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## USAGE OF ARTIFICIAL INTELLIGENCE FOR REAL TIME IMPLEMENTATION OF NATURAL LANGUAGE PROCESSING

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### Abstract

Artificial Intelligence (AI) is the investigation of how to make PCs (machines) do things which, right now, individuals improve. There are numerous uses of the computerized reasoning. Normal LANGUAGE PROCESSING (NLP) is one of the up and coming uses of AI. The objective of the Natural Language Processing is to plan and construct programming that will examine, comprehend, and produce dialects that people utilize actually, so that in the long run you will have the capacity to address your PC as if you were tending to someone else. Common Language Processing is the utilization of PCs to prepare composed and talked dialect for some pragmatic, helpful, reason: to make an interpretation of dialects, to get data from the web on content information banks in order to answer inquiries, to bear on discussions with machines, and to get guidance about, say, annuities et cetera. Functional utilizations of normal dialect preparing are machine interpretation, database get to, data recovery, content classification, extricating information from content etc. Still no such totally working framework has grown yet research is going on. What's more, it might be done soon. Some fundamental frameworks are as of now created like ELIZA, INTELLISHRINK, and AMALGAM and so forth.

**Keywords:** Artificial Intelligence, Natural Language Processing.

### 1. Introduction

Computerized reasoning is the science and designing of making shrewd machines, particularly smart PC programs. It is identified with the comparable assignment of utilizing PCs to comprehend human insight, yet AI does not need to keep itself to techniques that are organically perceptible. As a hypothesis in the rationality of psyche, manmade brainpower (or AI) is the view that human psychological mental states can be copied in registering hardware. Appropriately, a clever framework is only a data preparing framework. Common LANGUAGE PROCESSING

(NLP) is one of the up and coming uses of AI. The objective of the Natural Language Processing (NLP) is to outline and fabricate programming that will examine, comprehend, and create dialects that people utilize normally, so that in the end you will have the capacity to address your PC just as you were tending to someone else. This objective is difficult to reach. "Understanding" dialect implies, in addition to other things, realizing what ideas a word or expression remains for and knowing how to connect those ideas together definitively. Ironically characteristic dialect, the image framework that is most straightforward for people to learn and utilize, is hardest for a PC to ace. Long after machines have demonstrated fit for rearranging vast networks with speed and elegance, despite everything they neglect to ace the fundamentals of our talked and composed dialects.

## 2. Literature Survey

An etymological cosmology of space for regular dialect handling John A. Bateman, , Joana Hois, Robert Ross, Thora Tenbrink 2010[1]. Common Language Processing (Almost) from Scratch distributed in the diary of machine learning research in 2011 Ronan Collobert, Jason Weston [2]. Characteristic Language Processing For Indian Languages: A Literature Survey Paperback – August 23, 2012 by P. J. Antony (Author), K. P. Soman [3]. Seth Grimes on BI, content/content examination, conclusion investigation, and more March 4, 2013.

## 3. Components of NLP systems

Inside this general model there are, obviously, various setups. Contingent upon the utilization of the innovation, not every one of these parts are required. The essential procedures of Natural Language Processing are appeared in the chart above. These are comprehensively worried with: Entering material into the PC, utilizing discourse, printed content or penmanship, or content either entered in or presented electronically. Recognizing the dialect of the material, recognizing separate words, for instance, recording it in typical frame and approving it. Building a comprehension of the importance of the material, to the suitable level for the specific application. Using this comprehension in an application, for example, change (e.g. discourse to content), data recovery, or human dialect interpretation. Generating the medium for exhibiting the consequences of the application at last, introducing the outcomes to human clients by means of a show or something to that affect: a printer or a plotter; an uproarious speaker or the phone.

