Designing Empathetic Responses

Example

Bot : ...This will create an OS to best fit your needs.

Okay.

Bot : Are you social or anti-social?

I guess I haven't been social in a while. Mostly because I've been busy.

Bot : I sense hesitance. Would you agree?

Sorry if I sound hesitant - I was just trying to be more accurate.

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Female, I guess.

Bot : How would you describe your relationship with your mother?

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Bot : Thank you.

Intro

Current State of Commercial Voice Assistants
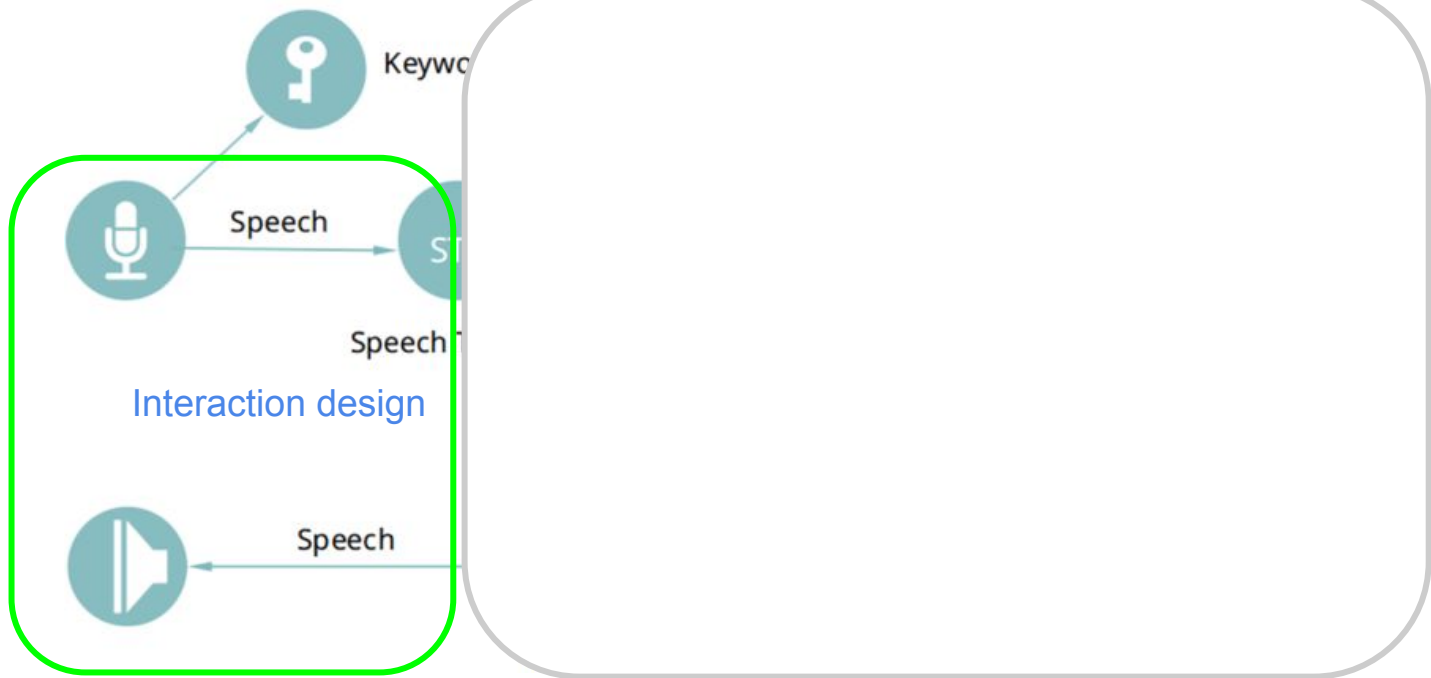
Current State of Commercial Voice Assistants

