

Chatbots

& our baby chatbot Erno

FTCS Fall Seminar
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Chatbots

Gartner

Who we serve What we do Conferences Insights

TOKYO, Japan, February 19, 2018

Gartner Says 25 Percent of Customer Service Operations Will Use Virtual Customer Assistants by 2020

Presentations for Customer Experience Leaders at the Gartner Symposium/ITx Asia, Tokyo, February 19-20

Analyst Customer

Speech recognition is tech's next giant leap, says Google

Company says spoken word already essential in developing countries with low literacy rates



Chatbots are the future of customer communications

BY: BRENT HAUMANN

20 SEP 2018 | [SAVE](#) | [EMAIL](#) | [PRINT](#) | [PDF](#) [f](#) [t](#) [in](#)

Customer communication is evolving faster than ever. Where paper-based communication sent through the mail were once the norm, almost everything is now done electronically a range of channels. Two technologies that are set to have a particularly big impact going forward are chatbots and machine learning.



The \$24 billion chatbot industry sucks because it needs better AI

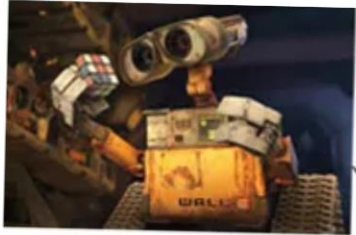
Facebook scales back AI flagship after chatbots hit 70% f-AI-lure rate

'The limitations of automation'
By Andrew Orlowski 22 Feb 2017 at 17:46

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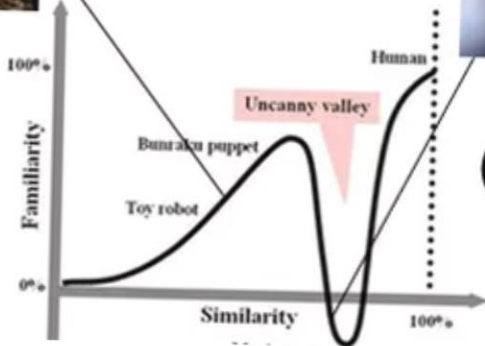
PCMag UK | News

California Law Bans Bots From Pretending to Be Human



CUTE

CREEPY



THE VERGE

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Amazon's Alexa started ordering people dollhouses after hearing its name on TV



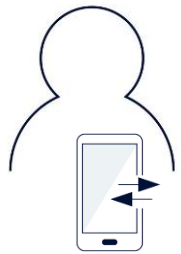
Understanding conversational interfaces: Chatbot vs. traditional search

Traditional search	Chatbot
Attempts to match content “Find information on how to report bugs.”	Attempts to match intent “Report a bug in my app X in location Y.”
User has to understand search “Am I using the right term? Is the syntax correct? What can I search for?”	Chatbot has to understand user “What is the user trying to do based on the information I have?”

Less chances to “get it right” with a chatbot. A clarifying question may be perceived as the chatbot not fulfilling its purpose. Repetition in a conversation gets tedious and annoying.



Chatbot maturity model: FAQ bots



Hi, I am your Car Rental FAQ Bot. How may I help you?

How do I cancel my booking?



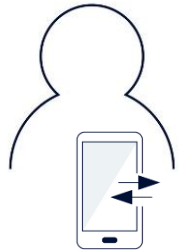
If you need to cancel your booking, you will need to contact our customer care center. Please contact the call center +44 (0)20 7026 0077.

AI BOT

SKILL BOT

FAQ BOT

Chatbot maturity model: skill bots



Hi, I am Your Car Rental Bot. How may I help you?

I need to rent a car in Paris, October 15th to 19th.



The following cars are available:

- VW Passat GTE
- Toyota Prius
- Tesla Roadster

Tesla Roadster



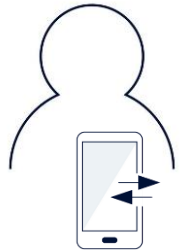
Thank you. Can you confirm the following:
you want to rent a Tesla Roadster, in Paris
from October 15th to 19th.

AI BOT

SKILL BOT

FAQ BOT

Chatbot maturity model: AI bots



Hi, I'm Car Rental Assistant. How may I help you?

I'm traveling from Paris to Lyon on October 15th. I would like to rent a car.



