

Conversational Information Seeking: Theory and Application



Part 3: Conversational Interfaces and Results Presentation



What is a conversation? (recap)

- Merriam-Webster Dictionary
 - “oral exchange of sentiments, observations, opinions, or ideas”
- Brennan (2012)
 - “a joint activity in which two or more participants use linguistic forms and nonverbal signals to communicate interactively”
- Zamani et al. (2022)
 - “interactive communication for exchanging information between two or more participants (i.e., humans or machines) that involves a sequence of interactions”



What is a conversational interface?

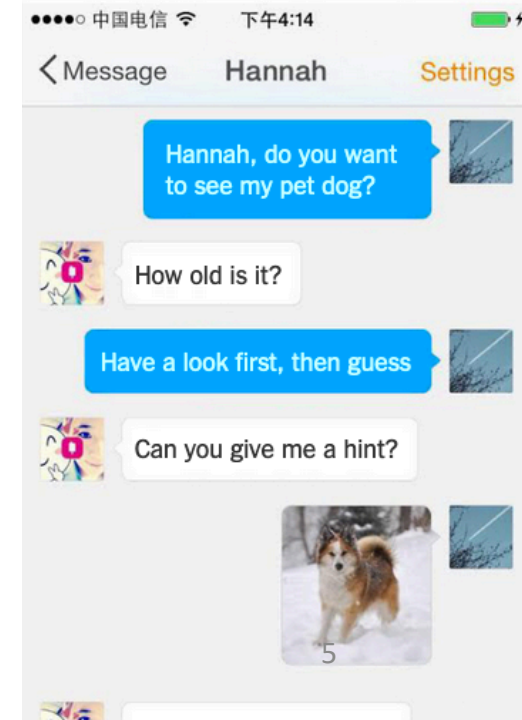
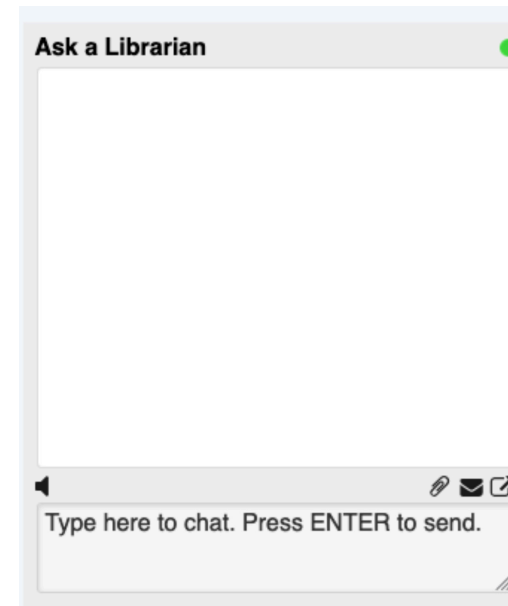
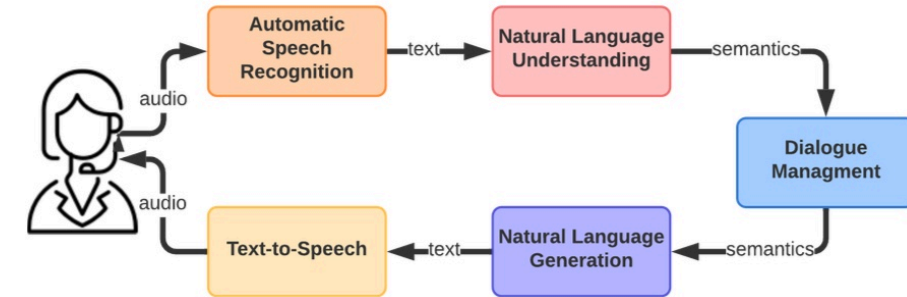
- Front-end to a chatbot or virtual personal assistant
- Integrates all system components
- Can also act as the orchestrator

What makes an interface conversational?

