AI and I: Chatbots, assistants, and the Future of Customer Support

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Who am I?

• Lead UX Researcher at Travel Republic
• PhD student at University of Bristol
• Author of *Universal UX* book and a bunch of other writings
• Over 10 years in the industry
• Worked in product and project management, localization, content management, and development
Our relationship with intelligent systems is being redefined.
Nearly 30% of recently installed apps are used only once.
Over 65% of customers aged 18-44 use mobile for service support more than once a month.
Texting and messaging can constitute up to 50% of our on-phone behaviour.
You don’t need to install an app to access a chatbot. You can just use your messaging platform of choice.
Markets like China have already learned the value of common mobile platforms.

WeChat is a social platform that has support, e-commerce, and banking facilities available, all in one app.
Chatbots are the new apps.

85% of all customer service interactions will use chatbots by the year 2020.
A bit of history.
The Question-Answering System

Chatbot History

- The pre-historical chatbot.
- 1970s rule-based Apollo missions and geologist applications.
AIML Chatbot History

- Released in 2001 and discontinued in 2011, AIML (Artificial Intelligence Markup Language) was a significant step up.
- A.L.I.C.E was one of the first clients.
All of these systems were rule-based and limited syntax. They did not rely on real learning, but on hard-coded responses.
Chatbots depend on linguistic data to provide meaningful answers. But things can go wrong on the input. That's why a solid parser and NLP layer is necessary.
Input: What's the weather?
Input: What's the weather?
Input: What's the weather like?
Input: How is the weather?
Input: Yo, gimme the weather.
Input: I wantz forcast fo' shizzle.
Chatbot Types

- Chatbots are merely an interface.
- They are not a "smart system" in and of themselves.
# Chatbot Types

## Domain

<table>
<thead>
<tr>
<th>Domain</th>
<th>RETRIEVAL SYSTEM</th>
<th>GENERATIVE SYSTEM</th>
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<tbody>
<tr>
<td>OPEN DOMAIN</td>
<td>Impossible (for now)</td>
<td>Closest to True AI</td>
</tr>
<tr>
<td>CLOSED DOMAIN</td>
<td>Rule-Based</td>
<td>End-to-End</td>
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Chatbot Types

Domain

- Domain-specific chatbots constitute the bulk of bots now available.
- The wider the domain, the shallower the conversation tends to be.
- The narrower the domain, the more involved the chatbot can be.
Humanizing the bot. Turing's test.
Metadata can be leveraged to establish intent.
But it is not the be-all.
An open world for deep learning.

Big players like Facebook FAIR and Google Brain are developing systems to take these ideas further.
Deep learning can help expert systems to acquire, process and re-deliver information.
Facebook created “Lara”, a chatbot with deep learning capabilities to serve as a matchmaker for singletons.
From expert to agent.

- There is a world of difference between an actual AI and a chatbot.
- A chatbot is merely an interface.
“Intelligent” Content?

“Intelligent” content can be completely inert.
The processing layer is where the actual intelligence lies. That’s where Machine Learning lies.
Multiple service layers which process and use content. Simple front-end layer that streamlines access to this.
Chatbot Design
Chatbot Frameworks

- API
- Wit.ai (Facebook)
- Microsoft Bot Framework
- Siri (Apple)
- DialogFlow (formerly Api.ai)
Chatbot Platforms

SMS, Facebook Messenger, Slack, Cisco Spark, Amazon Alexa, Google Home, Skype, Kik, Twilio, Line, Telegram, Twitter.
Chatbot Design Tools

1. Motion.ai – SMS, Facebook Messenger, Slack, Email, Smooch and Web-based conversational UI.
2. Chatfuel.com – Facebook Messenger
3. DialogFlow – the most integrations.
4. SuperScript
5. DeepText
Basic Chatbot Concepts

- **Entities**: what the bot can talk about
- **Intent**: what action does the user want
- **Context**: additional information about the user and intent
- **Response**: action triggered by the bot
What Do Users Want?

- Speed and responsiveness: avoiding queues and delays in response.
- Clarity and efficiency: “simple prompt and GO” is an attractive model for interaction.
- Personability: the chatbot should be uncomplicated in its interaction, but still affable.
- Simplicity: the bot should offer the most immediate solution
Typical Use Cases

- Guidance in the midst of a process
- Resolution of an issue
- File a complaint about the product
- Make an order or a purchase
Customer Support
Use Cases
Use Case #1

Guidance in the midst of a process.
Chatbot as Support Agent

• Learn about the ongoing issue
• Distinguish intent
• Complement with information
• Context is important
• Relevance and responsiveness are key.
Conversational UIs can assist the driver in making decisions, assuming control, getting to the destination, and sorting out technical issues.
Use Case #2
Resolution of an issue
Chatbot as 1st Line Support

- Acquire as much information as possible about the intent
- Analyse and categorize the issue
- Resolve if possible
- If not, transfer to human agent
Chatbot as 1st Line Support
Use Case #3

Information request.
Chatbot as Reference Provider

- Analyse intent
- Summarise and reference relevant materials
- Search across FAQ, knowledge bases, reference materials
Case Study: Vodafone “Hani”

- 80,000 questions per month
- 75% reduction in calls to call centre
- Same technology used by contact centre staff
Use Case #4

Feedback on product.
Chatbot as Negotiator

- Typically negative experiences
- Feedback with resolution difficult to standardise
- Chatbot cannot handle the subtleties of a negotiation
- Typically handed to a human agent
Hi

Hello, how can I help you?

The stove isn't working

May I suggest a raw vegan diet as an alternative?

:-(
Best Practices on Chatbot UX
Tone and Voice

• Chatbots should never be presented as an AI or, even worse, a person.
• Users are much more forgiving when they know the chatbot is a virtual assistant.
Tone and Voice

• Some interactions might be better designed by using pre-typed commands.

• The pre-defined commands should remind the user of the main task at hand.

• Plan for ambiguous or incorrect inputs. Spelling is usually a main issue.

• Avoid turning the chatbot into a wizard or step-by-step
The personable brand.
The chatbot can be a perfectly personalised brand ambassador.
But this is just the beginning.

Knowledge networks will grow, and frameworks will become more standardised.
You could literally search across millions of products and datasets. You will not rely on a single point of contact for a product.
The Future of Support

- Analyzing context and intent
- Summarizing content
- Simplifying content
- Delivering content
The end goal is to democratize knowledge.
AR and VR.

Capture the process as it’s ongoing.
Supporting the Human through a machine.

Internet of Things.
From chatbot to expert system.
You can give the expert any data and it would process and deliver you a short version or explain to you.

- Photos
- Videos
- Essays
- Books
- Political speeches

...Probably still out of reach.
The best way to predict the future is to invent it.

– Alan Kay
Show’s over. Thank you.

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