

Building social robots that learn from communication





LEOLANI



a robot with social hunger

Our robot learns through communication and stores the result in a "brain". She uses her brain to communicate better and more efficient and to understand situations she encounters. Ultimately, we develop robots that adapt to situations and to you, so that communication and collaboration are more smooth and efficient, with less errors.

WWW.MAKEROBOTSTALK.NL

If you are interested in our robot and want to collaborate, please contact: Piek Vossen Professor Vrije Universiteit Amsterdam <u>piek.vossen@vu.nl</u> <u>www.vossen.info</u>

MAKE ROBOTS TALK



Our communicative robot Leolani is driven by curiosity and the need for social contact. Meet her and become one of her many friends. She wants to know all about you, never stops asking questions (unless you ask her to stop), remembers all you said and learns from you about you and about the world.



The robot communicates in natural language for the following purposes:

- 1. learn about the world (what is 'speculaas') and about you (what do you like, who is your family).
- 2. teach you something about the world (how high is the Eiffel tower, I found a recipe for 'speculaas').
- 3. in case of confusion, reach understanding, explain the cause of misunderstanding.
- 4. correct the robot and correct humans in case of errors.
- 5. resolve uncertainties (I have imprecise information, I could not hear you).
- 6. resolve conflicts if information is incompatible (but you said something else than your friend).
- 7. negotiate about right or wrong (go outside or stay inside when it may snow).
- 8. give warnings if the robot sees or knows something you do not (watch out the floor is slippery, your sister's birthday, you forgot a pill).
- 9. stimulate activity (let's walk), social contact (your grand child just posted she got her diploma), brain gymnastics (I have a riddle for you).
- 10.get help from others and experts when needed always answer questions and requests, always patient and polite.
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12.company, comfort and entertainment (tell a joke).



WHY A COMMUNICATIVE ROBOT?

People make mistakes but robots too. To collaborate,

humans and machines need to solve problems together,

recognizing each other's weaknesses and limitations and exploiting their strengths. This requires communication in

human language and not for people to debug a machine

misunderstandings, robots need to communicate in a

is a misunderstanding and explain differences.

about us, the people they serve. By means of

but also by instructions that explain things.

state of mind and is always willing to listen.

than with strangers.

communication through language, a robot can get feedback and efficiently learn from humans, in the same

way as we teach our children not only through experience

By talking, a robot gets to know her human partners: who

are we, what do we do, who are our friends and family, what we like and what we don't like. It is way easier to

communicate with acquaintances and friends whose

background you know and with whom you share a past

It is much nicer and comfortable to work together with a

robot that understands you, recognizes your mood and

in a program language such as Python.

