PROPOSAL OF A CHATBOT IN PORTUGUESE FOR THE LEGAL DOMAIN USING THE RASA FRAMEWORK

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Presentation

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OVERVIEW

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Motivations

COVID-19 pandemic quarantine

Remote access to judiciary: WhatsApp Business and Virtual Counters

Civil servers work overload

Goal

This project aims to build an attendance chatbot in PT-BR, using Rasa, that will be integrated into WhatsApp Business (or another channel) to automatize the answers to FAQs

Specific goals

Answer FAQs automatically

Integrate the chatbot with a channel like WhatsApp Business

Compile a corpus with the WhatsApp conversations

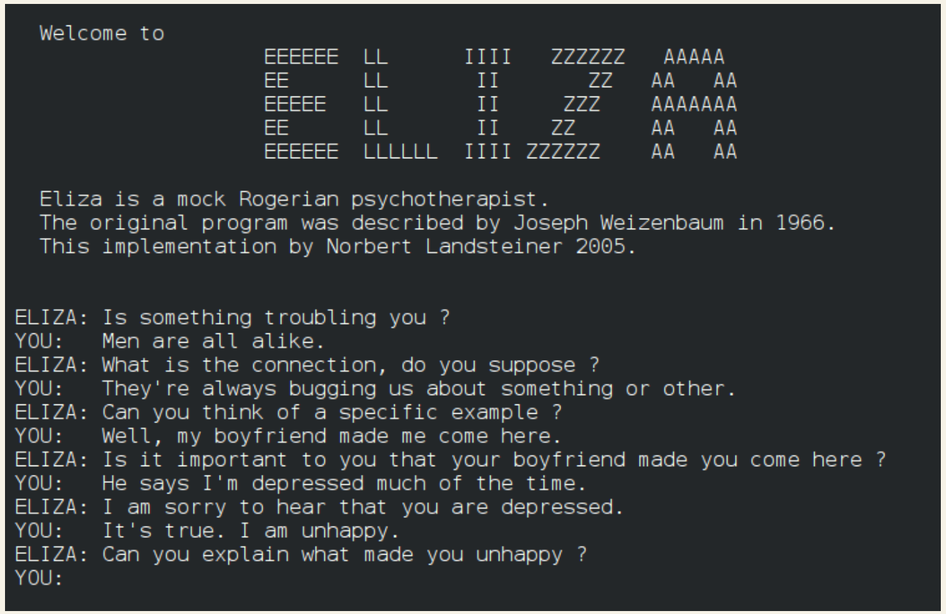
Contribute to the effectiveness of the principle of access to Justice

Reduce the waiting time at the attendance

Achieving effective communication through accessible language

Reduce the work overload of the civil servers

A brief history of chatbots



Mid-1960s (MIT Artificial Intelligence Laboratory by Joseph Weizenbaum)

Rogerian psychotherapist - the therapist "reflects" on questions by turning the questions back at the patient

A brief history of chatbots

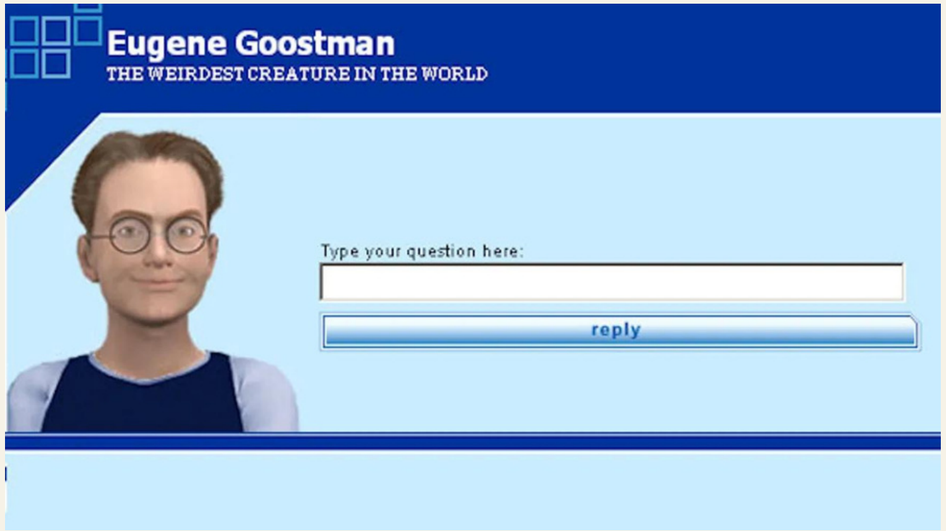
In the 2010's we had a new arising in neural networks

