DrupalCon

SEATTLE 2019
APRIL 8-12

Hello Alexa, I'm Drupal

Arash Farazdaghi

Arash Farazdaghi
Chief Technologist @ Booz Allen Hamilton
linkedin.com/in/afarazdaghi/

Booz | Allen | Hamilton

boozallen.com/expertise/digital-solutions.html

Virtual Assistants

What are they & Why Should We Care?

Virtual Assistants

What are they & Why Should We Care?

- Basic virtual assistants have been around for a long time.

Virtual Assistants
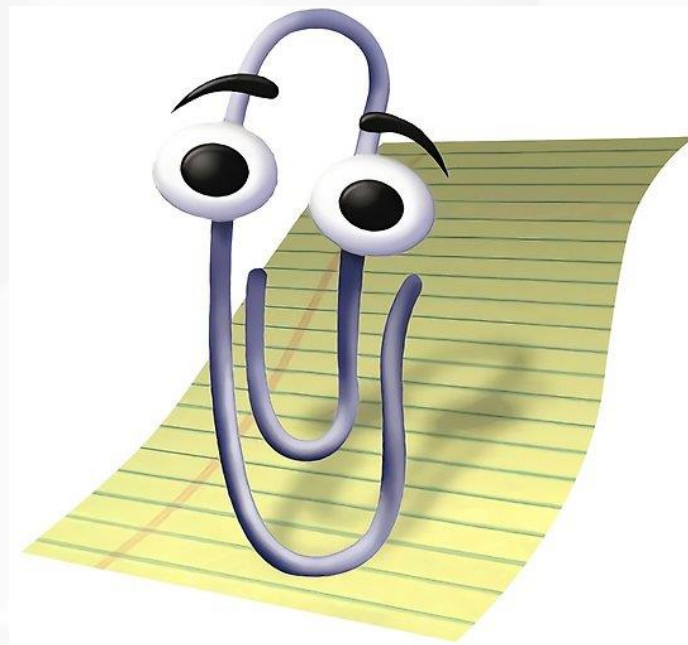
What are they & Why Should We Care?

- Basic virtual assistants have been around for a long time.

- Ask Jeeves search engine

Virtual Assistants

What are they & Why Should We Care?

- Basic virtual assistants have been around for a long time.

- Ask Jeeves search engine

- Clippit, aka "Clippy"

Virtual Assistants

What are they & Why Should We Care?

- Primary purpose has been to perform administrative tasks or surface content more efficiently at a lower cost

Virtual Assistants

What are they & Why Should We Care?

- Primary purpose has been to perform administrative tasks or surface content more efficiently at a lower cost

- New generation of Virtual Assistants are more "intelligent"

Virtual Assistants

What are they & Why Should We Care?

- Primary purpose has been to perform administrative tasks or surface content more efficiently at a lower cost

- New generation of Virtual Assistants are more "intelligent"

- Advancements in Natural Language Processing (NLP), Machine Learning (ML), Artificial Intelligence (AI) Engines

Virtual Assistants

What are they & Why Should We Care?

- Primary purpose has been to perform administrative tasks or surface content more efficiently at a lower cost

- New generation of Virtual Assistants are more "intelligent"

- Advancements in Natural Language Processing (NLP), Machine Learning (ML), Artificial Intelligence (AI) Engines

- Advancements in Voice-to-Text technologies

Virtual Assistants

What are they & Why Should We Care?

- Primary purpose has been to perform administrative tasks or surface content more efficiently at a lower cost

- New generation of Virtual Assistants are more "intelligent"

- Advancements in Natural Language Processing (NLP), Machine Learning (ML), Artificial Intelligence (AI) Engines

- Advancements in Voice-to-Text technologies

- Advancements in Augmented and Virtual Reality (AR/VR)

Virtual Assistants

What are they & Why Should We Care?