## 4. Architecture of NLP system

By a wide margin the biggest piece of human phonetic correspondence happens as discourse. Composed dialect is a genuinely late innovation and still assumes a less focal part than discourse in many exercises. In any case, handling

composed dialect is less demanding, in some courses, than preparing discourse. For instance to assemble a program that comprehends talked dialect, we require every one of the offices of a composed dialect comprehend and enough extra information to handle all commotion and ambiguities of the sound flag. Along these lines it is valuable to separate the whole dialect handling issue into two undertakings:

- 1) Preparing composed content, utilizing lexical, syntactic, and semantic learning of the dialect and in addition the required true data.
- 2) Processing talked dialect, utilizing all the data required above in addition to extra learning about phonology and additionally enough added data to handle the further ambiguities that emerge in discourse

The diagram above portrays the chain of exercises which are included in Language Engineering, from research to the conveyance of dialect empowered and dialect upgraded items and administrations to end-clients. The procedure of innovative work prompts to the improvement of methods, the generation of assets, and the advancement of principles. These are the essential building squares. Dialect Engineering is connected at two levels. At the primary level there are various bland classes of use, for example, dialect interpretation.

- Data administration (multi-lingual)
- Creating (multi-lingual)
- Human / machine interface (multi-lingual voice and content)

At the second level, these empowering applications are connected to certifiable issues over the social and monetary range. Along these lines, for instance: Data administration can be utilized as a part of a data benefit, as the reason for examining demands for data and coordinating the demand against a database of content or pictures, to choose the data precisely. Composing devices are normally utilized as a part of word handling frameworks however can likewise be utilized to produce content, for example, business letters in remote dialects, and additionally in conjunction with data administration, to give archive administration offices Human dialect interpretation is right now used to give interpreter workbenches and programmed interpretation in restricted domains Most applications can conveniently be furnished with common dialect UIs, including discourse, to enhance their convenience

## **5. Main Steps In the Process**

### **5.1. Morphological Analysis**

Individual words are broke down into their parts, and non word tokens, for example, accentuation, are isolated from the words.

## 5.2. Syntactic investigation

Linear successions of words are changed into structures that show how the words identify with each other. Some word arrangements might be rejected in the event that they damage the dialect's principles for how words might be joined. For instance, an English syntactic analyzer would dismiss the sentence "Kid the go the store."

## 5.3. Semantic Analysis

The structure made by the syntactic analyzer are relegated meaning. As such, a mapping is made between the syntactic structures and the articles in the assignment area. Structures for which no such mapping is conceivable might be rejected. For instance, in many universes, the sentence "Drab green thoughts rest angrily" would be dismisses as semantically atypical.

## 5.4. Talk Integration

The importance of an individual sentence may rely on upon the sentences that go before it and may impact the significance of the sentences that tail it. For instance, "it" in the sentence, "John needed it", relies on upon the earlier talk setting, while "John" may impact the importance of later sentences.

## 5.5. Pragmatics Analysis

The structure speaking to information exchanged is reinterpreted to figure out what was really implied. For instance, the sentence "Do you comprehend what time it is?" ought to be translated as a demand to be told the time

## 5.6. Comparison of NLP system

**Table 1: Comparison among already developed NLIDB System**

| S. NO | SYSTEM NAME  | DOMAIN      | LANGUAGE              | APPROACHES           | YEAR |
|-------|--------------|-------------|-----------------------|----------------------|------|
| 1     | GUBKMN       | NATURAL     | NATURAL               | LEXICAL ANALYSIS     | 2009 |
| 2     | PJHSKB       | AGRICULTURE | REGIONAL-SQL-REGIONAL | SHALLOW PARSER       | 2010 |
| 3     | JBFB         | EMPLOYEE    | REGIONAL-SQL-REGIONAL | SHALLOW PARSER       | 2011 |
| 4     | Portable JDN | NATURAL     | CPG FRAMEWORK         | LINGUISTIC SEMANTICS | 2012 |

## 6. Advantages of NLP system

The advantages to be picked up from effective Natural Language Processing are massive. They include:

- Enhanced administration from our open organization and open administration offices.
- Wide availability of data through less demanding utilization of PC frameworks and Information Services.
- Upgraded capacity to contend in worldwide markets.
- Saving time by utilizing astute PC frameworks as our operators.
- Changes in the nature of data recorded in data frameworks.
- Better sifting of data when we require it.
- More viable universal co-operation.
- Enhanced security through 'sans hands' operation of gear.
- More noteworthy security through voice confirmation methods.

