Companionbots for Proactive Therapeutic Dialog on Depression

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- The goal of the companionbots project is to create emotive, conversational, robotic companions.
- The companionbot will engage in conversation with the user and track key behaviors.
- Emotion is detected by interpreting the video, audio and linguistic input which may indicate a depressed state.
- The transcripts shown below are based on the "Wizard of Oz" trials in which a real person is filling in for the roll of the companionbot.

G. Responsibility for own medications

1. Is responsible for taking medication in correct dosages at correct time. — 1
2. Takes responsibility if medication is prepared in advance in separate dosage. — 0
3. Is not capable of dispensing own medication. — 0

Questions are generated from health related forms, physician interviews, the internet & information provided by physicians, family, and other caregivers.

- Dialogues are categorized based on information type and depression assessing topics.
- Linguistic features are extracted from the dialogue to train a classifier and label information.
- It allows for individualized responses to the user.

WEB SEARCH

USER MODEL

Millions skip meds, don't take pills correctly
Half of patients with chronic illnesses skip doses, study finds

This goes far beyond the issue of affording prescriptions. Often people buy their drugs but misunderstand what they're supposed to take, or how. Or forget doses. Or start feeling better and toss the rest of the bottle. Or skip doses for fear of side effects.

Classified as "Health"

Linguistic Analysis

Each sentence would be flagged:

- Positive/ Negative/ Neutral
- Personal/ External/Neutral
- Pervasive/ Specific/ Neutral
- Permanent/ Temporary/ Neutral
- Pessimistic/ Optimistic/ Neutral

- Simplify relevant sentence
- Replace mentions to referents as and when necessary
- Use the resultant sentence for starting/continuing conversation

This sentence would be flagged:

Negative, Personal, Specific, Temporary, Neutral

Dialogue transcript:

So how are you today?

I'm good.

Great! So do you have any plans for today?

Yeah I have an appointment with my doctor.

Oh, really? Do you see your doctor frequently?

Well I have a lot of health issues so I see him every two weeks.

Oh, do you take any medications regularly?

Yeah, I take quite a few. I hate to admit it, but um, I skip them sometimes

Well, do you skip because of fear of side effects, or do you just forget to take them?

Well, the ones where I have to make sure I eat … you know, taken with food, I tend to forget those.

Would you like me to remind you to take those?

Companionbot

User