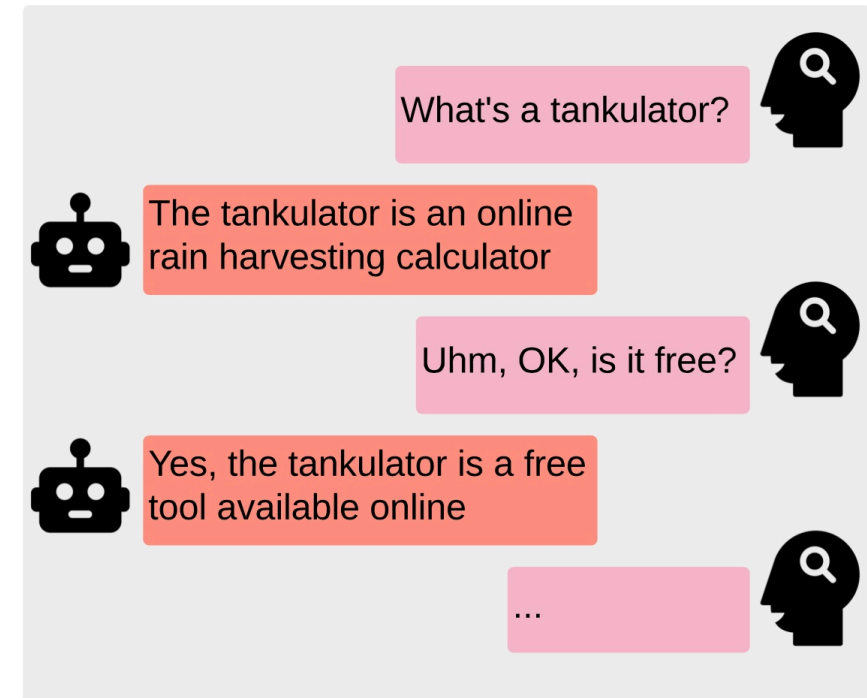
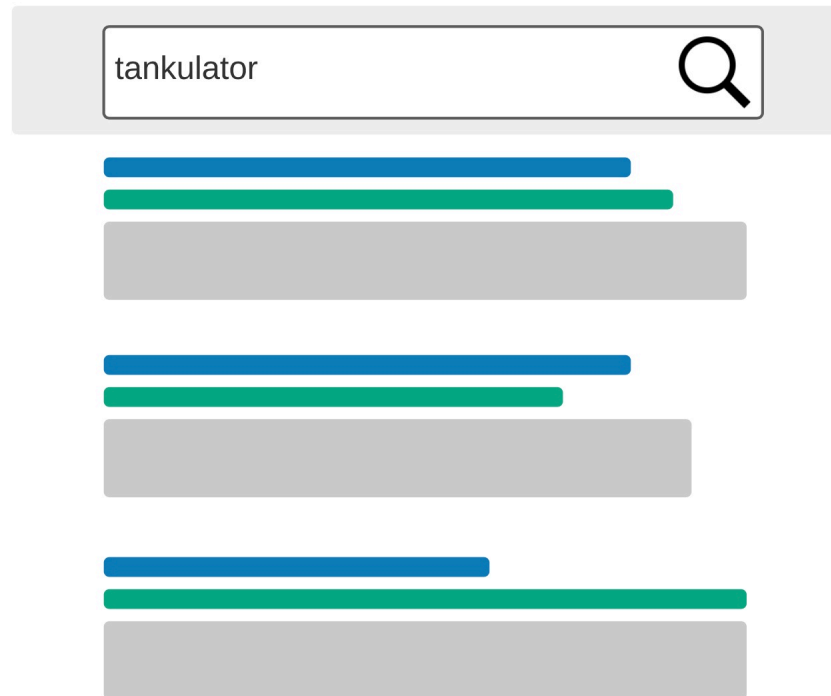
1. Natural language
2. Conversational interaction style