Keywo

Speech

ST

Speech T

Interaction design

Speech
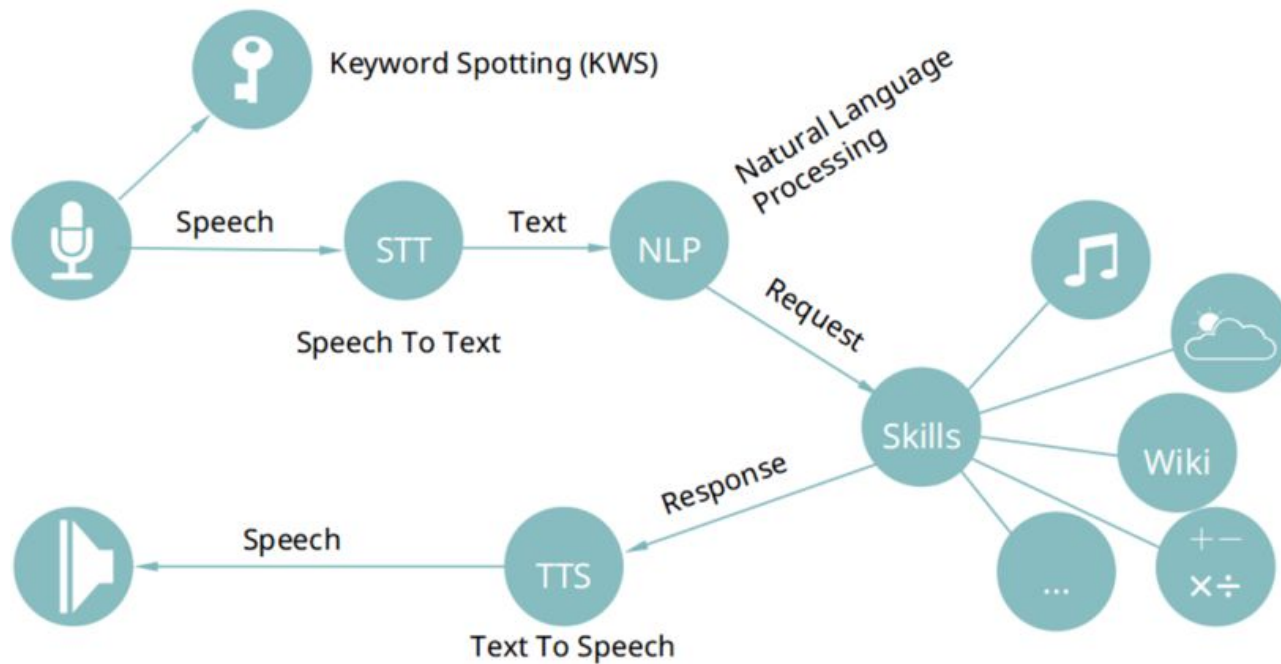
Voice Assistant Interaction Design

Voice Assistant Interaction Design

How might we design empathetic responses?

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- Your significant other has just been promoted at work. What do you say to him/her?
  - "You've been promoted? You know what tax bracket that's going to put us into?"
  - "Congratulations. Well deserved."
  - "What's for dinner?"
  - "Where were you when your boss told you that you had been promoted? Exactly what did he say? Why did you really think you had been promoted? You know, I have been reading your financial reports for the past few months..."

Can you guess the "best" response?

What about the "worst" response?

How might we design empathetic responses?

Research in 2006, led by Shelly Gable & marital researchers at UCLA.

- Both self-report data and observational codes showed that 2 months later, responses to positive event discussions were more closely related to relationship well-being and break-up than were responses to negative event discussions.
- Practicing active-constructive responding predicts increases in love and affection and decreases in divorce in interpersonal relationships.

How might we design empathetic responses?

The level of the active/constructive behavior was positively correlated to the perceived responsiveness during a conversation.

Low level of active/constructive behavior seemed to indicate higher chances of a break-up two months later.
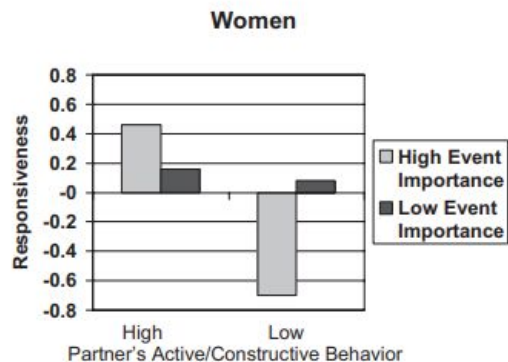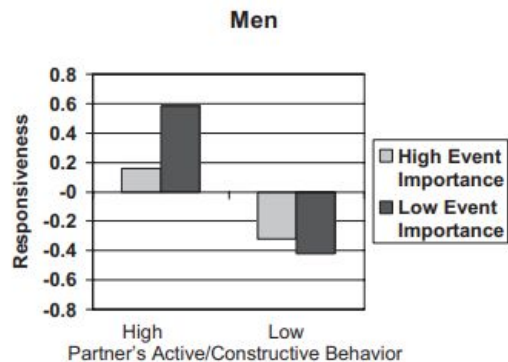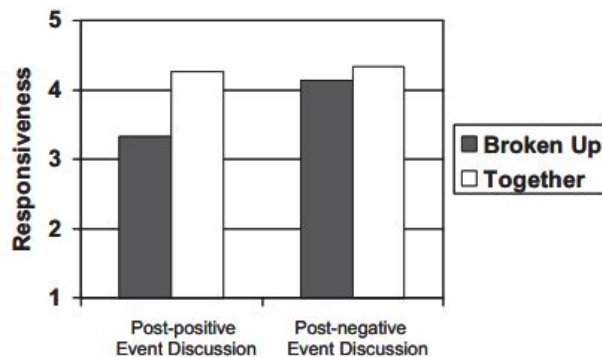
Figure 1. Predicted ratings of partners' responsiveness during positive event discussion by observer ratings of active–constructive behavior and importance of event.

