

E-Mail Generator

An Assistant with use of Watson Services

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Agenda

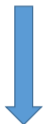
- 1 Spech2Text & Translate
- 2 Tone Analyzer
- 3 Personality Insights API
 - API
 - Background: Big Five personality traits
 - API-„Reversing “
- 4 „E-Mail Generator“ Live-Demonstration

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Workflow:

Input



- An existing audio File
- or
- Record a new audio

SpeechToText
Service



Pre-processing
step

Temporary text

- Keywords
- Filter
- smartFormat
- Multiple results
- ...

Post-processing
step

- Elimination
of hesitation
...

Final text

To be used from
other watson
services



- Translate
- Personality Insights
- Tone analyzer

Properties	Description
API Calls	WebSockets includes a single call that establishes a persistent connection with the service over the WebSocket protocol.
Authentication	The API uses HTTP basic authentication.
Recognizeoptions:	<ul style="list-style-type: none">- Continuous = Indicates whether multiple final results that represent consecutive phrases separated by long pauses are returned.- Model = The name of the model for use as an identifier in calls to the service (for example, en_US_BroadbandModel).- inactivityTimeout = The time in seconds after which, if only silence (no speech) is detected in submitted audio, the connection is closed.- interimResults = Indicates whether the service is to return interim results.- profanityFilter = replacing inappropriate words with a series of asterisks.- smartFormatting = Indicates whether dates, times, series of digits and numbers, phone numbers, currency values, and Internet addresses are to be converted into more readable, conventional representations
Audio format	audio/flac audio/wav audio/116 audio/ogg
Languages	Arabic/French/English/Spanish/Japanese/Portuguese/Chinese
Limits	Data size maximal 100 MB per connection

Demo

Capture Sound Demo

Open an existing audio file

move the following content has been provided by the university of an unknown back
okay so welcome everybody
let's start with today's lecture
%HESITATION
I have 3 remarks in the beginning
first of all %HESITATION
many a few of most of you have already scheduled there oral examinations
if you have scheduled your oral examination on the 17
February 8
%HESITATION there won't be oral examinations on that day so you have to move %HESITATION your oral e
if you're on that they 17 go to the lab and reschedule your oral examination if you
had the seventeenth
as date for the oral examination
the next thing is %HESITATION I ordered 5 of Larry's books
and I will put them in the lab and you can go there and for them in order to prepare for the examination
%HESITATION
the thing is it will take sometime until they arrive so I guess they will be available from the end of January
office and you can go there and pour them
so I will %HESITATION put 5 copies of the book there
and none the less you can also get your own copy
a another thing is over Christmas I got an email from Larry saying and he %HESITATION told me data there
%HESITATION
about small things which a wrong in the book
so %HESITATION I will also put that on the website and that you can
see the list of eros I mean that's
quite a convenient service that the author himself sends out

Configuration

- interimResults
- profanityFilter
- smartFormatting

Translate:

The screenshot shows a web browser window titled "Translate". At the top, there is a file path input field containing "/Users/midokarlos/git/Email_Generator/SpeechToTextResult.txt" and an "open" button to its right. Below this, the "Input Language" is set to "en" with a dropdown arrow. The main text area contains the following English text:

move the following content has been provided by the university of an unknown back
okay so welcome everybody
let's start with today's lecture
%HESITATION
I have three remarks in the beginning
first of all %HESITATION
many a few of most of you have already scheduled there oral examinations
if you have scheduled your oral examination on the seventeen
February one seven
%HESITATION there won't be oral examinations on that day so you have to move %HESITATION your oral examination
if you're on that they seventeen go to the lab and reschedule your oral examination if you
had the seventeenth
as date for the oral examination

Below the text area, the "Output Language" is set to "es" with a dropdown arrow, and a "translate" button is visible. The output area contains the translated Spanish text:

Mover el contenido siguiente ha sido facilitada por la universidad de una copia desconocida
Bien bienvenida para todos
Vamos a empezar con la conferencia de hoy
%HESITATION
Tengo tres observaciones en el inicio
En primer lugar %HESITATION
Muchos pocos más de ustedes ya han programado exámenes orales,
Si tiene previsto el examen oral sobre el diecisiete
Un siete de febrero
%HESITATION no habrá exámenes orales en ese día, por lo que tienen que pasar %HESITATION su examen oral
Si estás en diecisiete que se vaya al laboratorio y reprogramar el examen oral, si
Tuvo el decimoséptimo
Como fecha para el examen oral

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Tone Analyzer

The Tone analyzer aims to analyze the emotion which is expressed within the received mail text. The results of analysis would be shown in categories tone id, tone name and score. The meanings of first two are obvious, and the last shows the confidence in the emotion analysis or the score comparing among other categories.

Tone Analyzer

A sample is shown below. Here is an input text.