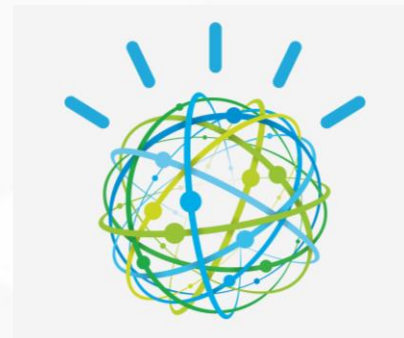Apple Siri

Google ASSISTANT

Microsoft Cortana

Amazon Alexa

Amazon Sumerian

IBM Watson

Rasa.ai

Amazon Alexa

What makes it different?

- Developer Friendly – Ability to create custom skills

- Diversity of devices

- Smart Home & Vehicle Integration

- 3rd Party Device Integration

Amazon Alexa

Amazon-Marriott Deal Will Make Alexa A Hotel Butler, But The Implications Range Far Wider

Andria Cheng Contributor ⓘ
Retail
I cover retail, from fashion to grocery, and its dance with technology

Order for maid service? Soon, you may be able to ask Amazon's Alexa. The online giant will roll out Alexa-powered Echo devices this summer at select Marriott properties as part of its Alexa for Hospitality initiative. (AP Photo/Elaine Thompson, File)

SLU Installing Amazon Alexa-Enabled Devices in Every Student Living Space on Campus

Saint Louis University is the first college or university in the country to bring Amazon Alexa-enabled devices, managed by Alexa for Business, into every student residence hall room and student apartment on campus.

The Echo Dot smart devices in each room and apartment will come with a custom SLU skill designed to answer questions specific to the University and campus experience.

Interaction Model

- Natural Language Processing (NLP) used to breakdown the interaction

- Intent: "An ***intent*** represents an action that fulfills a user's spoken request."

- Utterance: "The ***sample utterances*** specify the words and phrases users can say to invoke your intents. Each intent is mapped to several utterances."

- Entity, or "Slot": "Intents can optionally have arguments called ***slots***."

https://developer.amazon.com/docs/custom-skills/create-the-interaction-model-for-your-skill.html#about-intents-slots-and-dialogs

Interaction Model

Alexa, What is the weather like today in Seattle?

- Intent: ?

- Utterance: ?

- Entities: ?

Interaction Model

Alexa, What is the **weather** like today in Seattle?

- Intent: WeatherReport

Interaction Model

Alexa, <u>What is the **weather** like</u> today in Seattle?

- Intent: WeatherReport

- Utterance: "What is the weather like"

Interaction Model

Alexa, What is the **weather** like *today* in *Seattle*?

- Intent: WeatherReport

- Utterance: "What is the weather like"

- Entities: Location: "today" & Place: "Seattle"

Interaction Model

Alexa, <u>What is the **weather** like</u> *today* in *Seattle*?

- Intent: WeatherReport

- Utterance: "What is the weather like"

- Entities: Location: "today" & Place: "Seattle"

Other sample utterances - not related to a single keyword
- *"How is the weather…"*
- *"Is it cold out…"*
- *"Should I wear a sweater…"*

Drupal

How does it fit in?

Drupal

How does it fit in?

- Drupal as a Content Management System (CMS)

Drupal

How does it fit in?

- Drupal as a Content Management System (CMS)

- Extending the COPE Model (Create Once, Publish Everywhere)

Drupal

How does it fit in?

- Drupal as a Content Management System (CMS)

- Extending the COPE Model (Create Once, Publish Everywhere)

- Omni-Channel Content Strategy

Drupal

How does it fit in?

- Drupal as a Content Management System (CMS)

- Extending the COPE Model (Create Once, Publish Everywhere)

- Omni-Channel Content Strategy

- Drupal 8 RESTful WebServices

Drupal

How does it fit in?

Drupal

How does it fit in?

Sample Drupal Content Type for FAQs

- Content type created to capture Sample Utterances & Responses: Used for both web interface and virtual assistants

Label	Machine name	Field type
Alternative Questions (Chatbot)	field_questions	Text (plain)
Detailed Question	field_detailed_question	Text (formatted, long)
FAQ Site Navigation	field_faq_site_nav	Entity reference revisions
Featured (Web)	field_featured	Boolean
Full Answer (Web)	body	Text (formatted, long, with summary)
Icon (Web)	field_icon	Entity reference
Rank (Web)	field_rank	List (integer)
Short Answer (Chatbot)	field_short_answer	Text (formatted, long)
Tag	field_tag	Entity reference

Sample Drupal Content Type for FAQs

Primary Question *

How do I get around without using Route 495?

