Talking Books, Chatty Robots, and Speaking Collections: Exploring and Applying the Dialogic Moment in Computing to Libraries and Archives

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Overview

- How people talk with computers?
- Common patterns of VUI models
- Case Study of Prototypes
- Implications for Libraries + Archives
- What to do with conversational affordances?
- Questions

```
========================================================================
         EEEEEEEE  L          IIIIII  ZZZZZZZ      AAA
         E         L            I           Z     A   A
         E         L            I          Z     A     A
         EEEEE     L            I         Z      A     A
         E         L            I        Z       AAAAAAA
         E         L            I       Z       A       A
         EEEEEEEE  LLLLLLL   IIIIII  ZZZZZZ    A       A
========================================================================
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."

What are current Voice User Interactions (VUI) models?

Chatbots

Catch me up

This BBC chatbot lets you ask questions about North Korea's military – and what it's capable of.

So what would you like to know?

Pick a question.

Does North Korea have nuclear weapons?

How advanced are its missiles?

How powerful is North Korea's army?

How powerful is North Korea's army?

It has one of the largest standing armies in the world, with about a million members and reserves of five million people.

Intelligent Personal Assistants

Siri

Speech Interpretation and Recognition Interface

Interactive Fiction

You are standing in an open field west of a white house, with a boarded front door. There is a small mailbox here.

> open the mailbox.

Opening the small mailbox reveals a leaflet.

> take the leaflet out of the mailbox.

Taken.

> read the leaflet.

"WELCOME TO ZORK! ZORK is a game of adventure, danger, and low cunning. In it you will explore some of the most amazing territory ever seen by mortals. No computer should be without one!"

> go north

Opening Narration from Zork (1977)

https://en.wikipedia.org/wiki/Zork

Case Study: TalkingCollection

M James Willard Schultz Photographs and Personal Papers Collection - Montana State University (MSU) Library

James Willard Schultz Photographs and Personal Papers Collection

Quick Search | Advanced Search

Search: [keyword, title...] [Search]

➕ **Browse the Digital Collection**

Topics
Keywords
Titles
Dates
Object Number IDs

➕ **About**

➕ James Willard Schultz Photos & Personal Papers Collection includes photos & documents of Blackfeet, Blood, Kootenai, Shoshone and Arapaho Native Americans, Glacier and Waterton Lakes National Parks, as well as his professional writing career and personal papers.

➕ **Search Tips**

Quick Search will search: title, abstract, and keyword fields for the search term.

Advanced Search gives the option of searching individually by: keywords and/or title fields.

➕ Help Searching the Schultz Digital Collection

📄 **Digital Photograph and Paper Samples**

James Willard Schultz with General Hugh Scott and Friends

Keyword(s): james willard schultz, general hugh scott, people

Description of Otter Painted Lodge Ceremony and Buffalo Stone Ceremony

Keyword(s): isabelle home gun, otter painted lodge, browning, singers

Black and white photo of a group of men in ceremonial dress raising the American flag, Saint Mary's, Montana

Keyword(s): clothing and dress, tipis, indians of north america, blackfeet indians, flagpoles,

📧 Contact Us | 🔖 XML feed

https://arc.lib.montana.edu/schultz-0010/

A digital collection built for:
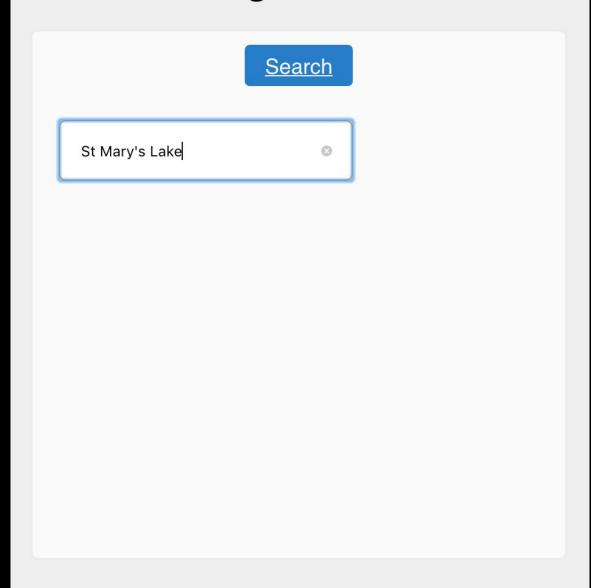
discovery
+
agency

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.

TalkingCollection

Search

St Mary's Lake

James Willard Schultz Photographs and Personal Papers Collection - Montana State University (MSU) Library

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

◄ Back to Home page

► View next 15 results

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

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.

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

Case Study: ArchiveBot

Chatbot Automating a Web Archiving Experience

