

Add Language Intelligence to Your Apps with LUIS

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Agenda

- NLP basics
- What is LUIS?
- LUIS components
 - Intent
 - Utterance
 - Entity
- Creating a LUIS app demo
- Publishing your LUIS model
- Consuming a LUIS app
 - Demo

NLP Basics

Text takes a lot of work for understanding

- Tokenization
- Stop words
- Lemmentizing
- Part of Speech Tagging
- Named Entity Recognition

The Natural Language Tool Kit (NLTK) and SpaCy Python packages can help with understanding text.

Load Text Data

```
import spacy
```

```
text = "Hi, I'd like a flight to RDU next week for around $200."
```

```
nlp = spacy.load("en")
```

```
doc = nlp(text)
```

Tokenization

```
for d in doc:  
    print(d.text, end="|")
```

Hi|,|I|'d|like|a|flight|to|RDU|next|week|for|around|\$|200|.|

Removing Stop Words

```
for d in doc:  
    print(d, "-", d.is_stop)
```

```
Hi - False  
, - False  
I - False  
'd - False  
like - False  
a - True  
flight - False  
to - True  
RDU - False  
next - True  
week - False  
for - True  
around - True  
$ - False  
200 - False  
. - False
```

Lemmatizing

```
for d in doc:  
    print(d, "-", d.lemma_)
```

```
Hi - hi  
, - ,  
I - -PRON-  
'd - would  
like - like  
a - a  
flight - flight  
to - to  
RDU - rdu  
next - next  
week - week  
for - for  
around - around  
$ - $  
200 - 200  
. - .
```


Part of Speech Tagging

```
for d in doc:  
    print(d, "-", d.pos_)
```

```
Hi - INTJ  
, - PUNCT  
I - PRON  
'd - VERB  
like - VERB  
a - DET  
flight - NOUN  
to - ADP  
RDU - VERB  
next - ADJ  
week - NOUN  
for - ADP  
around - ADV  
$ - SYM  
200 - NUM  
. - PUNCT
```

Named Entity Recognition

```
for ent in doc.ents:  
    print(ent.text, "-", ent.label_)
```

RDU - ORG

next week - DATE

around \$200 - MONEY

What is LUIS?

Build natural language understanding into applications.

Language Understanding (LUIS)

A machine learning-based service to build natural language into apps, bots, and IoT devices. Quickly create enterprise-ready, custom models that continuously improve.

[Go to my apps](#)

2 tickets from Cairo to Seattle

```
intent = bookFlight  
source = cairo  
destination = seattle  
quantity = 2
```

What is LUIS?

Easily train, test, and publish models

The screenshot displays the LUIS web interface. At the top, a navigation bar includes links for DASHBOARD, BUILD, PUBLISH, and SETTINGS, along with 'Train' and 'Test' buttons. The 'Test' button is active, leading to the 'Test' panel on the left and the 'Inspect' panel on the right.

Test Panel:

- Buttons: 'Start over' and 'Batch testing panel'.
- Input field: 'Type a test utterance'.
- Test results list:
 - Utterance: 'create new note named groceries' (highlighted in a dark box). Intent: 'CreateNote (1.00)'. Action: 'Inspect'.
 - Utterance: 'create list' (highlighted in a blue box). Intent: 'CreateNote (1.00)'. Action: 'Inspect'.

Inspect Panel:

- Buttons: 'Compare with published' and a right arrow.
- Status: 'Currently Editing version 0.2'.
- Utterance:** 'create new note named groceries'.
- Top scoring intent:** 'CreateNote (1.00)' with an 'Edit' link.
- Entities:** 'NoteName --> "groceries"'.

LUIS Components

Intents

The task the user requests.

Intents ?

Create new intent

Add prebuilt domain intent

Name ^

CreateNote

None

Add or remove prebuilt intents

Prebuilt intents are parts of prebuilt domains. We recommend using intents from the same domain when possible since they work better together.

fitness




- ☐ **Fitness.GetRemaining**
Gets the remaining time or distance for an activity. [Learn more](#)
How much time till the next lap?; How many miles are remaining in my run? How much time for the split?
- ☐ **Fitness.LogActivity**
Save or log completed activity results. [Learn more](#)
Save my last run; Log my Saturday morning walk; store my previous swim
- ☐ **Fitness.LogWeight**
Save or log the user's current weight. [Learn more](#)
Save my current weight; log my weight now; store my current body weight

LUIS Components


Utterance

The phrase a user will input






CreateNote 

Dele

Type about 5 examples of what a user might say and hit Enter

Entity filters   Show All  Entities

☐ Utterance Labeled intent ?

add note to NoteName	CreateNote (L... 
create new note named NoteName	CreateNote (L... 
add ListItem to NoteName list	CreateNote (L... 
add note	CreateNote (L... 
create new note	CreateNote (L... 

LUIS Components

Entity

Words in an utterance that describes an intent.

Entities ?

Create new entity

Manage prebuilt entities

Add prebuilt domain entity

Name ^	Type
ListItem	Simple
NoteName	Simple

Labeled Utterances

☐ Utterance

add note to NoteName

create new note named NoteName

add ListItem to NoteName list

Add or remove prebuilt entities

When you add a built-in entity, its predictions will be available to you while labeling utterances.

Search built-in entities

☐ number
A cardinal number in numeric or text form
ten, forty two, 3.141, 10K

☐ ordinal
An ordinal number in numeric or text form
first, second, tenth, 1st, 2nd, 10th

☐ temperature
A temperature in celsius or fahrenheit
32F, 34 degrees celsius, 2 deg C

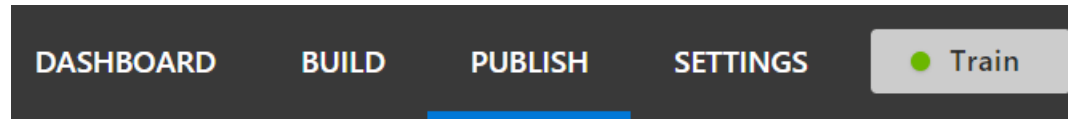
☐ dimension
Spatial dimensions, including length, distance, area, and volume
2 miles, 650 square kilometres, 9,350 feet

Demo

Create a LUIS app

Publishing

Train Model



Publishing

Publish Model

Publish app ?

Select slot

Production



Publish

Published version: 0.2

Published date: Mar 15, 2018, 12:26:30 PM (Approximately 4 month(s) ago)

External services settings

☐ Enable Sentiment Analysis ?

☐ Enable Speech Priming ?

Endpoint url settings

Timezone

(GMT) Western Europe Time, London, Lisbon, Casablanca



☒ Include all predicted intent scores ?

☐ Enable Bing spell checker ?


Consuming Model

Subscription Key

Resources and Keys

Add Key

☒ North America Regions ☐ South America Regions ☐ Europe Regions ☐ Asia Regions ☐ Australia Regions

Resource Name	Region	Key String	Endpoint
Starter_Key	westus	 99a453 ...	https://westus.api.cognitive.microsoft.com/luis/v2.0/apps/1054ba52-b5c8-47ca-9df4-d658b0156bf6?subscription-key=99a453bd43d24bdf8e4cb12176a94301&verbose=true&timezoneOffset=0&q=

Subscription key

Endpoint URL

Consuming Model

LUIS App ID

App Settings

Delete app

Application ID: 1054ba52-b5c8-47ca-9df4-d658b0156bf6

☐ Set application as public ?

Display Name (Required)

Demo

Description

Type description ...

Cancel

Save changes

Demo

Integrate a LUIS app

Questions?

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