Show row weights

Alternative Questions (Chatbot) *

⊕   How do I get around without using Route 495?

⊕   How do I avoid the beltway?

⊕   Can I avoid driving on the beltway?

⊕   I don't want to drive on 495

⊕   How do I get around without using 495?

⊕   Do I have to drive on the beltway to get there?

⊕   When is rush hour?

⊕   How do I avoid the Capital Beltway?

⊕

Alternative wording of question to be used for chat interface

Sample Drupal Content Type for FAQs

Short Answer (Chatbot) *

B	I							Normal	▼		Source

The 495 beltway is often the most direct route to The Inn so to avoid traffic congestion travel during non-rush hour periods. Washington DC rush hour is generally from 6-9 AM and 4-7 PM Monday through Friday. Check the WTOP website for the latest information on I-495 Road Conditions.

body   p

Text format   Basic HTML ▼   About text formats ?

Short Answer to be used in the chat interface

☑ Featured (Web)
     Select if this FAQ is to be featured on the web interface

Full Answer (Web)

B	I							Normal	▼		Source

On 495 (also called the Capital Beltway) near The Inn, the interchanges at I-495 and I-270 in Montgomery County are ranked as the worst traffic spots in the nation.

The Beltway is often the most direct route to The Inn so to avoid traffic congestion travel during non-rush hour periods. Washington DC rush hour is generally from 6-9 AM and 4-7 PM Monday through Friday.

I-495 Road Conditions

body   p

Text format   Basic HTML ▼   About text formats ?

Full answer to be used on the web interface

Notice the difference in content for the web verses virtual assistants

Alexa Integration Models

- Direct Integration: Alexa receives request from user and queries Drupal via APIs
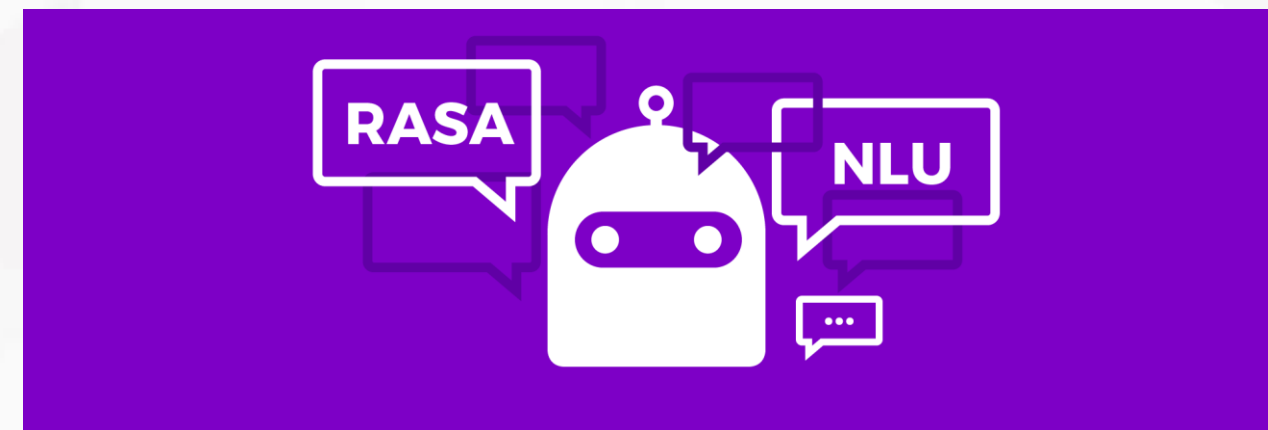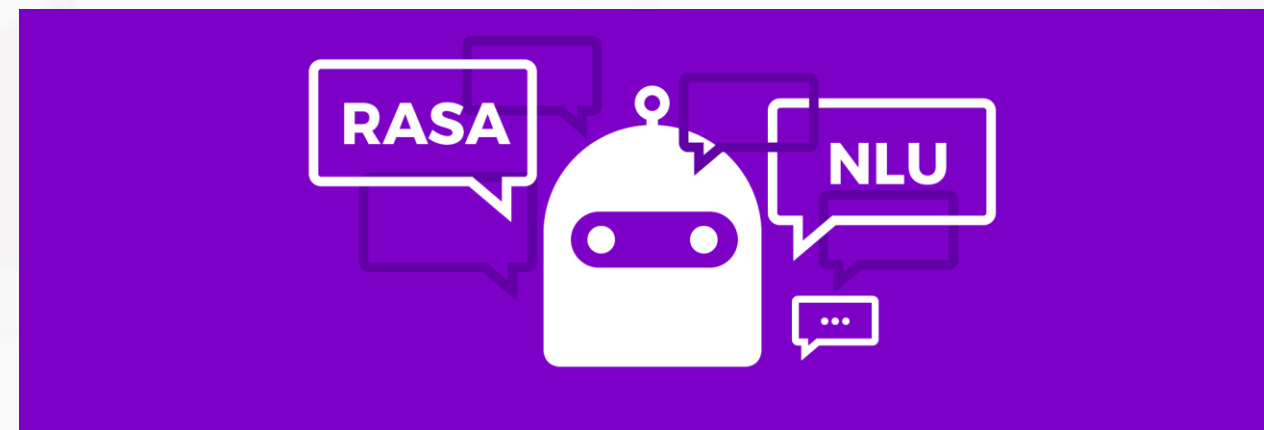
  - https://www.drupal.org/project/alexa