Sure. I can do that. I can book your usual Tesla Roadster, or you could check out some new models that I think you would like.

Weather forecast is promising clear skies. Are you aware there is a general strike planned, which could be affecting commutes? Do you want to rent a car, or explore other options?

What are the other options?



I can help you book a direct flight, or rent a car in one of our other locations.

Rental

Book a flight

AI BOT

SKILL BOT

FAQ BOT

Writing for a conversational interface

- In a sense every interface is conversational through menus, buttons, commands etc.
- A conversational UI uses normal, natural language.
- Traditional technical writing is for **eyes**. Expectation is uniformity, patterns, and structure. Writing for **ears** is different. Writers will have to unlearn a lot of things they think they know about writing.*
- Basic guidelines:
 - Do not implement interactions manually!
 - Finding a solution to feeding chatbots may prove challenging...
 - Keep it short.
 - Do not annoy!
 - Make sure there are no dead ends or loops.





Erno – the baby chatbot

The goal

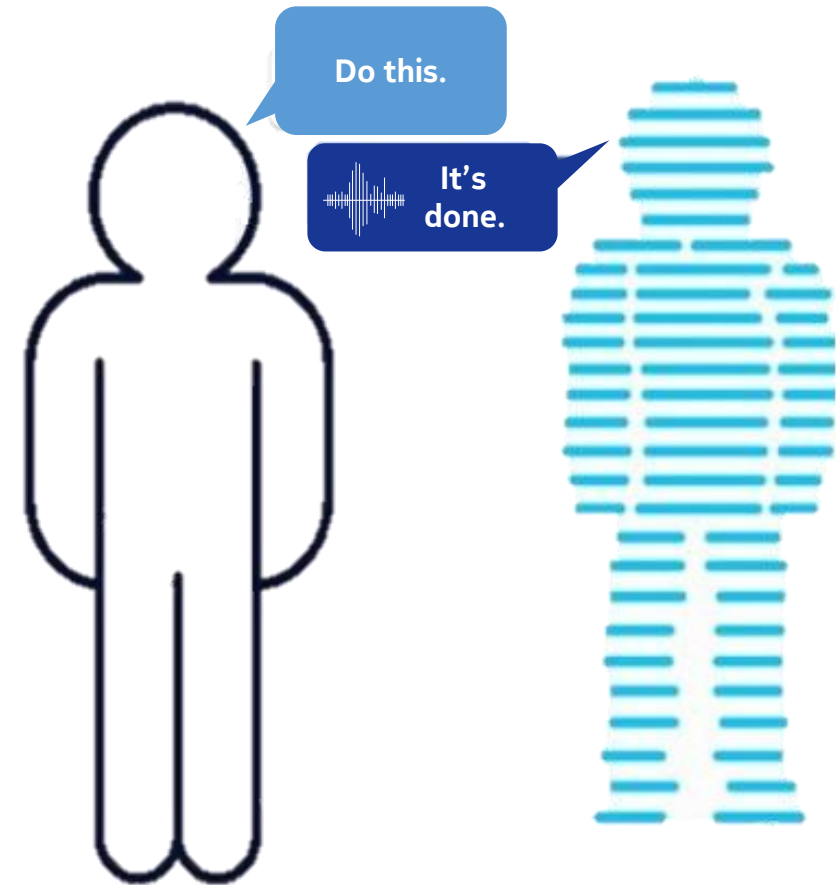
Using a free AI.

Building intents through the chatbot service.

Using our whole documentation library. Integrating the chatbot into our documentation browser.

Getting feedback from our trial users, and being able to automatically weigh results (machine learning).

Building skills into the chatbot.





The reality

Using a free AI.

Building intents through the chatbot service.

Using our whole documentation library. Integrating the chatbot into our documentation browser.

Getting feedback from our trial users, and being able to automatically weigh results (machine learning).

Building skills into the chatbot.

Using a simple NLP component.

No pre-built intents available in the open source component.

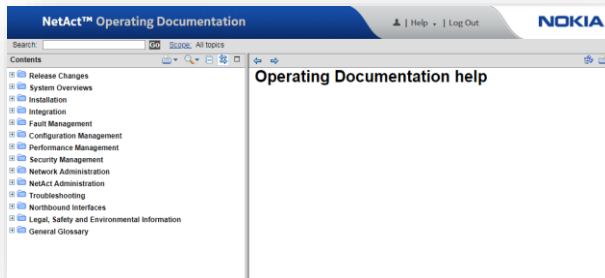
Using part of our documentation library. In a separate browser built for testing the chatbot.