How might we design empathetic responses?

	Constructive	Destructive
Active	**Active Constructive** Enthusiastic support (authentic, eye contact)	**Active Destructive** Quashing the event (dismissive, demeaning)
Passive	**Passive Constructive** Quiet, understated support (low energy, delayed response)	**Passive Destructive** Ignores event (Turns focus inward, ignores speaker)

Adapted from Gable, Reis, Impett & Asher (2004)

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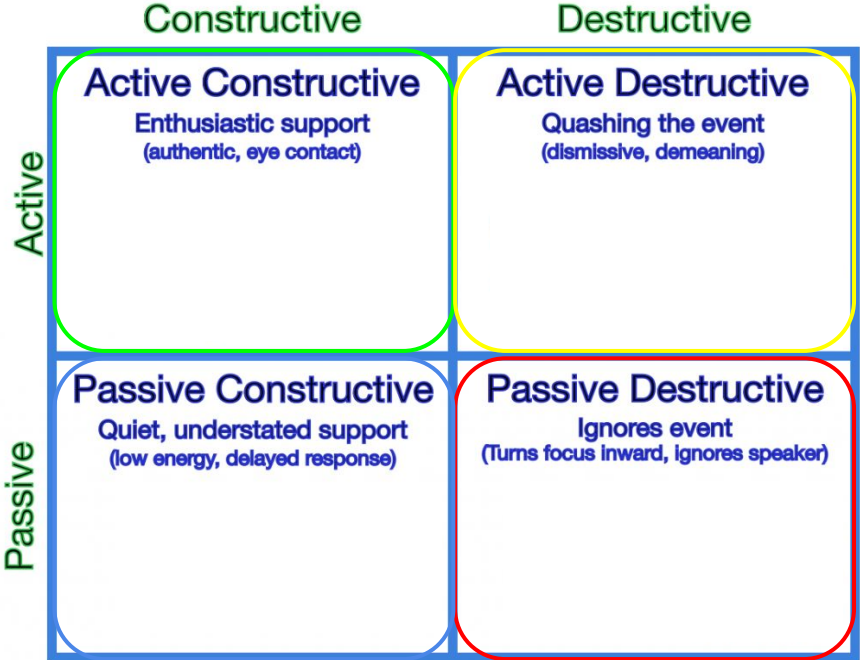Sorry if I sound hesitant - I was just trying to be more accurate.

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Active

Passive

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How might we design empathetic responses?

How might we apply this knowledge to voice assistant?

How might we design empathetic responses?

"Active–Constructive responses communicate positive information about the information received through **confirmation of the information's importance** and **elaboration on potential implications**."

=> capture the delivered information's importance to the user, and guide the voice assistant to both confirm the importance and elaborate on its potential implications.

"Well actually, a thing I think is most frustrating about my mom is - you know - if I, If I, tell her something that's going on in my life, her reaction is usually about her…"

- Capture the importance : I can see that this affects you - I am sorry to hear that.
- Elaborate on its potential implications : I can most definitely relate to your experience...

