

# Introduction to a Social Human-Robot Interaction and the Related Korean Project

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# What is sHRI?

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- Human-Robot Interaction in **the socially acceptable way** such as
  - ✓ Turn-taking by intention reading
  - ✓ Perspective-taking
  - ✓ Social navigation behaviors
  - ✓ Cooperative planning
  - ✓ Proactive behaviors to learning task semantics from demonstration
  - ✓ Emotional empathy or sympathy
  - ✓ ...
- **Social (Robot) Intelligence** is the key technology for sHRI

# Social Robot Intelligence

## *Strong Assumption !*

- Human always approach the robot with their attention
- They are all newcomers to the place
- Human don't stop paying attention to the robot until the robot stops its expression.
- ...



## *What If ?*

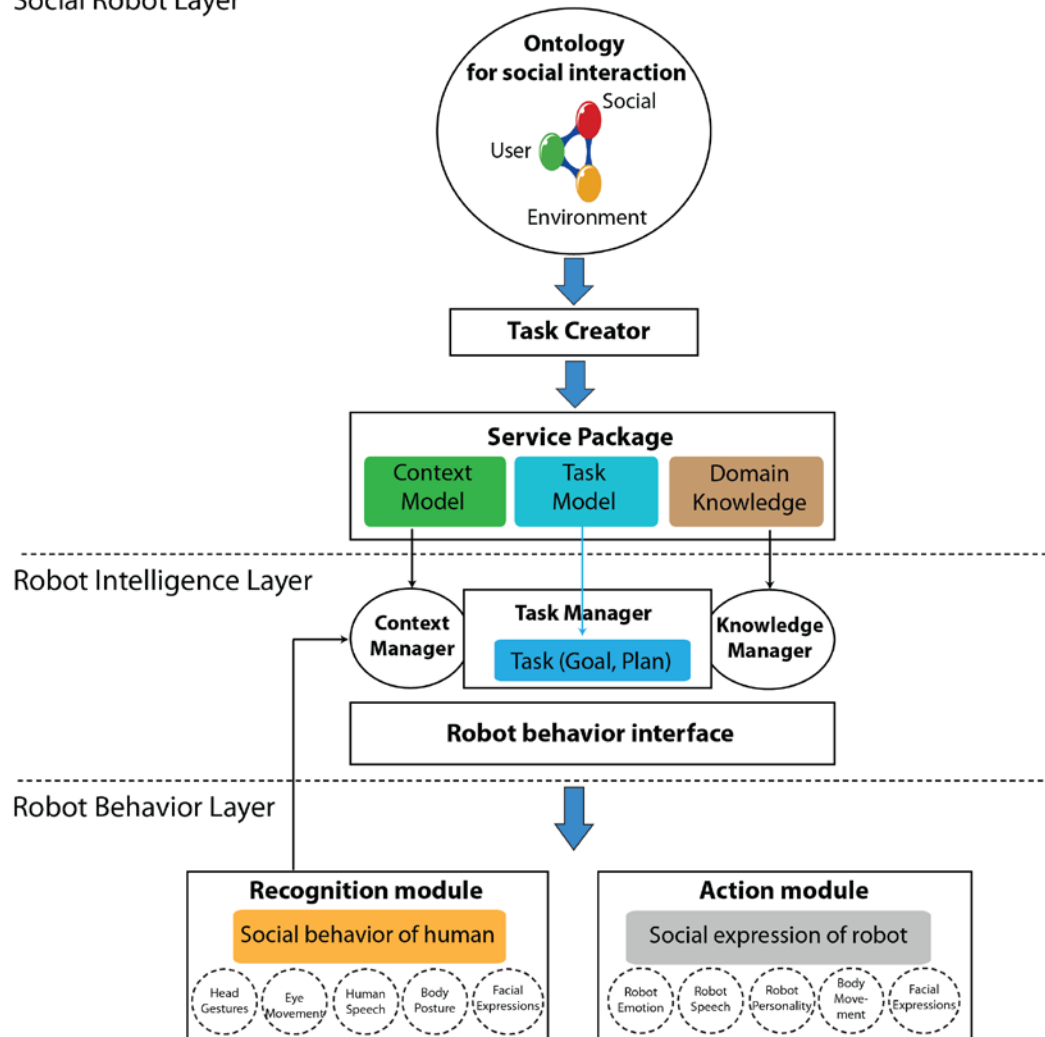
- If someone is just passing by w/o attention?
- If someone is already familiar with the place?
- If someone feels bored and then wants to leave?
- If the person is not a customer but a clerk?
- If we change the robot?
- ...

Social  
Intelligence !

# Proposed System (from a sHRI-related project)

*“Development of Social Robot Intelligence for sHRI of Service Robots”*

Social Robot Layer



## 1. Social behavior recognition

(Electronics and Telecommunication Research Institute,  
Korea Institute of Science and Technology)

- Deep learning based social behavior perception
- Human-Human and Human-robot interaction data acquisition
- Long term human behavior tracking technology
- Social dialogue act model for Korean language

## 2. Social expression and behavior of robot

(University of Auckland)

- Robot personality model based on human behavior
- Emotion and speech expression model
- Robot speech and movement coordination

## 3. Social task knowledge

(Hanyang University and University of Seoul)

- BDI (Belief-Desire-Intention) based user intention prediction knowledge
- Social interaction ontology
- External web data based knowledge expansion

