

speech recognition

technical

words like

“lexicon”

“utterances”

“senone mapping”

“triphone states”



do you

care how it works?

not likely

care how to work it

explore

created some tools

(sp)eech (rec)ognition tools

sprec

{2 components}

1. `sprec.agi`

2. sphinx_daemon.pl

the way it works

AGI(sprec.agi|file.wav)

open network socket

sends data to
sphinx_daemon.pl

sphinx_daemon.pl

checks for matches

against language model

returns matches

to `sprec.agi`

sprec.agi returns

setting $\{SPREC\}$

{example}

1. *yes/no*

make word list

yesno.txt:

yes

no

feed into modelling
tools

web based

Sphinx Knowledge Base Tool - Firefox

File Edit View Go Bookmarks Tools Help

http://www.speech.cs.cmu.edu/tools/lmtool.html

Sphinx Knowledge Base Tool




[Simple Version](#) [[Advanced Version](#)]

Builds a consistent set of lexical and language modeling files for the Sphinx-II decoder.

To use, create a sentence corpus file, consisting of all sentences you would like the decoder to recognize. The sentences should be one to a line (but do not need to have standard punctuation). You may not need to exhaustively list all possible sentences: the decoder will allow fragments to recombine into new sentences.

Sentence corpus file:

Alex Rudnicky
Last modified: Wed Jul 12 17:36:31 EDT 2000

Done    [Adblock](#)

creates 2 important
files

Sphinx Tool Result - Firefox

File Edit View Go Bookmarks Tools Help

http://fife.speech.cs.cmu.edu/cgi-bin/tools/lmtool.2 Go

Sphinx knowledge base

Your request for a Sphinx knowledge base appears to have been processed successfully. Note that the following set of files forms a self-consistent configuration and should be used as a unit. The base name for your set is 5330

- [Sentences](#)
- [Dictionary](#)
- [Language Model](#)

For your convenience there is also a [gzip'd tar file](#) version of the above set.

You can find log files [here](#). You should examine these for possible errors.

IMPORTANT: Please download these files as soon as possible; they will be deleted in approximately a half hour.

Done

AdBlock

1. pronunciation dictionary, .dic

NO

N OW

YES

Y EH S

2. language model, .lm

\1-grams:

-0.7782 </s> -0.3010

-0.7782 <s> -0.2218

-1.0792 NO -0.2218

-1.0792 YES -0.2218

\2-grams:

-0.6021 <s> NO 0.0000

-0.6021 <s> YES 0.0000

-0.3010 NO </s> -0.3010

-0.3010 YES </s> -0.3010

\3-grams:

-0.3010 <s> NO </s>

-0.3010 <s> YES </s>

```
create directory  
share/sphinx2/lm/yesno/
```

copy both to
share/sphinx2/lm/yesno/

start sphinx_daemon.pl
with “yesno”

```
sphinx2_daemon.pl --lm=yesno
```

set up a dialplan

```
exten => s,1,Answer()  
exten => s,2,Record(/tmp/test.wav)  
exten => s,n,AGI(sprec.agi|/tmp/test.wav)  
exten => s,n,GotoIf("${SPREC}" = "YES"?yes,1)  
exten => s,n,GotoIf("${SPREC}" = "NO"?no,1)  
exten => s,n,Goto(err,1)  
  
exten => yes,1,Playback(yes)  
exten => no, 1,Playback(no)  
exten => err,1,Playback(error)
```

asterisk -rx 'extensions reload'