Different conversational interfaces

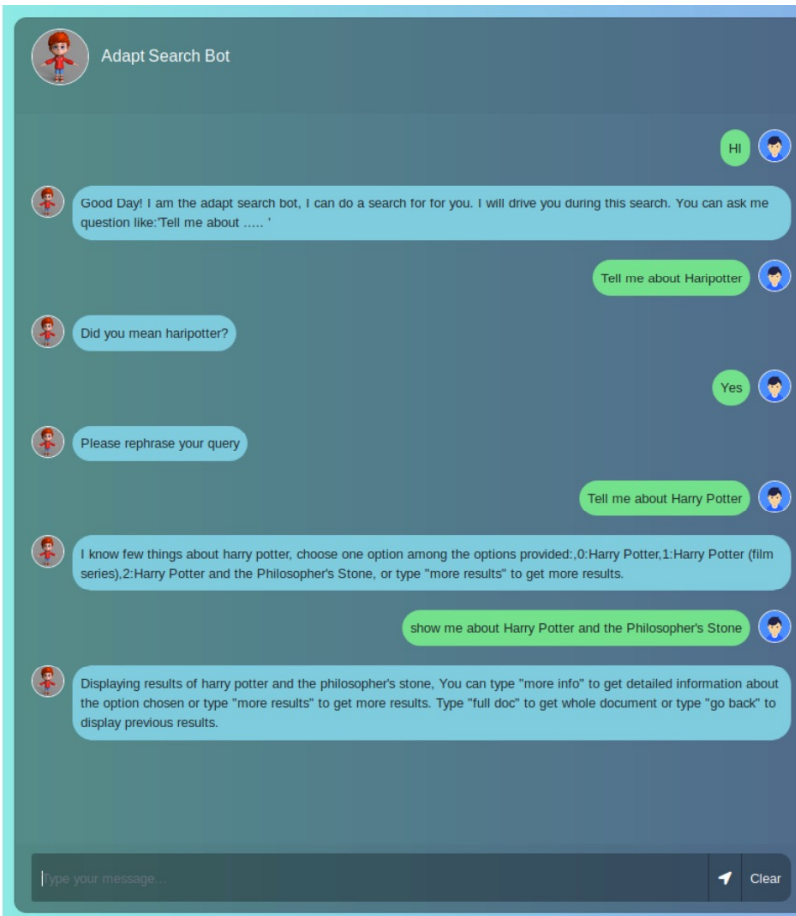
- Spoken Dialogue System
 - Task-oriented with clear boundaries
 - Academic and research
- Voice User Interface
 - Task-oriented to help clients
 - Re-routing to a human agent
 - Industry
- Live Chat Support
 - Call taker or customer provider
- Chatbots
 - Social engagement through chit-chat