Big Data

Machine Learning / Deep Learning

Companies saw the opportunity to use virtual assistants to help customers

Eugene Goostman

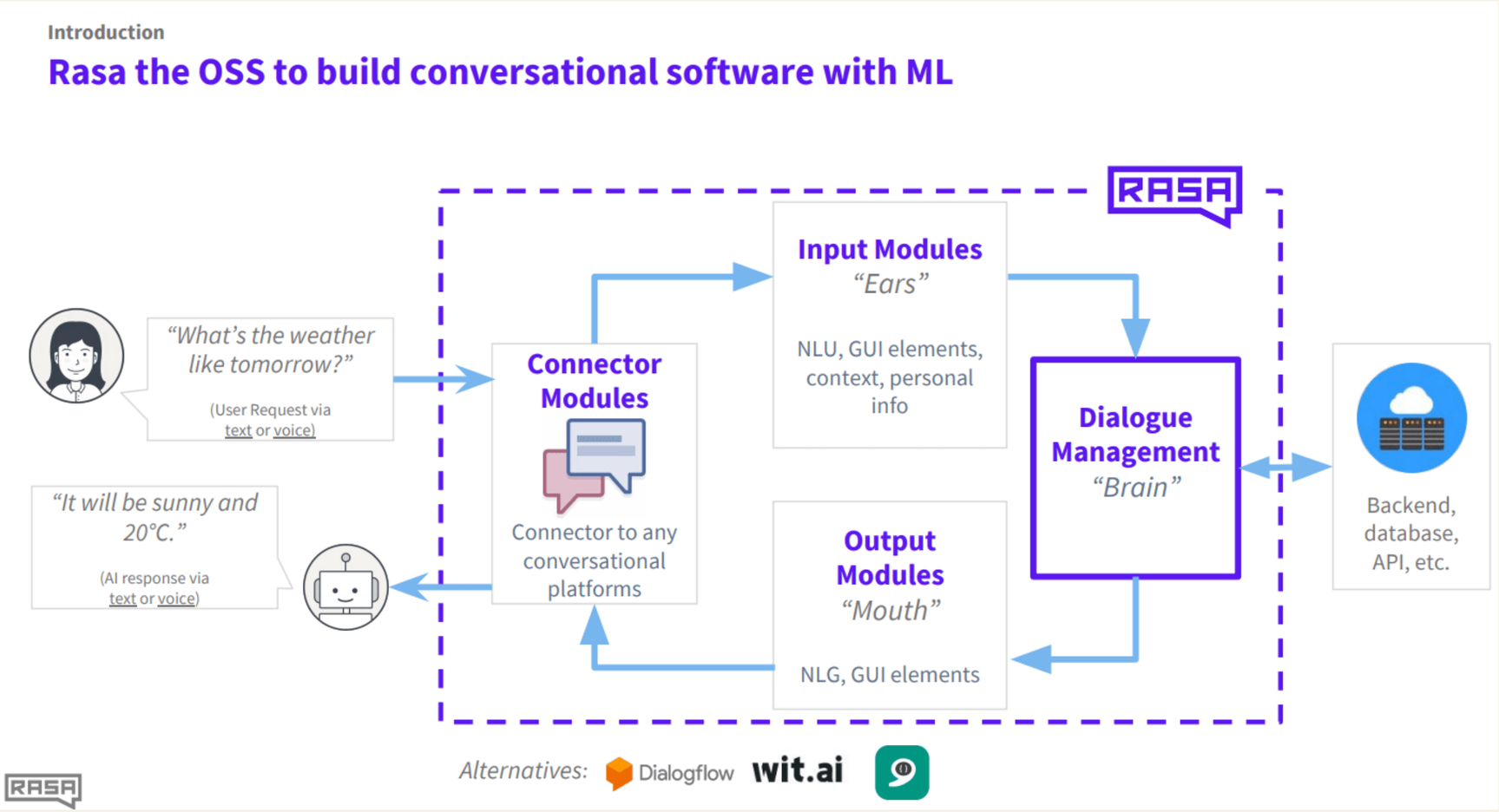


A persona for a 13 years old boy

It was the first chatbot to pass the Turing test, with 33% of the judges in 2014

Developed by Wladimir Veselov, Eugene Demchenko e Sergey Ulasen from Saint Petersburg

What Rasa is?


Introduction
Rasa the OSS to build conversational software with ML
RASA
"What's the weather like tomorrow?"
(User Request via text or voice)
"It will be sunny and 20°C."
(AI response via text or voice)
Connector Modules
Connector to any conversational platforms
Input Modules
"Ears"
NLU, GUI elements, context, personal info
Output Modules
"Mouth"
NLG, GUI elements
Dialogue Management
"Brain"
Backend, database, API, etc.
Alternatives:
Dialogflow
wit.ai
RASA

Why Rasa?

Context-sensitive

Support for multiple languages

Command Line Interface (CLI)

Natural Language Undertanding (NLU) module

Natural Language Generator (NLG) module

Easy Guide

Very intuitive

Integrate with libraries like Spacy, MITIE, and Python

Why Rasa?

Command	Effect
`rasa init`	Creates a new project with example training data, actions, and config files.
`rasa train`	Trains a model using your NLU data and stories, saves trained model in `./models`.
`rasa interactive`	Starts an interactive learning session to create new training data by chatting to your assistant.
`rasa shell`	Loads your trained model and lets you talk to your assistant on the command line.
`rasa run`	Starts a server with your trained model.

Why Rasa?

config.yml

```yaml
pipeline:
  - name: WhitespaceTokenizer
  - name: RegexFeaturizer
  - name: LexicalSyntacticFeaturizer
  - name: CountVectorsFeaturizer
  - name: CountVectorsFeaturizer
    analyzer: char_wb
    min_ngram: 1
    max_ngram: 4
  - name: DIETClassifier