{place a call}

{ring ring...}

answer call

```
exten => s,1,Answer()  
exten => s,2,Record(/tmp/test.wav)  
exten => s,n,AGI(sprec.agi|/tmp/test.wav)  
exten => s,n,GotoIf("${SPREC}" = "YES"?yes,1)  
exten => s,n,GotoIf("${SPREC}" = "NO"?no,1)  
exten => s,n,Goto(err,1)  
  
exten => yes,1,Playback(yes)  
exten => no, 1,Playback(no)  
exten => err,1,Playback(error)
```

record file

```
exten => s,1,Answer()  
exten => s,2,Record(/tmp/test.wav)  
exten => s,n,AGI(sprec.agi|/tmp/test.wav)  
exten => s,n,GotoIf("${SPREC}" = "YES"?yes,1)  
exten => s,n,GotoIf("${SPREC}" = "NO"?no,1)  
exten => s,n,Goto(err,1)  
  
exten => yes,1,Playback(yes)  
exten => no, 1,Playback(no)  
exten => err,1,Playback(error)
```

send file to daemon

```
exten => s,1,Answer()  
exten => s,2,Record(/tmp/test.wav)  
exten => s,n,AGI(sprec.agi|/tmp/test.wav)  
exten => s,n,GotoIf("${SPREC}" = "YES"?yes,1)  
exten => s,n,GotoIf("${SPREC}" = "NO"?no,1)  
exten => s,n,Goto(err,1)  
  
exten => yes,1,Playback(yes)  
exten => no, 1,Playback(no)  
exten => err,1,Playback(error)
```

recieve words back

```
exten => s,1,Answer()  
exten => s,2,Record(/tmp/test.wav)  
exten => s,n,AGI(sprec.agi|/tmp/test.wav)  
exten => s,n,GotoIf("${SPREC}" = "YES"?yes,1)  
exten => s,n,GotoIf("${SPREC}" = "NO"?no,1)  
exten => s,n,Goto(err,1)  
  
exten => yes,1,Playback(yes)  
exten => no, 1,Playback(no)  
exten => err,1,Playback(error)
```

make a decision

```
exten => s,1,Answer()  
exten => s,2,Record(/tmp/test.wav)  
exten => s,n,AGI(sprec.agi|/tmp/test.wav)  
exten => s,n,GotoIf("${SPREC}" = "YES"?yes,1)  
exten => s,n,GotoIf("${SPREC}" = "NO"?no,1)  
exten => s,n,Goto(err,1)
```

```
exten => yes,1,Playback(yes)  
exten => no, 1,Playback(no)  
exten => err,1,Playback(error)
```

{fin}

it's that easy



you can do it

{example 2}

2. corporate directory

dir.txt:

simon ditner

shidan gouran

nabeel jafferali

jim vanmeggelen

leif madsen

feed into modelling
tools

1. pronunciation dictionary, .dic

DITNER	D IH T N AXR
GOURAN	G OW Y AXR AX N
JAFFERALI	JH AE F EH R AX L IY
JIM	JH IH M
LEIF	L IY F
MADSEN	M AE D S AX N
NABEEL	N AE B IY L
SHIDAN	SH AY DX AX N
SIMON	S AY M AX N
VANMEGGELLEN	V AE N M EH JH IX L IX N

2. language model, .lm

\1-grams :

-0.9031 </s> -0.3010

-0.9031 <s> -0.2430

-1.6021 DITNER -0.2430

-1.6021 GOURAN -0.2430

-1.6021 JAFFERALI -0.2430

-1.6021 JIM -0.2900

-1.6021 LEIF -0.2900

-1.6021 MADSEN -0.2430

-1.6021 NABEEL -0.2900

-1.6021 SHIDAN -0.2900

-1.6021 SIMON -0.2900

-1.6021 VANMEGGELEN -0.2430

...

\2-grams :

-1.0000 <s> JIM 0.0000
-1.0000 <s> LEIF 0.0000
-1.0000 <s> NABEEL 0.0000
-1.0000 <s> SHIDAN 0.0000
-1.0000 <s> SIMON 0.0000
-0.3010 DITNER </s> -0.3010
-0.3010 GOURAN </s> -0.3010
-0.3010 JAFFERALI </s> -0.3010
-0.3010 JIM VANMEGGELEN 0.0000
-0.3010 LEIF MADSEN 0.0000
-0.3010 MADSEN </s> -0.3010
-0.3010 NABEEL JAFFERALI 0.0000
...