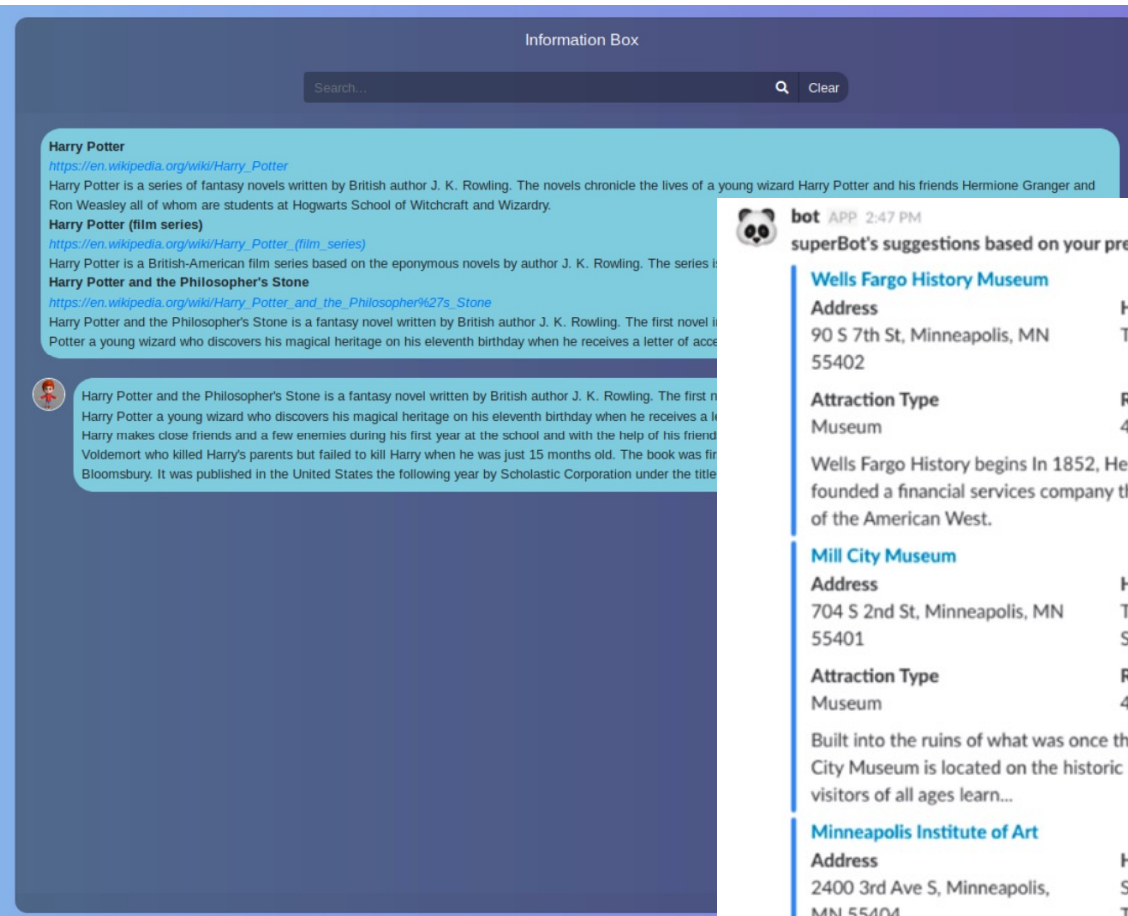
Result presentation



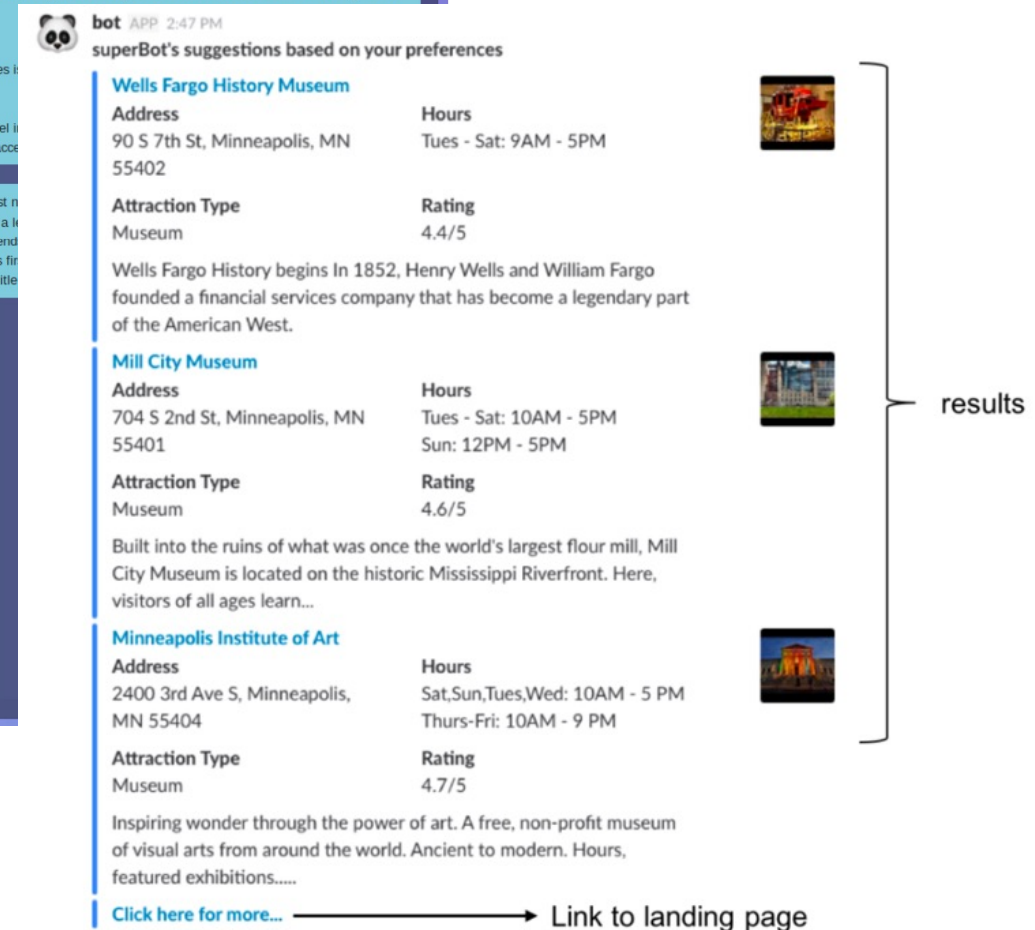
Text-only result presentation on desktops