Feedback is collected, but not yet processed. No weighing of results available in the current version.

No skills. Yet.

Erno – the content

- A subset of Nokia NetAct Operating Documentation (HTML)
- User input: questions and feedback

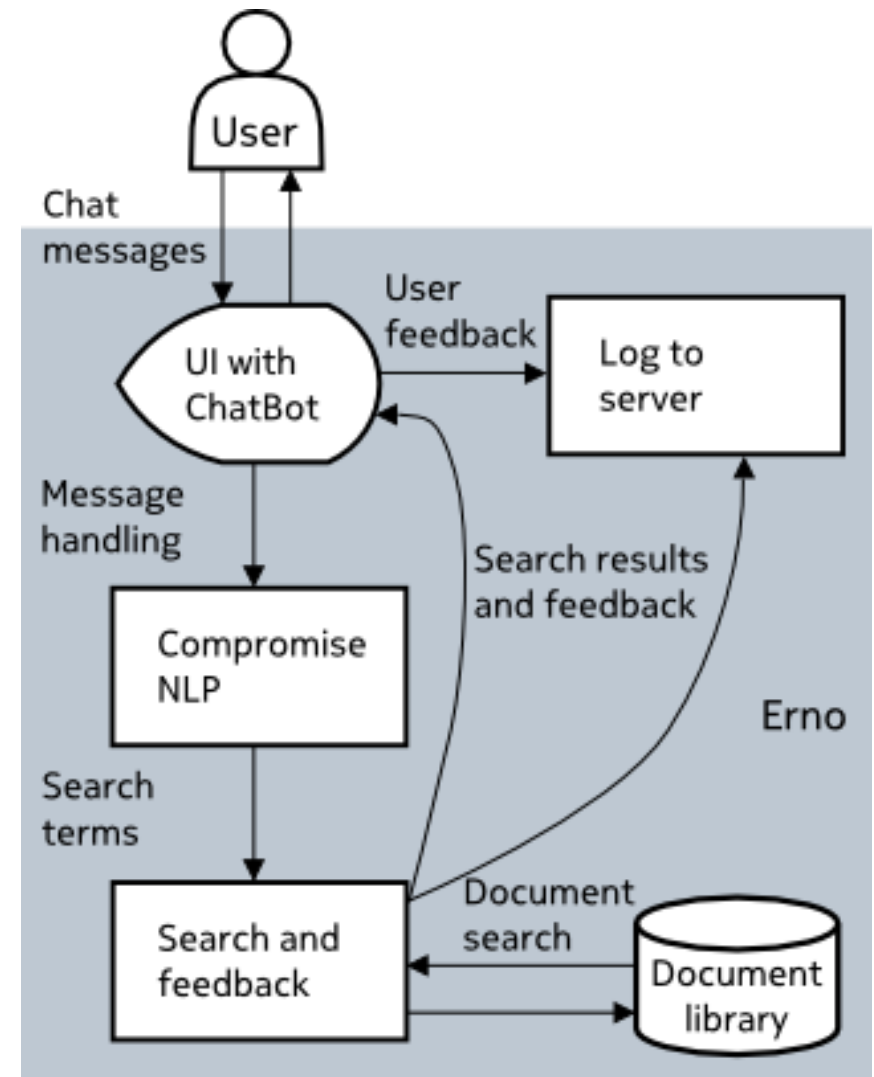


Erno – the software

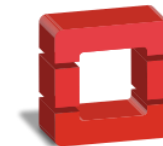
Erno consists of:

- Compromise – an NLP JavaScript library
- Additional JavaScript unifying the components and services
- React Simple Chatbot

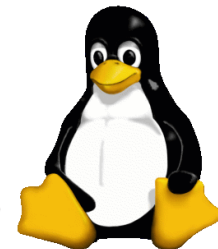
User chats, NLP results, and user feedback are saved to a log file using PHP scripts.