    epochs: 100
  - name: EntitySynonymMapper
  - name: ResponseSelector
    epochs: 100
```

Why Rasa?

nlu.yml

```yaml
nlu:
  - intent: chitchat/ask_name
    examples: |
      - What is your name?
      - May I know your name?
      - What do people call you?
      - Do you have a name for yourself?
  - intent: chitchat/ask_weather
    examples: |
      - What's the weather like today?
      - Does it look sunny outside today?
      - Oh, do you mind checking the weather for me please?
      - I like sunny days in Berlin.
```

Why Rasa?

domain.yml

```yaml
responses:
  utter_chitchat/ask_name:
  - image: "https://i.imgur.com/zTvA58i.jpeg"
    text: Hello, my name is Retrieval Bot.
  - text: I am called Retrieval Bot!
  utter_chitchat/ask_weather:
  - text: Oh, it does look sunny right now in Berlin.
    image: "https://i.imgur.com/vwv7aHN.png"
  - text: I am not sure of the whole week but I can see the sun is
```

Why Rasa?

nlu.yml

```yaml
nlu:
- intent: out_of_scope
  examples: |
    - I want to order food
    - What is 2 + 2?
    - Who's the US President?
```

Why Rasa?

config.yml

```yaml
pipeline:
# other components
- name: FallbackClassifier
  threshold: 0.7
```

Why Rasa?

```
stories:
- story: collect restaurant booking info  # name of the story - jus
  steps:
  - intent: greet                          # user message with no en
  - action: utter_ask_howcanhelp
  - intent: inform                         # user message with entit
    entities:
    - location: "rome"
    - price: "cheap"
  - action: utter_on_it                   # action that the bot shou
  - action: utter_ask_cuisine
  - intent: inform
    entities:
    - cuisine: "spanish"
  - action: utter_ask_num_people
```

We are here

Thank You!

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Please, feel free to contact me!

"My mind is open!" - Paul Erdős