## 7. Sample communication code using Natural Language Tool Kit

```
# Natural Language Toolkit: Eliza
#
# Copyright (C) 2001-2016 NLTK Project
# Authors: Steven Bird <stevenbird1@gmail.com>
#         Edward Loper<edloper@gmail.com>
# URL: <http://nltk.org/>
# For license information, see LICENSE.TXT

# Based on an Eliza implementation by Joe Strout<joe@strout.net>,
# Jeff Epler<jepler@inetnebr.com> and Jez Higgins <mailto:jez@jezuk.co.uk>.

# a translation table used to convert things you say into things the
# computer says back, e.g. "I am" --> "you are"

from __future__ import print_function
fromnltk.chat.util import Chat, reflections

# a table of response pairs, where each pair consists of a
# regular expression, and a list of possible responses,
# with group-macros labelled as %1, %2.

pairs = (
    (r'I need (.*)',
     ("Why do you need %1?",
      "Would it really help you to get %1?",
      "Are you sure you need %1?")),
    (r'Why don\'t you (.*)',
     ("Do you really think I don't %1?",
      "Perhaps eventually I will %1.",
      "Do you really want me to %1?")),
```

(r'Why can't I (.\*)',  
( "Do you think you should be able to %1?",  
"If you could %1, what would you do?",  
"I don't know -- why can't you %1?",  
"Have you really tried?")),

(r'I can't (.\*)',  
( "How do you know you can't %1?",  
"Perhaps you could %1 if you tried.",  
"What would it take for you to %1?")),

(r'I am (.\*)',  
( "Did you come to me because you are %1?",  
"How long have you been %1?",  
"How do you feel about being %1?")),

(r'I'm (.\*)',  
( "How does being %1 make you feel?",  
"Do you enjoy being %1?",  
"Why do you tell me you're %1?",  
"Why do you think you're %1?")),

(r'Are you (.\*)',  
( "Why does it matter whether I am %1?",  
"Would you prefer it if I were not %1?",  
"Perhaps you believe I am %1.",  
"I may be %1 -- what do you think?")),

(r'What (.\*)',  
( "Why do you ask?",  
"How would an answer to that help you?",  
"What do you think?")),

(r'How (.\*)',  
( "How do you suppose?",  
"Perhaps you can answer your own question.",  
"What is it you're really asking?")),

(r'Because (.\*)',  
( "Is that the real reason?",  
"What other reasons come to mind?",  
"Does that reason apply to anything else?",  
"If %1, what else must be true?")),

(r'(.\*) sorry (.\*)',  
( "There are many times when no apology is needed.",  
"What feelings do you have when you apologize?")),

(r'Hello(.\*)',  
( "Hello... I'm glad you could drop by today.",  
"Hi there... how are you today?",  
"Hello, how are you feeling today?")),

(r'I think (.\*)',  
( "Do you doubt %1?",  
"Do you really think so?",

"But you're not sure %1?"))),

(r'(.\*) friend (.\*)',

( "Tell me more about your friends.",

"When you think of a friend, what comes to mind?",

"Why don't you tell me about a childhood friend?"))),

(r'Yes',

( "You seem quite sure.",

"OK, but can you elaborate a bit?"))),

(r'(.\*) computer(.\*)',

( "Are you really talking about me?",

"Does it seem strange to talk to a computer?",

"How do computers make you feel?",

"Do you feel threatened by computers?"))),

(r'Is it (.\*)',

( "Do you think it is %1?",

"Perhaps it's %1 -- what do you think?",

"If it were %1, what would you do?",

"It could well be that %1.")),

(r'It is (.\*)',

( "You seem very certain.",

"If I told you that it probably isn't %1, what would you feel?"))),

(r'Can you (.\*)',

( "What makes you think I can't %1?",

"If I could %1, then what?",

"Why do you ask if I can %1?"))),

(r'Can I (.\*)',

( "Perhaps you don't want to %1.",

"Do you want to be able to %1?",

"If you could %1, would you?"))),

(r'You are (.\*)',

( "Why do you think I am %1?",

"Does it please you to think that I'm %1?",

"Perhaps you would like me to be %1.",

"Perhaps you're really talking about yourself?"))),

(r'You\'re (.\*)',

( "Why do you say I am %1?",

"Why do you think I am %1?",

"Are we talking about you, or me?"))),

(r'I don\'t (.\*)',

( "Don't you really %1?",

"Why don't you %1?",

"Do you want to %1?"))),

(r'I feel (.\*)',

( "Good, tell me more about these feelings.",

"Do you often feel %1?",

"When do you usually feel %1?",  
"When you feel %1, what do you do?")),

(r'I have (.\*)',  
( "Why do you tell me that you've %1?",  
"Have you really %1?",  
"Now that you have %1, what will you do next?")),

