

WHY SHOULD WE LEARN TO TALK TO COMPUTERS

Chatbots, email bots, salesbots and AI Assistants are replacing human beings in many sectors. Time for engineers to level up knowledge of Conversational AI, writes educator **Debashis Guha**



SHUTTERSTOCK

telephone and text chat. Chatbots are common in most business websites that help consumers search products or register complaints etc. Human phone answering teams have been replaced by speaking chatbots. These chatbots can interact as human responders and are easy to deploy in bulk. It can be equipped with local knowledge and language skills for better customer satisfaction. Salesbots are in its early stages but may replace sales team and will soon be used for selling products.

A third major application is the use of email bots to organise and respond to email streams. Many business users employ email extensively and use autoresponders only to generate pre-programmed short sentences. This is likely to be a major application in the future.

However, the most transformational use of Conversational AI will be the redesign of computer's human interface. Applications like Apple's Siri, Amazon's Alexa, Microsoft's Cortana and Google's Assistant already show us the way to the future. Use of keyboards and pointing devices to interact with a computer may become obsolete quite soon. The new interface will be an AI assistant that will take the instructions just by saying 'Hey Siri' or something similar.

It will be our window to our personal data, to the public internet, and to official entities like banks, government agencies, utilities etc. We will talk to our assistant and it will talk back to us, and carry out our searches, online interactions, data processing, and our business and shopping activities.

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One of the most significant developments in Artificial Intelligence (AI) is the development of tools that allow users to talk to a computer. This can be a conversation over the phone, or an audio-visual interaction, a conversation with a humanoid robot, or even an interaction in Virtual Reality. The software and hardware tools that make this possible are collectively known as Conversational AI.

> WHAT IS A CONVERSATIONAL AI

It is a collection of toolboxes with the most important one being Natural Language Processing (NLP). It is a set of techniques used to comprehend natural language text, such as English sentences, and also to produce responsive natural language text. Human-machine dialogue is created through joint text understanding and text generation work.

Modern NLP uses Deep Neural

Networks for text understanding and production. Another set of techniques are used for speech processing, to understand spoken words and to generate lifelike spoken text.

Conversational AI also requires a knowledge base, a collection of organised information that is used to fashion the content of the response. How an organised knowledge base can be used to respond intelligently to questions was illustrated dramatically by the IBM Watson system when it convincingly won the Challenge Event against two human champions in the television game of 'Jeopardy!' Other components of Conversational AI include information retrieval, reasoning, and attention management.

> USE OF CONVERSATIONAL AI

Its utility is increasing in many different domains. One of its principal business applications is in the field of customer support using

GUIDING THE WAY

Conversational AI, no doubt has come a long way, but it is still far from being able to act autonomously. Most companies are looking into implementing a human-driven process where engineers work to create a solution that can make the system effortless. Future engineers need to prepare for the changing market. They should be able to:

- Create next-generation machine learning algorithms
- Have knowledge of Python and more advanced SpaCy
- Conducting research in speech and language processing
- Ability to build dialogue model in deep learning