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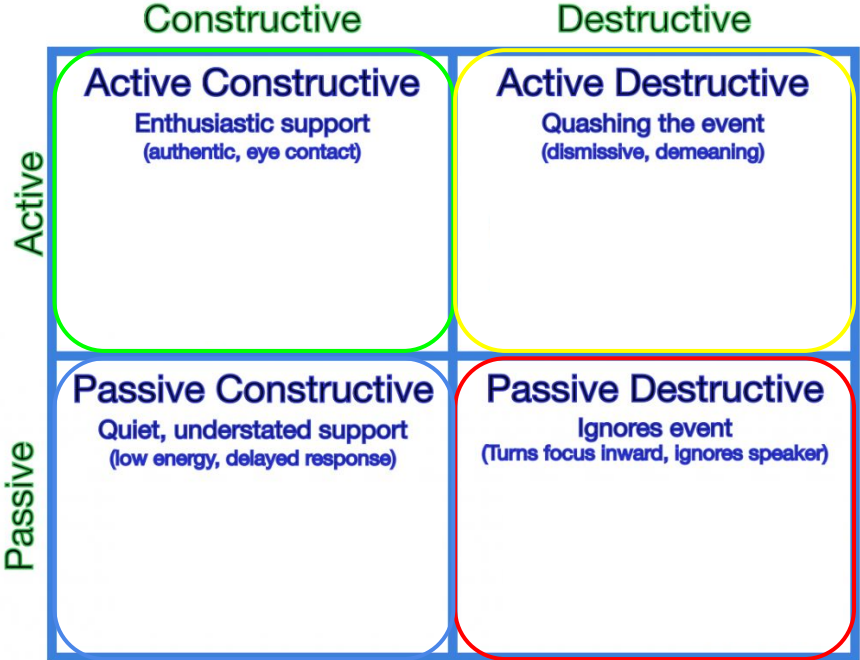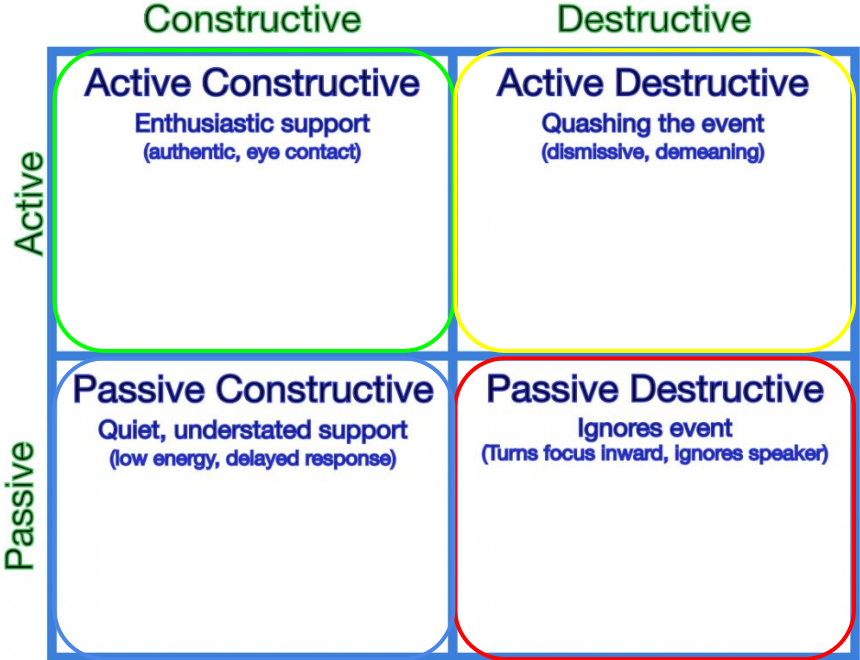Sorry if I sound hesitant - I was just trying to be more accurate.

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(left axis: Active / Passive)