(r'I would (.\*)',  
( "Could you explain why you would %1?",  
"Why would you %1?",  
"Who else knows that you would %1?")),

(r'Is there (.\*)',  
( "Do you think there is %1?",  
"It's likely that there is %1.",  
"Would you like there to be %1?")),

(r'My (.\*)',  
( "I see, your %1.",  
"Why do you say that your %1?",  
"When your %1, how do you feel?")),

(r'You (.\*)',  
( "We should be discussing you, not me.",  
"Why do you say that about me?",  
"Why do you care whether I %1?")),

(r'Why (.\*)',  
( "Why don't you tell me the reason why %1?",  
"Why do you think %1?" )),

(r'I want (.\*)',  
( "What would it mean to you if you got %1?",  
"Why do you want %1?",  
"What would you do if you got %1?",  
"If you got %1, then what would you do?")),

(r'(.\*) mother(.\*)',  
( "Tell me more about your mother.",  
"What was your relationship with your mother like?",  
"How do you feel about your mother?",  
"How does this relate to your feelings today?",  
"Good family relations are important.")),

(r'(.\*) father(.\*)',  
( "Tell me more about your father.",  
"How did your father make you feel?",  
"How do you feel about your father?",  
"Does your relationship with your father relate to your feelings today?",  
"Do you have trouble showing affection with your family?")),

(r'(.\*) child(.\*)',  
( "Did you have close friends as a child?",  
"What is your favorite childhood memory?",  
"Do you remember any dreams or nightmares from childhood?",

"Did the other children sometimes tease you?",  
 "How do you think your childhood experiences relate to your feelings today?"))),

(r'(.\*)\?',  
 ( "Why do you ask that?",  
 "Please consider whether you can answer your own question.",  
 "Perhaps the answer lies within yourself?",  
 "Why don't you tell me?"))),

(r'quit',  
 ( "Thank you for talking with me.",  
 "Good-bye.",  
 "Thank you, that will be \$150. Have a good day!"))),

(r'(.\*)',  
 ( "Please tell me more.",  
 "Let's change focus a bit... Tell me about your family.",  
 "Can you elaborate on that?",  
 "Why do you say that %1?",  
 "I see.",  
 "Very interesting.",  
 "%1.",  
 "I see. And what does that tell you?",  
 "How does that make you feel?",  
 "How do you feel when you say that?"))

eliza\_chatbot = Chat(pairs, reflections)

```
def eliza_chat():
    print("Therapist\n-----")
    print("Talk to the program by typing in plain English, using normal upper-")
    print("and lower-case letters and punctuation. Enter \"quit\" when done.")
    print('='*72)
    print("Hello. How are you feeling today?")
```

```
eliza_chatbot.converse()
```

```
def demo():
    eliza_chat()
```

```
if __name__ == "__main__":
    demo()
```

## 8. Conclusion

The entire procedure of the characteristic dialect preparing framework, at numerous spots had made the work less demanding. Just by our normal dialect (any dialect) we can coordinate the robot, which can do discussion with PC and there is no need of a man to fill in as an interpreter for the discussion between two people who don't have the foggiest idea about any basic dialect. Still present program have not achieved this level but rather they may do as such soon.

Dialect advances can be connected to an extensive variety of issues in business and organization to deliver better, more powerful arrangements. They can likewise be utilized as a part of instruction, to help the handicapped, and to convey new administrations both to associations and to purchasers. There are various regions where the effect is critical, for example, contending in a worldwide market, offering administrations specifically through telebusiness, supporting electronic trade, upgrading diversion, relaxation and imagination.

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