```
Jasons-MBP-2:archive-bot jasonclark$ node index.js
👻 Boo! Hello! Found something you want me to archive?

? What type of thing are you archiving? (Use arrow keys)
❯ Article
  Book
  Course
  CreativeWork
  Dataset
  MediaObject
  Movie
(Move up and down to reveal more choices)
```

```
Jasons-MBP-2:archive-bot jasonclark$ node index.js
👻 Boo! Hello! Found something you want me to archive?

? What type of thing are you archiving? Book
? What is the title? Streamlining information services using chatbots█
```

```
Jasons-MBP-2:archive-bot jasonclark$ node index.js
👻 Boo! Hello! Found something you want me to archive?

? What type of thing are you archiving? Book
? What is the title? Streamlining information services using chatbots
? What is the url? http://www.worldcat.org/oclc/866899954
```

```
Jasons-MBP-2:archive-bot jasonclark$ node index.js
👻 Boo! Hello! Found something you want me to archive?

? What type of thing are you archiving? Book
? What is the title? Streamlining information services using chatbots
? What is the url? http://www.worldcat.org/oclc/866899954
? Would you like me to add any tags?
 ◉ _todo
 ○ _toread
 ○ archive
❯◉ library
 ○ metadata
 ○ design
 ○ ux
(Move up and down to reveal more choices)
```

```
Jasons-MBP-2:archive-bot jasonclark$ node index.js
👻 Boo! Hello! Found something you want me to archive?

? What type of thing are you archiving? Book
? What is the title? Streamlining information services using chatbots
? What is the url? http://www.worldcat.org/oclc/866899954
? Would you like me to add any tags? _todo, library
? How about a description? a report on how to create a chatbot + script
```

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Jasons-MBP-2:archive-bot jasonclark$ node index.js
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? What type of thing are you archiving? Book
? What is the title? Streamlining information services using chatbots
? What is the url? http://www.worldcat.org/oclc/866899954
? Would you like me to add any tags? _todo, library
? How about a description? a report on how to create a chatbot + script

👻 All done! Here is what I've written down:

---
type: "Book"
title: "Streamlining information services using chatbots"
link: "http://www.worldcat.org/oclc/866899954"
tags: [_todo,library]
timestamp: "Wed Feb 28 2018 11:48:29 GMT-0700 (MST)"
---
a report on how to create a chatbot + script

? Does this look right? (Y/n) ▌
```

```
Jasons-MBP-2:archive-bot jasonclark$ node index.js
👻 Boo! Hello! Found something you want me to archive?

? What type of thing are you archiving? Book
? What is the title? Streamlining information services using chatbots
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? Would you like me to add any tags? _todo, library
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👻 All done! Here is what I've written down:

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title: "Streamlining information services using chatbots"
link: "http://www.worldcat.org/oclc/866899954"
tags: [_todo,library]
timestamp: "Wed Feb 28 2018 11:48:29 GMT-0700 (MST)"
---
a report on how to create a chatbot + script

? Does this look right? Yes

👻 Perfect! I saved your metadata and added files to your archive as _archive/Streamlining-information-
rvices-using-chatbots.json and _archive/Streamlining-information-services-using-chatbots.md and _archiv
Streamlining-information-services-using-chatbots.png.  🎉🎉🎉
```

Implications for Libraries + Archives

Accessibility

Open and Natural Modes of Interaction for all Types of Learning Communities

- dyslexic
- blind
- ADHD
- dysgraphia, etc.