-0.3010 SHIDAN GOURAN 0.0000
-0.3010 SIMON DITNER 0.0000
-0.3010 VANMEGGELEN </s> -0.3010

\3-grams:

-0.3010 <s> JIM VANMEGGELEN
-0.3010 <s> LEIF MADSEN
-0.3010 <s> NABEEL JAFFERALI
-0.3010 <s> SHIDAN GOURAN
-0.3010 <s> SIMON DITNER
-0.3010 JIM VANMEGGELEN </s>
-0.3010 LEIF MADSEN </s>
-0.3010 NABEEL JAFFERALI </s>
-0.3010 SHIDAN GOURAN </s>
-0.3010 SIMON DITNER </s>

```
create directory  
share/sphinx2/lm/dir/
```

copy both to
share/sphinx2/lm/dir/

start sphinx_daemon.pl
with “dir”

```
sphinx2_daemon.pl --lm=dir
```

set up a dialplan

```
exten => s,1,Answer()  
exten => s,2,Record(/tmp/dir.wav)  
exten => s,n,AGI(sprec.agi|/tmp/dir.wav)  
exten => s,n,GotoIf("${SPREC}" = "")?err,1)  
exten => s,n,Macro(FindExten|${SPREC})  
  
exten => err,1,Playback(name_not_found)  
exten => err,n,Playback(try_again)  
exten => err,n,Goto(s,2)
```

asterisk -rx 'extensions reload'

{place a call}

{ring ring...}

answer call

```
exten => s,1,Answer()  
exten => s,2,Record(/tmp/dir.wav)  
exten => s,n,AGI(sprec.agi|/tmp/dir.wav)  
exten => s,n,GotoIf("${SPREC}" = "")?err,1)  
exten => s,n,Macro(FindExten|${SPREC})  
  
exten => err,1,Playback(name_not_found)  
exten => err,n,Playback(try_again)  
exten => err,n,Goto(s,2)
```

record file

```
exten => s,1,Answer()  
exten => s,2,Record(/tmp/dir.wav)  
exten => s,n,AGI(sprec.agi|/tmp/dir.wav)  
exten => s,n,GotoIf("${SPREC}" = "")?err,1)  
exten => s,n,Macro(FindExten|${SPREC})  
  
exten => err,1,Playback(name_not_found)  
exten => err,n,Playback(try_again)  
exten => err,n,Goto(s,2)
```

send file to daemon

```
exten => s,1,Answer()  
exten => s,2,Record(/tmp/dir.wav)  
exten => s,n,AGI(sprec.agi|/tmp/dir.wav)  
exten => s,n,GotoIf("${SPREC}" = "")?err,1)  
exten => s,n,Macro(FindExten|${SPREC})  
  
exten => err,1,Playback(name_not_found)  
exten => err,n,Playback(try_again)  
exten => err,n,Goto(s,2)
```

recieve words back

```
exten => s,1,Answer()  
exten => s,2,Record(/tmp/dir.wav)  
exten => s,n,AGI(sprec.agi|/tmp/dir.wav)  
exten => s,n,GotoIf("${SPREC}" = "")?err,1)  
exten => s,n,Macro(FindExten|${SPREC})  
  
exten => err,1,Playback(name_not_found)  
exten => err,n,Playback(try_again)  
exten => err,n,Goto(s,2)
```

make a decision

```
exten => s,1,Answer()  
exten => s,2,Record(/tmp/dir.wav)  
exten => s,n,AGI(sprec.agi|/tmp/dir.wav)  
exten => s,n,GotoIf("${SPREC}" = "")?err,1)  
exten => s,n,Macro(FindExten|${SPREC})  
  
exten => err,1,Playback(name_not_found)  
exten => err,n,Playback(try_again)  
exten => err,n,Goto(s,2)
```

it's that easy



you can do it

sprec 0.1

uc.org/sprec

{comments?}

{suggestions?}

{blank slide}