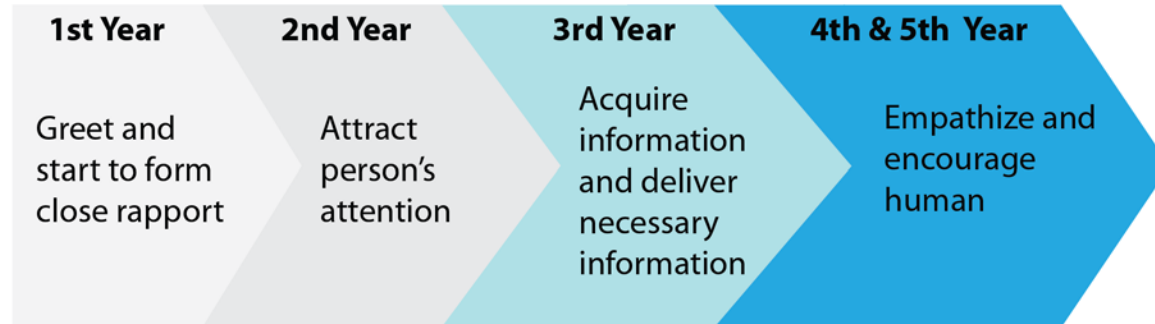
## 4. User evaluation

(Ewha Womans University)

- Social interaction model evaluation
- Social cue based interaction model

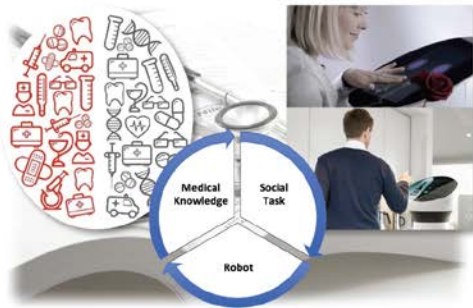
# Project plan and applications

## Project Plan



## Social interaction applications

### Healthcare service



- Deliver basic medical information to elders
- Understand the social relation with users especially with elder people

### Reception service

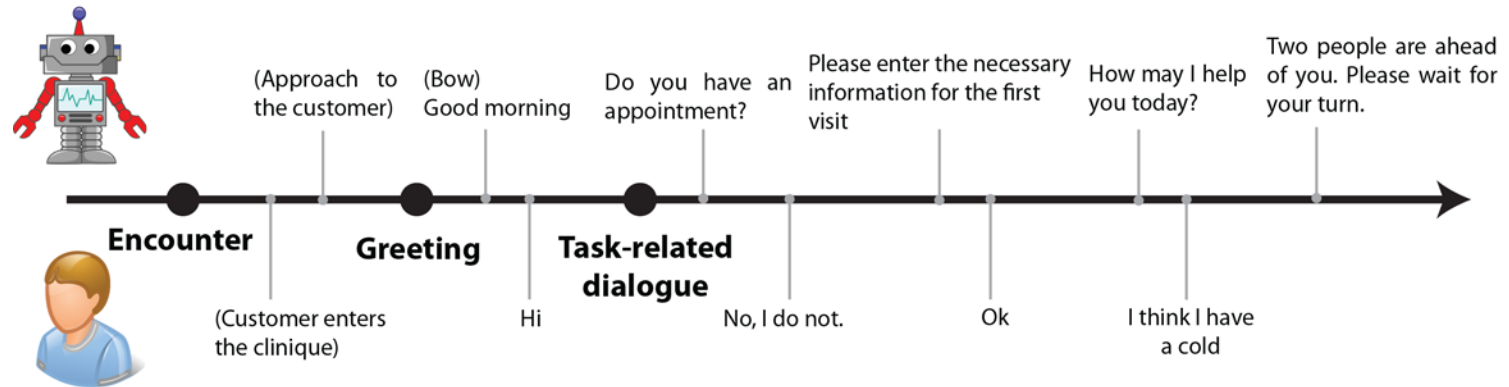


- Reception service for department store, university library, etc

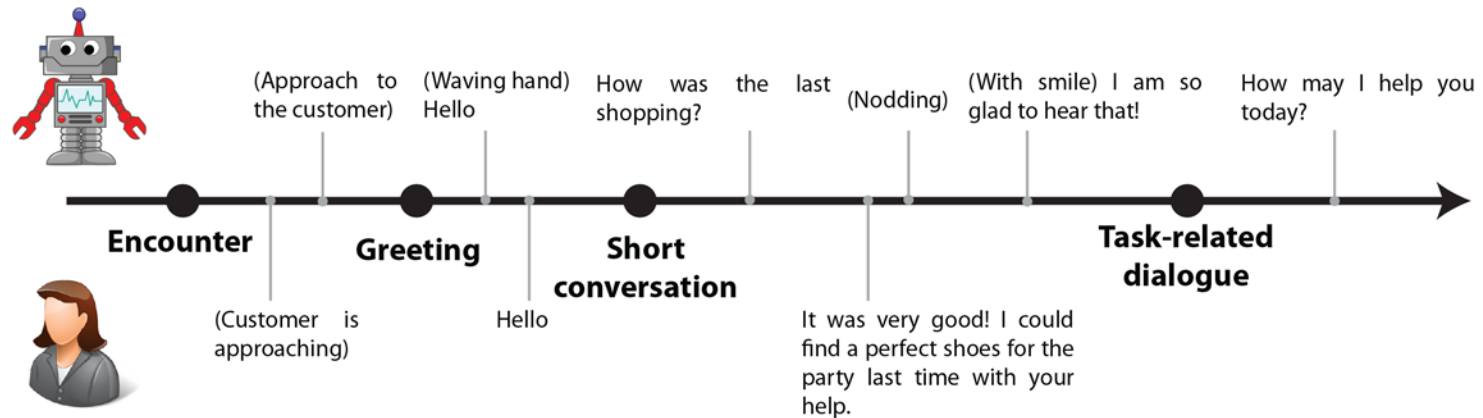


# Example Scenarios

## In the hospital



## Customer reception at shopping center



**Thank You**