Alexa Integration Models

- Direct Integration: Alexa receives request from user and queries Drupal via APIs

  - https://www.drupal.org/project/alexa

- In-Direct Integration: Drupal outputs JSON which is consumed by Alexa

Alexa Integration Models

- Direct Integration: Alexa receives request from user and queries Drupal via APIs

  - https://www.drupal.org/project/alexa

- In-Direct Integration: Drupal outputs JSON which is consumed by Alexa

- By way of AI Engines: Alexa receives request from user and queries AI Engine using a Lambda Function, which has used data provided by Drupal as a training set.

Alexa Integration Models

Alexa Integration Models

- Allows for uniform experience across all virtual assistant platforms

- Takes load off Drupal for dynamic queries

- Flexible architecture for future expansion – e.g., search recommendations

Booz Allen: DEXi

DEXi is Booz Allen's Open Cognitive Platform that allows the rapid creation of Intelligent Digital Application that deliver contextual information and increase user engagement by removing the friction between the user and the application. DEXi's AI powered platform provides better answers to searches through Cognitive Search, tailors content and information through Machine Intelligence powered self-learning algorithms, and significantly makes it easier for people to get the information that they need via its Cognitive Conversational Platform that enables complex interactions and process automation

Cognitive solutions leverage artificial intelligence (AI) and natural language processing to mimic the way the human brain works, facilitate interaction with digital solutions, and produce previously unavailable insights.

CURRENT PROBLEMS
- Difficult to use Web Sites
- Static Mission Applications
- Single Purpose Mobile Apps

ENHANCED DIGITAL SOLUTIONS

CONVERSATIONAL PLATFORMS
COGNITIVE SEARCH
DEXi
PERSONALIZATION

NEXT GENERATION COGNITIVE DIGITAL EXPERIENCES
- Cognitive Search
- Self Learning Applications
- Conversational Apps/ Voice as UI

References

- Cooking with Alexa by Dries:
  https://dri.es/cooking-with-alexa-and-drupal

- DrupalCon 2018 Presentation by @frob:
  https://events.drupal.org/nashville2018/sessions/talk-me-drupal-powering-alexa-app-drupal

- Amazon Alexa Documentation:
  https://developer.amazon.com/alexa

- Alexa Drupal Module:
  https://www.drupal.org/project/alexa

- Booz Allen DEXi:
  https://www.boozallen.com/s/insight/thought-leadership/dexi-personalized-search-for-government-programs.html

What did you think?

Locate this session at the DrupalCon Seattle website:

https://events.drupal.org/seattle2019/sessions/hello-alexa-im-drupal

Take the Survey!

https://www.surveymonkey.com/r/DrupalConSeattle

Thank you!