"Open the digital library doors, HAL."

Voice User Interface (VUI) & Conversational Onboarding Patterns for Digital Collections

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twitter as channel (#hashtag)

@jaclark #DLFForum
Overview

- How people talk with computers?
- Common patterns of VUI models
- Case Study of Prototype
- Implications for Digital Libraries
- Research - Next Steps
- Questions
ELIZA: (Please type in all caps) What's your name dear?
Amit
ELIZA: Hi, I'm ELIZA. What do you want to talk about?
Amit: Can I talk about my problem?
ELIZA: Sure...!
Amit: Due to on going exams in college, I have a lot of stress.
ELIZA: Please relax a little. Sleep well.
Amit: Thanks for your advice.
ELIZA: No mention.
Amit: Bye
ELIZA: Bye and keep in touch...

https://en.wikipedia.org/wiki/ELIZA
An Aspirational Model for AI + Human to Computer Interaction
A desire to converse naturally with a machine
“1 in 5 online adults have used voice search on their mobile in the last month.”

Source: Global Web Index
Siri
Speech Interpretation and Recognition Interface
What are current Voice User Interactions (VUI) models?
Chatbots
Intelligent Personal Assistants
Case Study: Talking to a Digital Collection
https://arc.lib.montana.edu/schultz-0010/
A digital collection built for:

discovery
+
agency
TalkingCollection

- Prompt me by touching the blue button between questions. Get list of supported commands by clicking arrow.

Hello! I'm your voice assistant. Ask me what I can do or speak a command.

search please

Ok! Let's go to the search page.
Talking Collection

Search

St Mary's Lake
Your search for **St Mary's Lake** resulted in **73** records.

- **Title:** Black and white photo of a boat on Saint Mary's Lake, Glacier National Park, Montana  
  **Date:** 1859-1947  
  **Creator:** Haynes, St. Paul  
  **Description:** Photo of a boat on a mountain lake and a building is visible on the hill top. Written on verso: Going to the Sun Mt. and Chalet, Saint Mary's Lake.  
  **Object ID:** 217  
  **Keywords:** boats, glacier national park, mountains, lakes, scenic views, montana  
  ![View additional details about Black and white photo of a boat on Saint Mary's Lake, Glacier National Park, Montana](image)

- **Title:** A 6 page document written by Frank Monroe describing trading between white men and Indian tribes.  
  **Date:** 1859-1947  
  **Creator:** James W. Schultz  
  **Description:** This story describes the trading between the white man and the Indian tribes. For example, how animals were trapped, hunted, and traded for resources ...  
  **Object ID:** 0010-B05-F23-4  
  **Keywords:** st. mary lake, grovoon indian, frank monroe  
  ![View additional details about A 6 page document written by Frank Monroe describing trading between white men and Indian tribes.](image)

- **Title:** Black and white photo of Upper Saint Mary's Lake, Glacier National Park  
  **Date:** 1859-1947  
  **Creator:** Hileman, T. J.  
  **Description:** Photo of a boat with three fishermen on a lake with mountains in the background. Written on verso: Upper Saint Mary's Lake  
  **Object ID:** 235  
  **Keywords:** glacier national park, mountains, lakes, boats, fishermen, scenic views, montana  
  ![View additional details about Black and white photo of Upper Saint Mary's Lake, Glacier National Park](image)
Implications for Digital Libraries
Design
Informational Units, Not Pages
Kangaroo Valley Safari
Located two hours south of Sydney in the
Southern Highlands of New South Wales, ...

Cards
https://material.io/guidelines/components/cards.html#
Voice interfaces = short, direct, expository
TalkingCollection

- Touch or click to get list of supported commands:

  Hello! I'm your voice assistant. Ask me what I can do.

  what can you do

  I can do things for you. Like, help you search or browse the collection; or tell you more about the collection. So, how may I help?
Room for Personality
TalkingCollection

Touch or click to get list of supported commands:

Hello! I'm your voice assistant. Ask me what I can do.

what's the meaning of life

The answer to the ultimate question of life, the universe and everything is 42.
Software Architectures
Natural Language Processing Software Libraries
https://en.wikipedia.org/wiki/Natural_language_processing
Data Models
Kangaroo Valley Safari
Located two hours south of Sydney in the Southern Highlands of New South Wales, ...

Cards
https://material.io/guidelines/components/cards.html#
Structured Data
https://json-ld.org/
Conversational Onboarding Patterns
Task-based...

Directive-based...
(searchLibrary)

U: HeyLibrary, search the library.
A: Ok, I can do that. Tell me your search query.
U: user speaks query
A: Got it. Running that search for you.

(browseLibrary)

U: HeyLibrary, can you let me browse the library.
A: Yes, but I need to know what topic you want to browse.
U: user speaks topic
A: Hmmm... Let's see what we can find.

Scripting the conversation
Research - Next Steps

- User Testing - What do you want to ask the Library?
- Improve interpretation with Natural Language processing software library
- Applying structured data as the search index for precision in recall
New affordances in the web environment enable conversation

What will libraries do with these new affordances?
"I'm sorry Dave, I'm afraid I can't do that."

https://youtu.be/ARJ8cAGm6JE?t=1m10s
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I am distributing this work under the Attribution-Noncommercial-Share Alike 3.0 Unported license.
Demo

This is a rough prototype!

But, it allows us to see and test VUI experience.

https://www.lib.montana.edu/~jason/files/talking-collection/
Code
Voice interface
Bot planning script

https://github.com/jasonclark/voice-user-interface
Questions?

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