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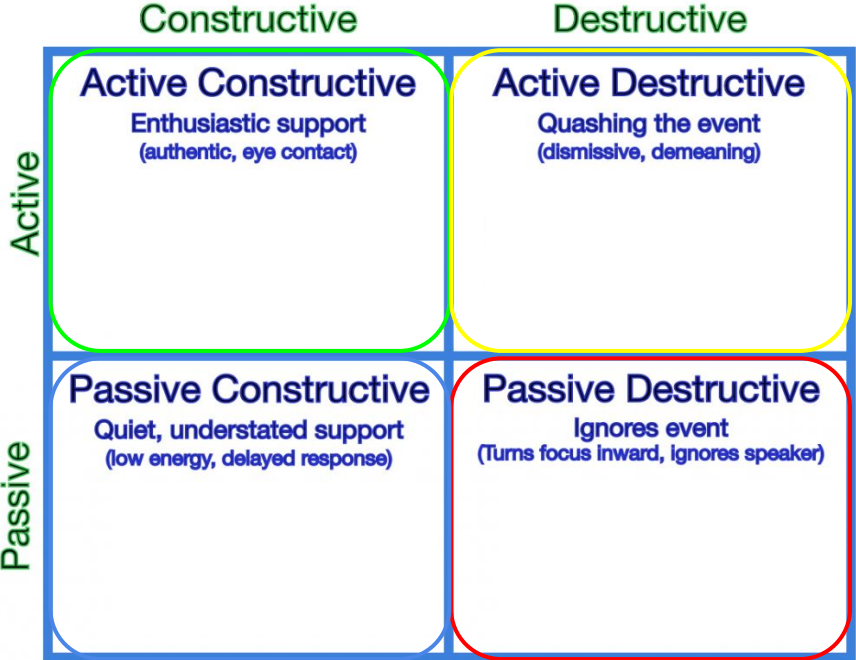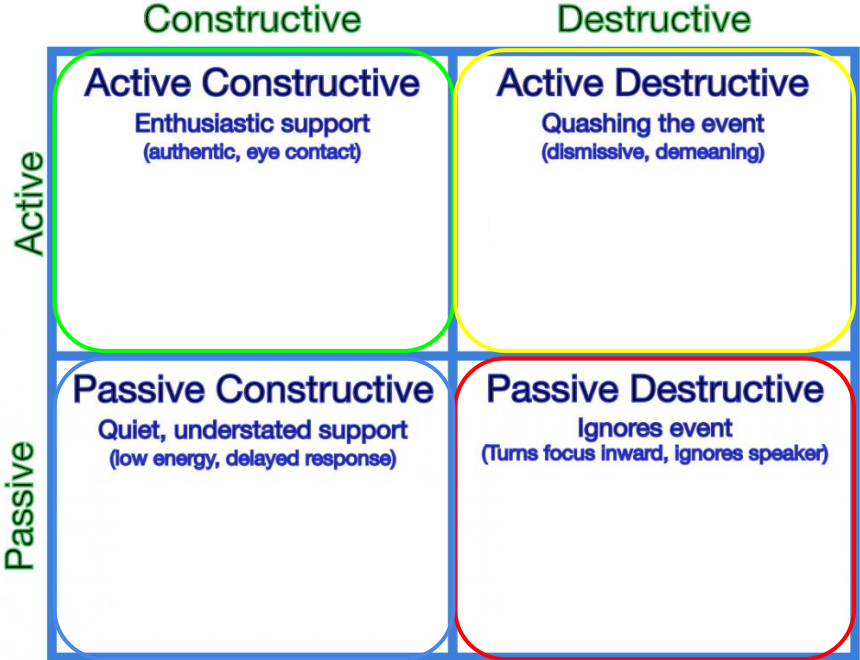Sorry if I sound hesitant - I was just trying to be more accurate.

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Bot : Female. Gotcha. How would you describe your relationship with your mother?

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Bot : Thank you. I can see that this affects you..