Design

Informational Units, Not Pages

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

```
Jasons-MBP-2:archive-bot jasonclark$ node index.js
👻 Boo! Hello! Found something you want me to archive?

? What type of thing are you archiving? (Use arrow keys)
❯ Article
  Book
  Course
  CreativeWork
  Dataset
  MediaObject
  Movie
(Move up and down to reveal more choices)
```

TalkingCollection

▶ Touch or click to get list of supported commands:

Hello! I'm your voice assistant. Ask me what I can do.
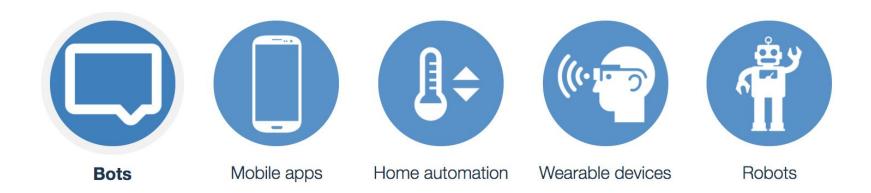
what's the meaning of life

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

Cards
https://material.io/guidelines/components/cards.html#
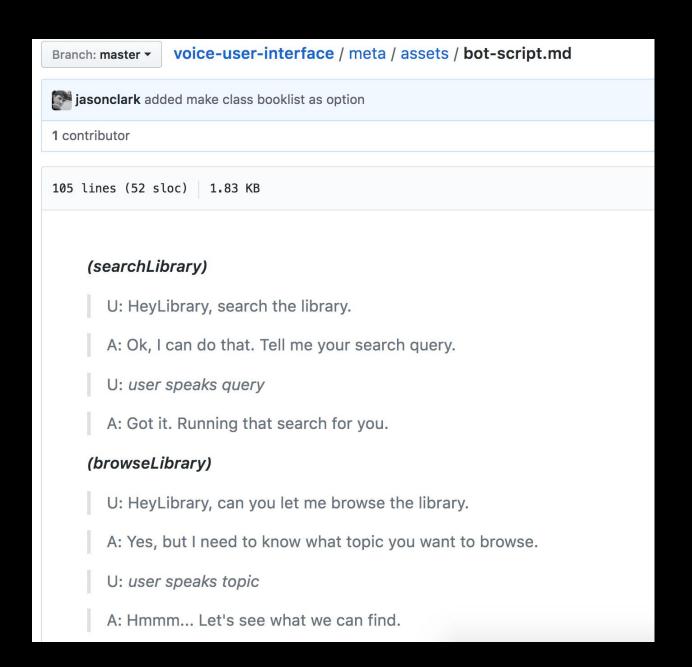
```
34        "@type": "schema:CreativeWork",
35        "schema:additionalType": [
36            {
37                "@id": "http://dbpedia.org/page/James_Willard_Schultz"
38            },
39            {
40                "@id": "https://en.wikipedia.org/wiki/James_Willard_Schultz"
41            }
42        ],
43        "schema:author": {
44            "@language": "en",
45            "@value": "Mary Peterson"
46        },
47        "schema:creator": {
48            "@language": "en",
49            "@value": "Mary Peterson"
50        },
51        "schema:dateCreated": {
52            "@language": "en",
53            "@value": "1946-12-26"
54        },
55        "schema:description": {
56            "@language": "en",
57            "@value": "A letter written from Mary Peterson, the History Department Librarian at the Los
              Angeles Public Library, to Mr. James Willard Schultz explaining when California was seized by
              the United States from Mexico. "
58        },
59        "schema:keywords": {
60            "@language": "en",
61            "@value": "james willard schultz, letter"
62        },
63        "schema:name": {
64            "@language": "en",
```

Structured Data
https://json-ld.org/

Conversational Onboarding Patterns

Task-based...