Apache HTTP Server



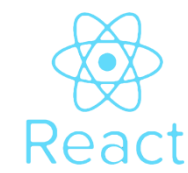
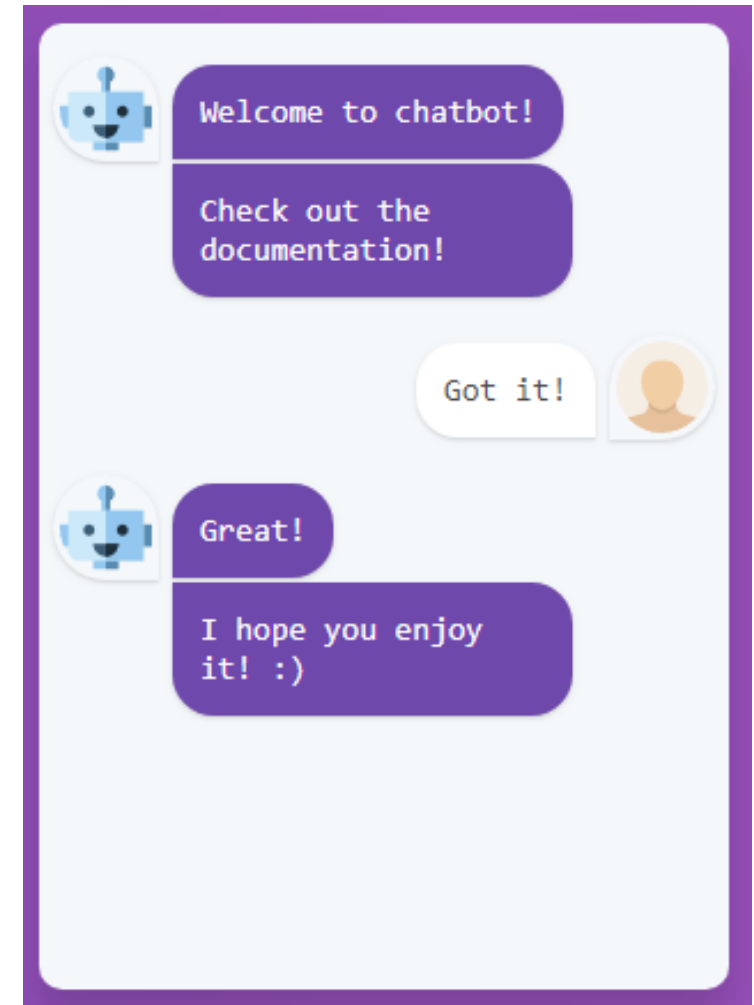
openstack
CLOUD SOFTWARE



Erno – the user interface

- React Simple Chatbot
(<https://lucasbassetti.com.br/react-simple-chatbot>)
- Open source JavaScript component
- An example chat configuration:

```
{ id: '1', message: 'What is your name?', trigger: '2', },  
{ id: '2', user: true, trigger: '3', },  
{ id: '3', message: 'Hi {previousValue}, nice to meet you!',  
  end: true, },
```



Compromise NLP

Compromise NLP JS analyzing strings

"Tell me about **certificate installation**"

vs. "Tell me about **installing certificates**"

```
▼ 0:
  normal: "tell"
  ▶ tags: (4) ["Infinitive", "PresentTense", "Verb", "VerbPhrase"]
▼ 1:
  normal: "me"
  ▶ tags: (2) ["Pronoun", "Noun"]
▼ 2:
  normal: "about"
  ▶ tags: ["Preposition"]
▼ 3:
  normal: "certificate"
  ▶ tags: (4) ["Infinitive", "PresentTense", "Verb", "VerbPhrase"]
▼ 4:
  normal: "installation"
  ▶ tags: (2) ["Singular", "Noun"]
```

```
▼ 0:
  normal: "tell"
  ▶ tags: (4) ["Infinitive", "PresentTense", "Verb", "VerbPhrase"]
▼ 1:
  normal: "me"
  ▶ tags: (2) ["Pronoun", "Noun"]
▼ 2:
  normal: "about"
  ▶ tags: ["Preposition"]
▼ 3:
  normal: "installing"
  ▶ tags: (4) ["Gerund", "PresentTense", "Verb", "VerbPhrase"]
▼ 4:
  normal: "certificates"
  ▶ tags: (2) ["Noun", "Plural"]
```

What skills could we add?