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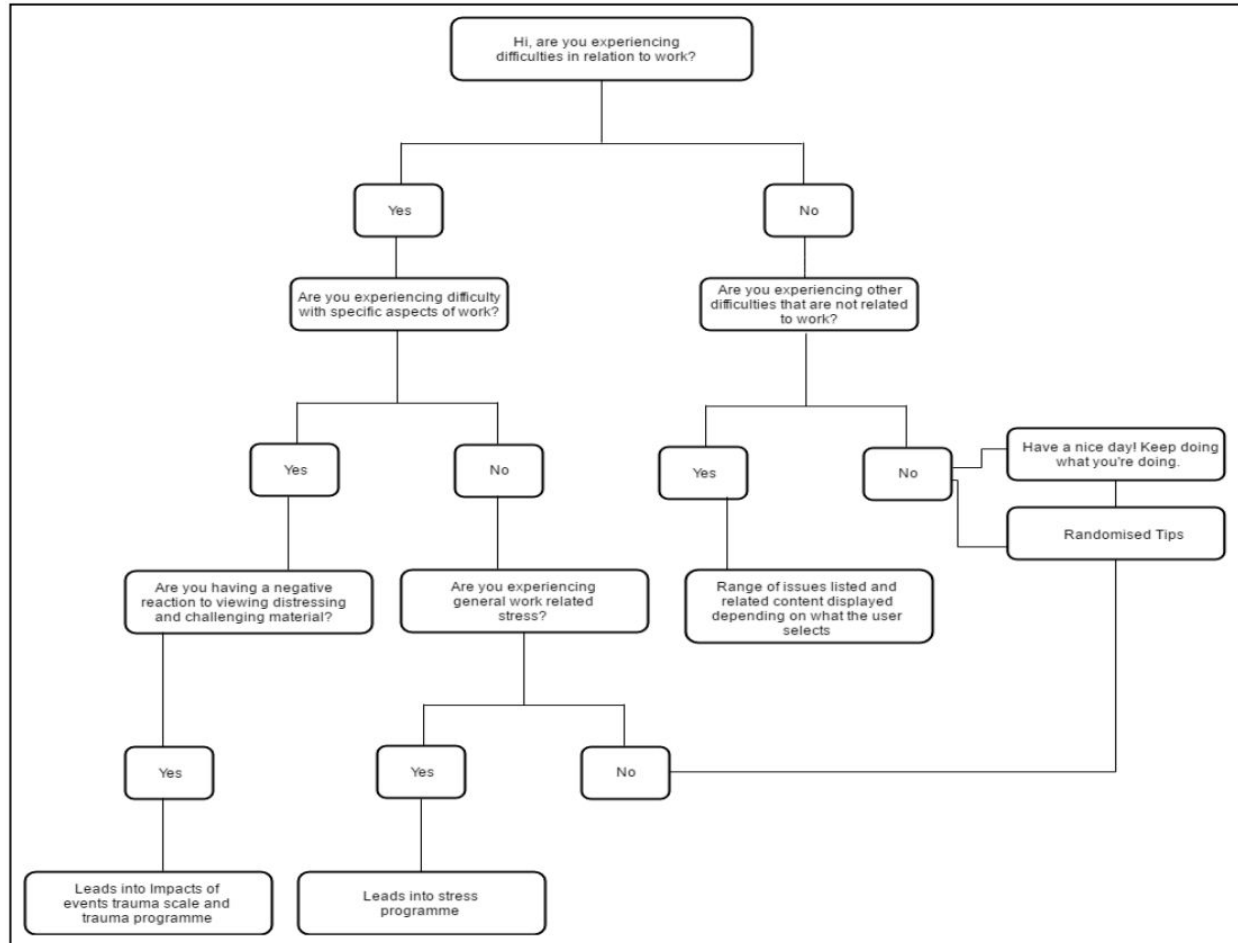
Technology of Chatbots

Dialog Trees

Rigid

Require precise input

Usually simple yes/no

Meant to be a data entry device rather than a conversation

The First Chatbot: ELIZA

Automated therapist that gives the appearance of dynamic and responsive conversation.

http://psych.fullerton.edu/mbirnbaum/psych101/Eliza.htm

Works using hard-coded parsing rules, and capable of understanding a limited set of input sentences

Maintains appearance of a conversation by heavily relying on duplicating the user's input and turnin the conversation back towards the user, and as such relies on sensible user input

```
key: are
 decomp: * are you *
   reasmb: Why are you interested in whether I am (2) or not ?
   reasmb: Would you prefer if I weren't (2) ?
   reasmb: Perhaps I am (2) in your fantasies.
   reasmb: Do you sometimes think I am (2) ?
   reasmb: goto what
 decomp: * are *
   reasmb: Did you think they might not be (2) ?
   reasmb: Would you like it if they were not (2) ?
   reasmb: What if they were not (2) ?
   reasmb: Possibly they are (2) .
key: your
 decomp: * your *
   reasmb: Why are you concerned over my (2) ?
   reasmb: What about your own (2) ?
   reasmb: Are you worried about someone else's (2) ?
   reasmb: Really, my (2) ?
```

Good
User: Why are you saying that?
ELIZA: Would you prefer if I weren't saying that?

Bad
User: How are you doing?
ELIZA: Would you prefer if I weren't doing ?

Cleverbot

Began development in began in 1986 and went online in 1997

Became widely popular in 2010

Participated in a formal Turing test at the 2011. Judged to be 59.3% human, compared to bar of 50.05% or higher (real human participants got a score of 63.3%).

www.cleverbot.com/

How does Cleverbot work?

"conversational Wikipedia"

Idea: instead of writing down rules ourselves, generate them from previous conversations with users.

Database of all conversations, rank by similarity to current conversation up till now

Semi-random search through database. Online version searches 3 times, Turing test version searches 42 times

Still only capable of parroting responses from humans, but much better range of possible responses and context response