Hi Tony, I'm Qing. How are you! We really miss you ;) I've read your emails from Rony and here are some explanations. This serie of paper cutting is about people doing acrobatics. The one in the cover is stepping on stilts with a fan and a pipe on hands. The latter one is someone dancing with ribbons. Paper cuttings are just like paintings: there's no strict limitation on what to present. But usually people like things represent good luck (like fish which sounds the same as rich) and people (usually with traditional dresses or doing folk shows).

These kinds of paper cuttings are usually kept in thin papers for protection, but they also look good in frames. Other larger ones (usually all red and with or other lucky characters are pasted on windows for decoration especially during winter and Lunar new year. But these may cause color fade more rapidly.

Tip: they are relatively fragile and need to be kept away from water or wet things:)

Happy Lunar New Year!

———— Best regards,

Qing and Rony

Tone Analyzer

Here is the partial analysis result (Since showing all of them could be very tedious).

tone categories: [

category id: emotion tone,

category name: Emotion Tone,

tones: [tone id: anger,

tone name: Anger,

score: 0.132327

tone id: disgust,

tone name: Disgust,

score: 0.125689

tone id: fear,

tone name: Fear,

score: 0.072065

tone id: joy,

tone name: Joy,

score: 0.541565

Tone Analyzer

Analyze text

open

Input text

Hi Tony,
I'm Qing. How are you! We really miss
These kinds of paper cuttings are us
Tip: they are relatively fragile and ne
Happy Lunar New Year!

Best regards,
Qing and Rony

Analyze

Results (JSON)

```
{
  "tone_id": "disgust",
  "tone_name": "Disgust",
  "score": 0.256137
},
{
  "tone_id": "fear",
  "tone_name": "Fear",
  "score": 0.06074
},
{
  "tone_id": "joy",
  "tone_name": "Joy",
  "score": 0.255844
},
{
  "tone_id": "sadness",
  "tone_name": "Sadness",
  "score": 0.466153
}
```

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Personality Insights API

```
1 PersonalityInsights insights = new PersonalityInsights("016-10-20");
  insights.setUsernameAndPassword(username, password);
3
  Profile profile = insights.getProfile(text).execute();
5  ....
  JSONObject obj = new JSONObject(profile.toString());
7  ....
```

- simple HTTP - GET -Request
- additional options (selection)
 - ▶ acceptLanguage
 - ▶ rawScore yes/no
 - ▶ consumptionPreferences yes/no
- Output: seen in Demonstration

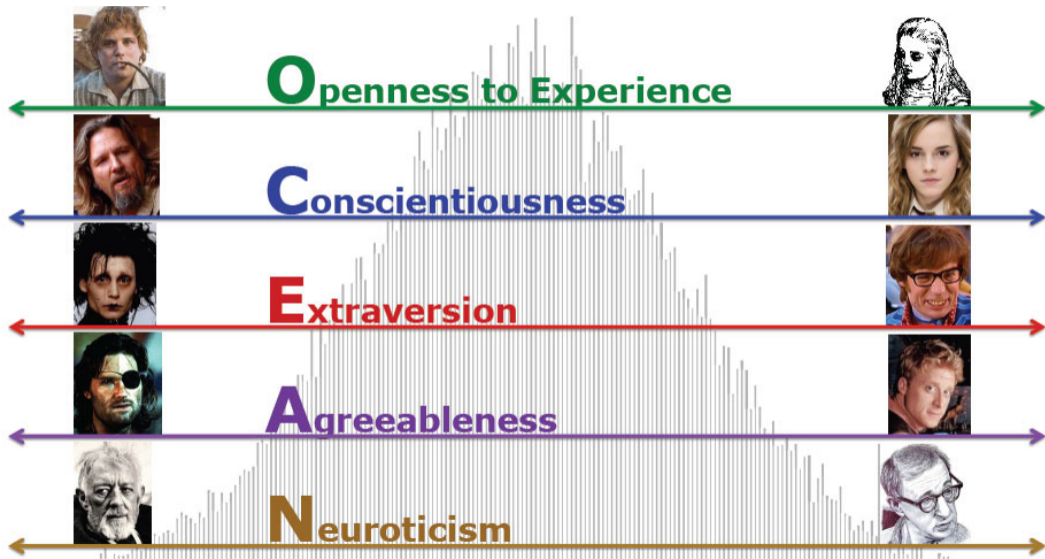
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⇒ *But...how does this work!??*

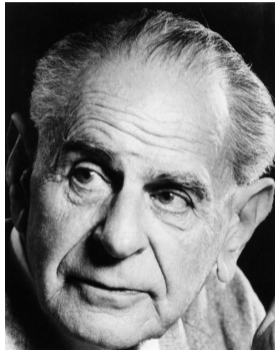
Background: Big Five personality traits



API-„Reversing “: The Idea

The true Enlightenment thinker, the true rationalist, never wants to talk anyone into anything. No, he does not even want to convince; all the time he is aware that he may be wrong. Above all, he values the intellectual independence of others too highly to want to convince them in important matters. He would much rather invite contradiction, preferably in the form of rational and disciplined criticism. He seeks not to convince but to arouse — to challenge others to form free opinions.