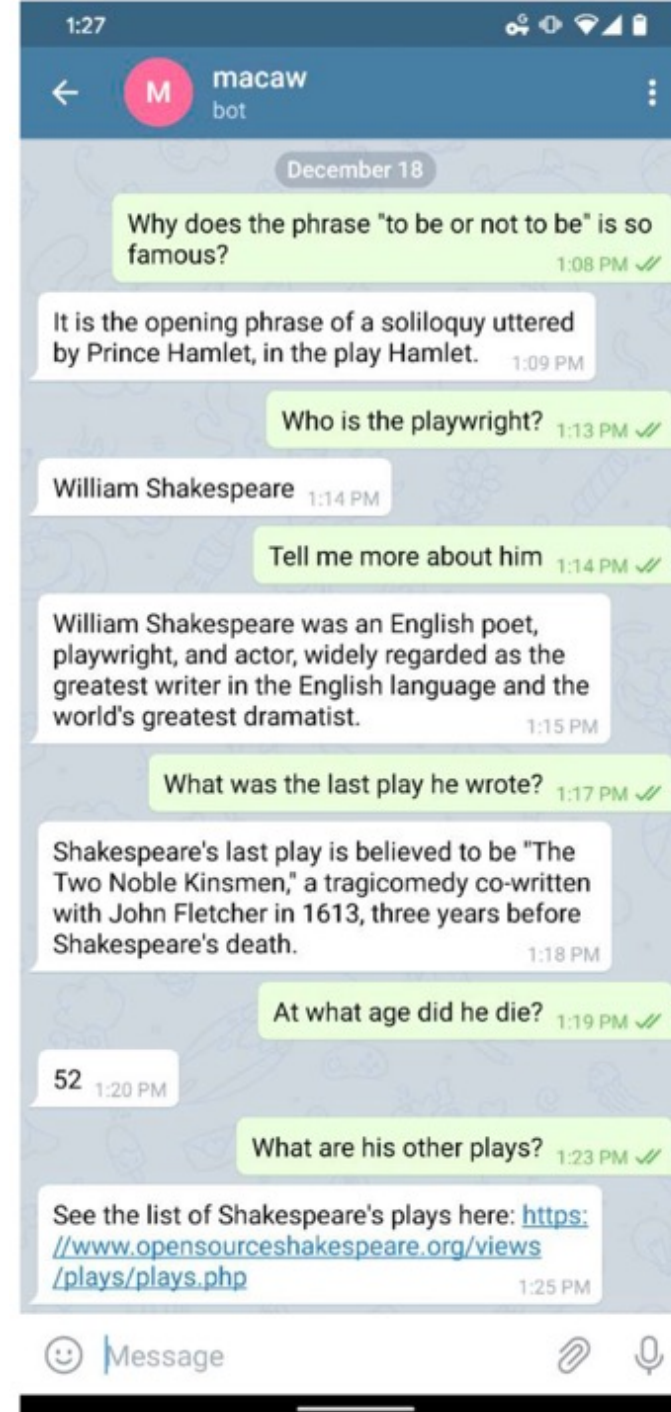
Kaushik et al. (2020)