- Interfaces to our product (more context-sensitive)
- Rating content, providing feedback, users adding tags
- Possibility to report bugs in the product (link to bug tracking?)
- Opening reference information browsers?



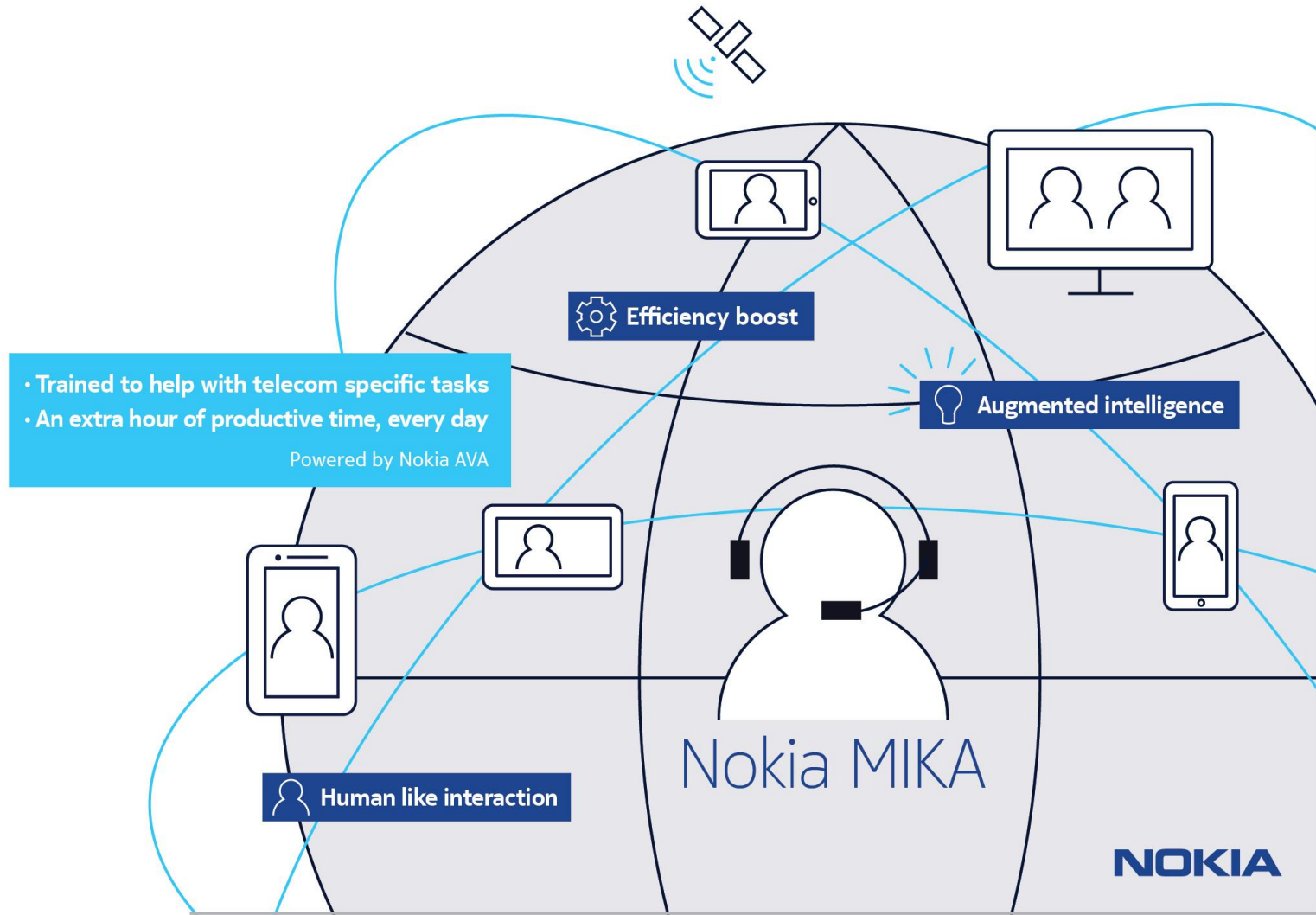
Example Enterprise-level chatbot: MIKA

[YouTube link](#)



ON THE RADAR
Awards

GLOTEL
GLOBAL TELECOMS
AWARDS 2017





Thank you! Questions?