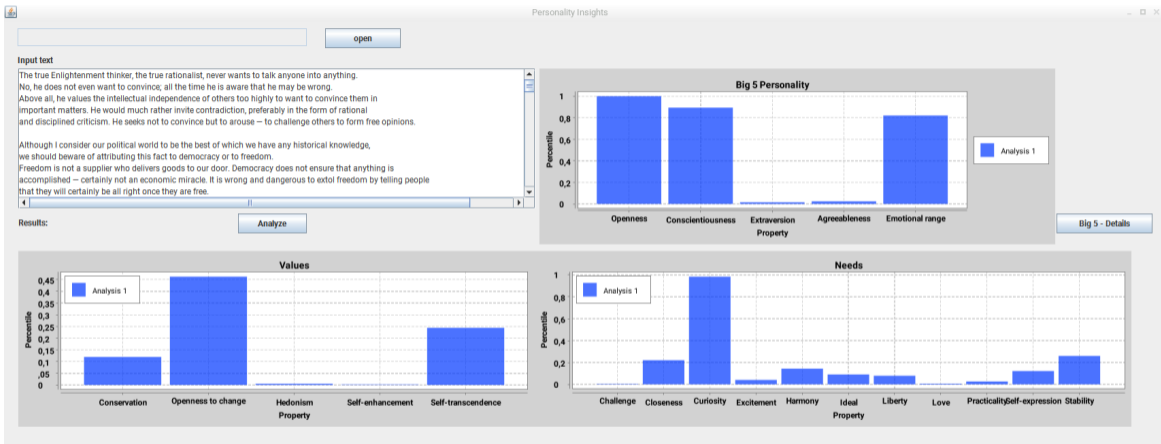
Although I consider our political world to be the best of which we have any historical knowledge, we should beware of attributing this fact to democracy or to freedom. Freedom is not a supplier who delivers goods to our door. Democracy does not ensure that anything is accomplished — certainly not an economic miracle. It is wrong and dangerous to extol freedom by telling people that they will certainly be all right once they are free. How someone fares in life is largely a matter of luck or grace, and to a comparatively small degree perhaps also of competence, diligence, and other virtues. The most we can say of democracy or freedom is that they give our personal abilities a little more influence on our well-being.....



Sir Karl Raimund Popper
(1902 – 1994)

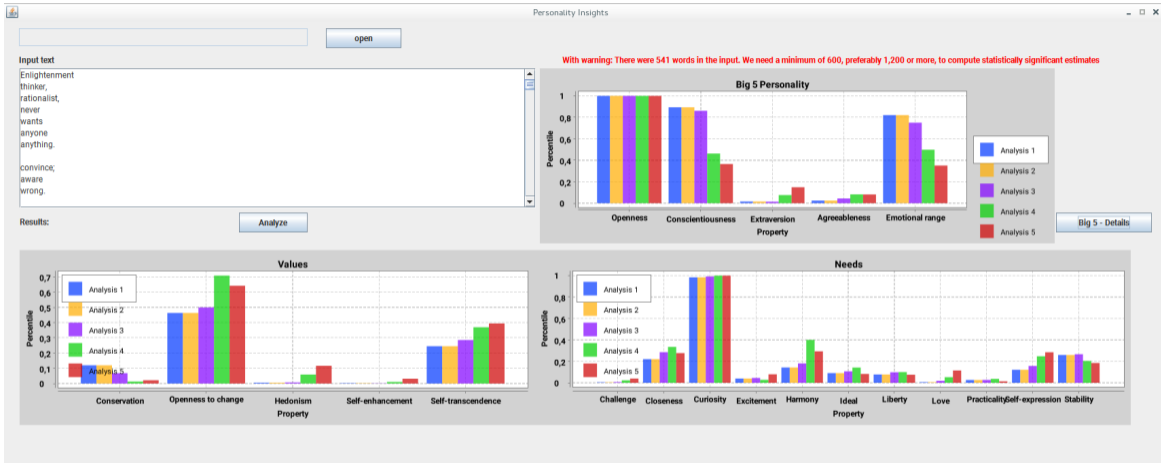
(1307 words in total)

API-„Reversing“: The Idea



⇒ Now, start stripping words....