Avula et al. (2018)

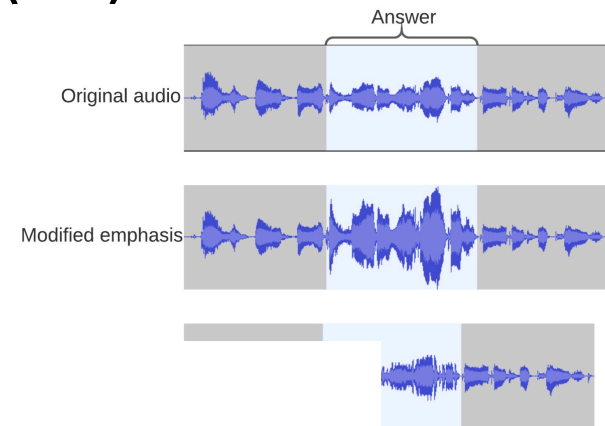
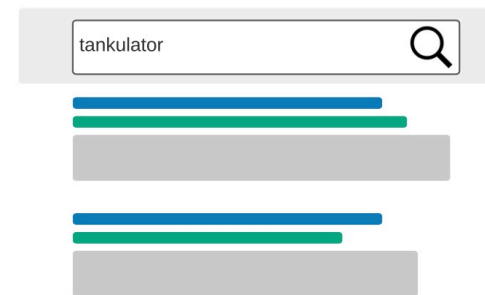


Text-only result presentation on small screens



Speech-only result presentation

- “Ten Blue Links” or SERP
- What is the information to present?
- Which modality(ies) should we use to present this information?
- How to present the information using this(ese) modality(ies)?
 - Information units?



Multi-modal result presentation

- Multi-modal CIS (MMCIS)
 - Multiple input and output devices are used
 - Coupling the intuitiveness of conversation with human conversation
- Rousseau *et al.* (2006)
 - **What** is the information to present?
 - **Which** modality(ies) should we use to present this information?
 - **How** to present the information using this(ese) modality(ies)?
 - and **Then**, how to handle the evolution of the resulting presentation?

Mandatory to wear mask



In some countries masks are worn in accordance with local customs or in accordance with advice by national authorities in the context of COVID- 19. In these situations, best practices should be followed about how to wear, remove, and dispose of them, and for hand hygiene after removal. It is strongly recommended that you wear a face mask when you have visitors at your home, and that your visitors also wear masks. It is also recommended that when you visit others you also wear a mask.

You should always use hand sanitiser or wash your hands before and after changing your face mask. . .



Is it mandatory to wear a mask?



Do you mean in general or in public spaces?

More in public spaces with all the COVID things.

According to the ABC News, many countries around the world, as well as some US states, ask people to wear face masks in public places to limit the spread of the COVID-19 virus.

Uhm, and what about if I visit my mum?

In Australia, the current advice from the Federal Government is that it is recommended that when you visit others you also wear a mask.

...

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Interface limitations in conversational systems

- Natural language input
 - ASR
 - NLU
 - Filler words ("uhm", "ah")
 - Pauses
- Non-explicit information needs
 - Tone of voice
- Results presentation
 - Graphs
 - Images
- Speech-only conversational interfaces
- Biases of personas
- Documents
- ...

Questions



#TheCISTutorial

Foundations and Trends in
Information Retrieval
(to appear)

Conversational Information Seeking

**Hamed Zamani, Johanne Trippas, Jeff Dalton,
and Filip Radlinski**

now
the essence of knowledge

<https://arxiv.org/pdf/2201.08808.pdf>