed by the Alzheimer's Association [3] to be implemented in a PwD-robot conversation?
- 3 How a PwD perceives the social presence of the robot?



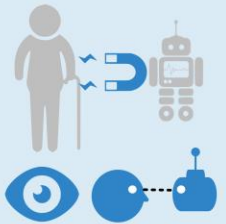
Variables [5,6]



Interaction



Social Presence



Engagement



Enjoyment



Conversation Recommendations

Participants



Small group (4-5).
10-20 MMSE rate.
60-85 old.

Capacity to speak.
Good diction level
Be sociable

Inclusion +

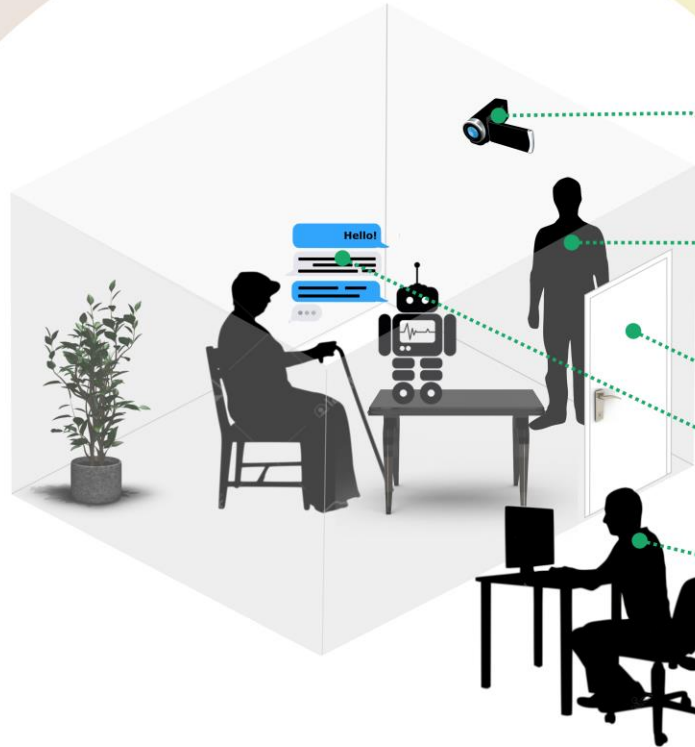
Exclusion -

Frequent aggression.
Tendency to delusions.

Setup

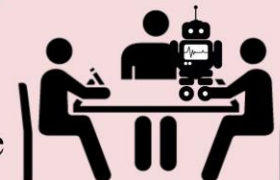


- Video recording
- Facilitator
- Same conditions for all
- Script for each conversation
- Wizard of Oz setup



Study Design

- 1 A group session to familiarize the participants with the robot.



Tasks



- 2 A conversation based on:

- Completing famous sayings
- Reminiscence about pleasurable moments
- Talk about recent events
- Ask about her favorite topics of conversation

[5] Aaron Steinfeld, et al. Common metrics for human-robot interaction.

[6] M P Lawton et al. Observed affect in nursing home residents with Alzheimer's disease.

MIXED APPROACH



Analysis

Observation



Coding






Measuring



Answers

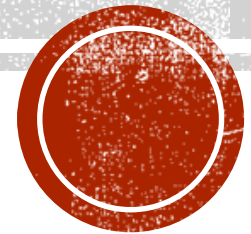


EXPECTED RESULTS

-  Assess PwD-robot interactions.
-  Discover issues affecting the adoption of a conversational SAR by a person with dementia.
-  Inform the design of an autonomous conversational SAR to interact with people with dementia.



¡THANK YOU!



dagoberto@cicese.edu.mx