

TOWARD AUTOMATED INTERACTIONS FOR PEDIATRIC INPATIENTS USING A SOCIAL ROBOT

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Motivation

Children undergoing hospital treatments can feel isolated and lonely, since they are removed from their social circle[1]. We deploy the Haru social robot[2] in an oncology pediatric ward as way to support patients under treatment.

Our experience revealed technical and psychosocial challenges that disrupt the interaction, highlighting the need for careful preparation and technological awareness when introducing robots into sensitive clinical environments.

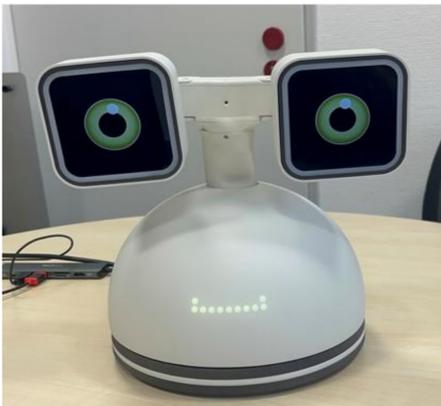


Figure 1: the social robot Haru

Technical setup

- Haru tabletop robot
- Whisper model to perform ASR
- Behavior tree to guide the dialogue



Figure 2: Haru interacting with a volunteer child during a pilot test. The child mimics the robot's head movements.

Scenario & Methods

SETUP

- 8 patients between 5 and 17 years old
- Semi-scripted dialogue
- Riddles and short stories
- 15 minutes interactions

MAIN CHALLENGES

- ASR specially for younger patients and with masks
- Delays on the turn taking
- Expressiveness of the robot's voice

Open Questions and Conclusion

We successfully deployed Haru in a real hospital setting. During this process we learned more about the technical issues and environmental factors that can influence the interaction. For future research, the following questions should be considered:

- How can we ensure that Large Language Models are safe to interact with children, particularly when dealing with vulnerable patients?
- How can we handle sensitive data while still providing a natural interaction between humans and robots?

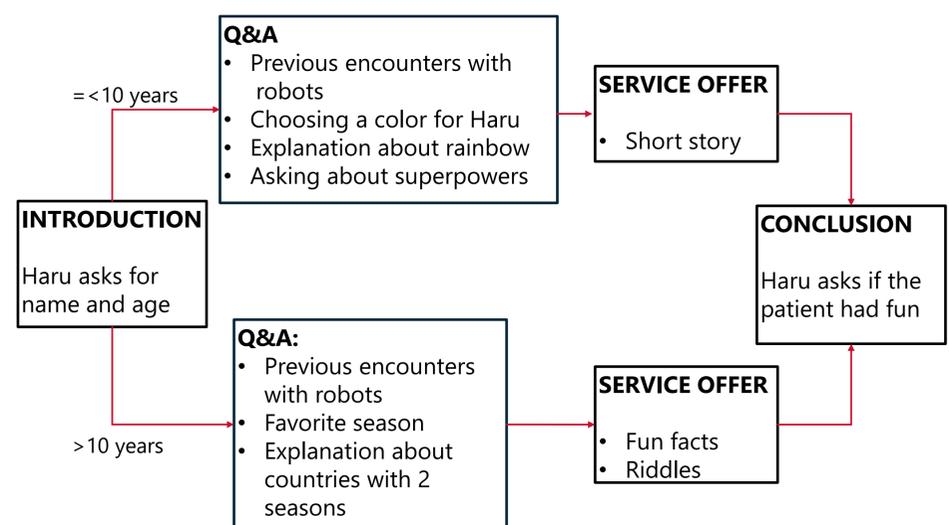


Figure 3: diagram of the semi-scripted dialogue flow

References

- [1] Moerman, C. J., & Jansens, R. M. (2021). Using social robot PLEO to enhance the well-being of hospitalised children. *Journal of Child Health Care*, 25(3), 412-426.
- [2] Gomez, R., Szapiro, D., Galindo, K., & Nakamura, K. (2018, February). Haru: Hardware design of an experimental tabletop robot assistant. In *Proceedings of the 2018 ACM/IEEE international conference on human-robot interaction* (pp. 233-240).