API-„Reversing “: The Results (1)



Analysis 1: original text

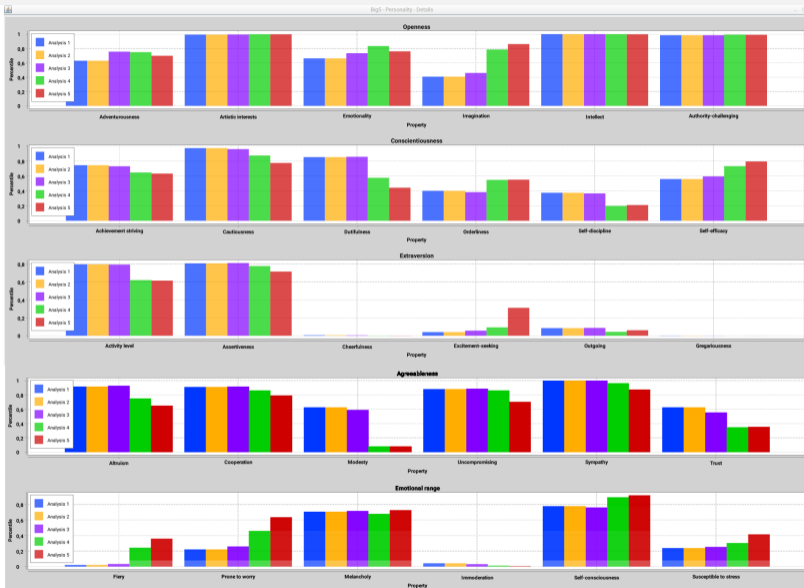
Analysis 2: original text, one word per line

Analysis 3: stripping all words with length 3

Analysis 4: stripping all words with length 2 or 3

Analysis 5: stripping all words with length 2 – 4

API-„Reversing“: The Results (2)



API-„Reversing “: Some thoughts on explanation

„A well-accepted theory of psychology, marketing, and other fields is that human language reflects personality, thinking style, social connections, and emotional states. The frequency with which we use certain categories of words can provide clues to these characteristics. ... The Personality Insights service infers personality characteristics from textual information based on an open-vocabulary approach. This method reflects the latest trend in the research about personality inference. “¹

¹among others: Schwartz, H. Andrew, Johannes C. Eichstaedt, Margaret L. Kern, Lukasz Dziurzynski, Stephanie M. Ramones, Megha Agrawal, Achal Shah, Michal Kosinski, David Stillwell, Martin E. P. Seligman, and Lyle H. Ungar. Personality, Gender, and Age in the Language of Social Media: The Open-Vocabulary Approach. PLoS One, Vol. 8(9) (September 2013).

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Some interesting Points:

- *Open-vocabulary*-approach with 1. words and phrases and 2. topics as features
- Pointwise mutual information: $pmi(\text{phrase}) = \log \frac{p(\text{phrase})}{\prod_{w \in \text{phrase}} p(w)}$

*„In practice, we kept phrases with pmi values greater than 2*length...“*

- topics as second feature:

$$p(\text{topic}|\text{subject}) = \sum_{\text{word} \in \text{topic}} p(\text{topic}|\text{word}) * p(\text{word}|\text{subject})$$

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API-„Reversing “: How precise is the service

	English	Spanish	Japanese	Arabic
Personality characteristics	Average MAE / Average correlation	Average MAE / Average correlation	Average MAE / Average correlation	Average MAE / Average correlation
Big Five dimensions	0.12 / 0.33	0.10 / 0.35	0.11 / 0.27	0.09 / 0.17
Big Five facets	0.12 / 0.28	0.12 / 0.21	0.12 / 0.22	0.12 / 0.14
Needs	0.11 / 0.22	0.12 / 0.24	0.11 / 0.25	0.11 / 0.13
Values	0.11 / 0.24	0.11 / 0.19	0.11 / 0.19	0.10 / 0.14

MAE: Mean Absolute Error;

The smaller the MAE, the closer the service's results are to the scores the author would receive by taking an actual personality test.

average corr.: correlation between inferred and actual scores across all characteristics.

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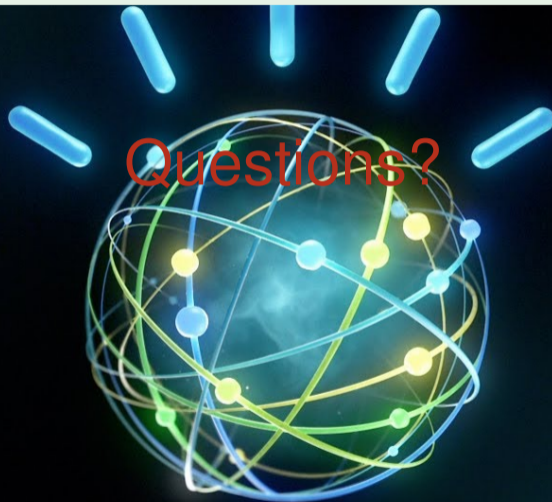
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