Directive-based...

Scripting the conversation

New affordances in our computing environments enable conversation

What will we do with these new affordances?

Dialogic Games

You are standing in an open field east of a Montana Hall which has a ringing clock tower. There is a small mailbox here.

> open the mailbox.

Opening the small mailbox reveals a leaflet.

> take the leaflet out of the mailbox.

Taken.

> read the leaflet.

"WELCOME TO MSU! College can be a game of adventure, danger, and low cunning. In it you will explore some of the most amazing territory ever seen by mortals. No computer should be without one! Head to the Bursar's office."

> tell me what a bursar is.

Interactive Fiction Models to Demystify Higher Education

See Provost's Distinguished Lecturer Series

Embedded Chatbots

Embedded Chatbots in BBC Articles

http://www.bbc.com/news/world-asia-42971097
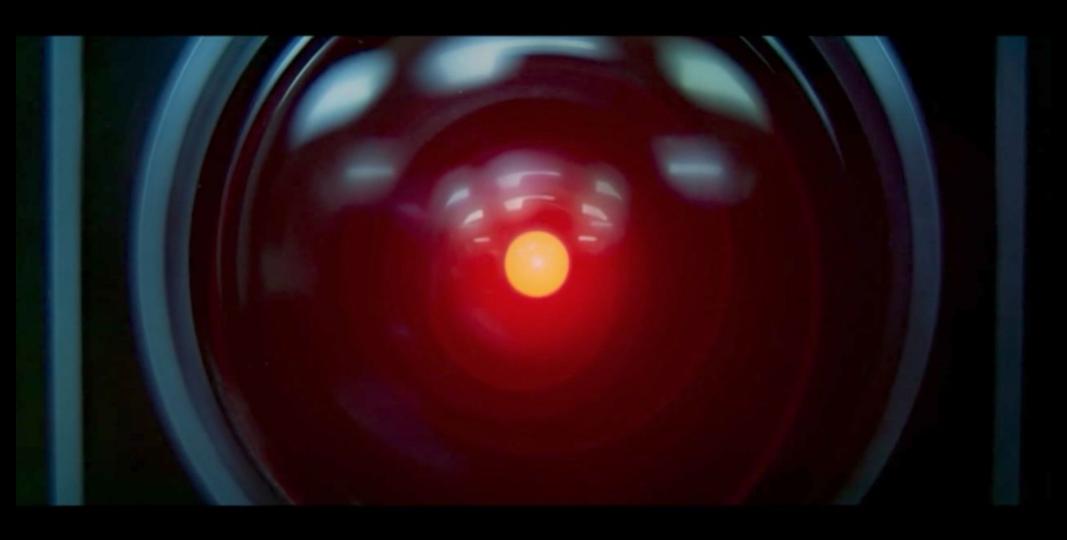
Embedded Chatbots in BBC Articles

Talking Books

Books in Browsers Initiative at MSU Library

https://arc.lib.montana.edu/book/

Beyond structured data...

Books that listen, answer your question, and become part of the reading process

"~~I'm sorry~~ **Dave,** ~~I'm afraid~~ **I can**~~'t~~ **do that.**"

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I would like to thank Montana State University and my excellent colleagues at MSU Library for supporting my research.

And especially Suvethan Vignarajah (Suvi) who built an early sketch of this voice assistant idea.

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Demo

TalkingCollection

https://www.lib.montana.edu/~jason/files/talking-collection/

Code

TalkingCollection

- Voice interface
- Bot planning script

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

Code

ArchiveBot

- Chatbot automating a web archiving experience

https://github.com/jasonclark/archive-bot

Questions?

@jaclark
www.jasonclark.info