



Assistant for human #1

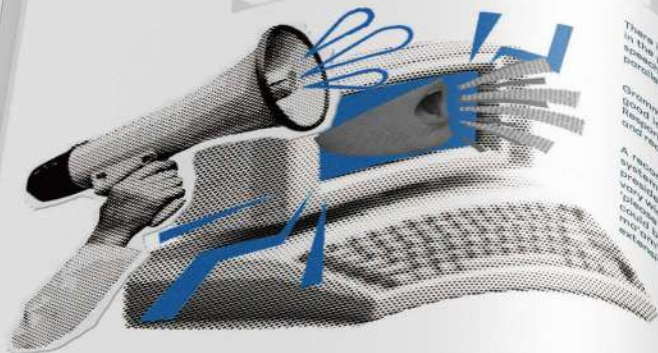
Talking To Machines

Tom Geller

Talking To Machines



1 Executing Commands



There is a clear need between the spoken command and its fulfillment, though. The first step in the process is to convert the audio of speech into meaning. The two main applications of speech recognition—duration and command recognition—have forced researchers to pursue parallel methods that balance vocabulary, accent, and context needs.

Command recognition is optimized for situations where the program has a very good idea of what the speaker will say. Its most common application is in interactive Voice Response (IVR) systems, such as those that some airlines use to interpret spoken reservations and respond with the information. These are often conversational.

A good example of a system that asks the speaker a question, then listens for the response. As a result, the system must understand only a limited vocabulary. But according to Dan Faulkner, vice president of Nuance, a company that makes software for IVR systems, responses can vary widely. For example, how restricted the domain is. "When a phone prompt system tells you to 'say yes or no,' we might be pretty confident the speaker will say 'yes' or 'no.' But 'yes' could be 'yep,' 'yeah,' 'uh-huh,' or 'mhm.' So even for something as simple as 'yes' or 'no,' you need quite an extensive list of possible responses."

TALKING TO MACHINES

More than four million iPhone 4S's featuring Siri were sold during its first six weeks, although users might say it's as simple as voice recognition, its abilities go far beyond simple transcription.

SIRI COULD HELP

Siri represents an important moment in when voice recognition, intelligent transcription, and artificial intelligence, mostly in a Siri-like form, are used to make sense of a complex world. As Watson Research executive director Lee Berriman says,

The news about Siri is that it works. People have tried to get computers to answer questions conversationally for at least 15 years, but only now has the technology reached a threshold where people overall like it.

The iPhone's popularity also gives intelligent software assistants wider exposure than they would get otherwise. Roger K. Moore, editor in chief of the Journal of Computer Speech and Language, points out that "the field of research hasn't changed dramatically. What's new is that Siri's brought together several complementary technologies. Our business has been going for many years. Only now, with Siri, everybody knows about it."

OUR DAILY LIFE COULD BE CHANGE

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Talking to Machines

Voice recognition programs like Siri are now capable of understanding spoken commands, recognizing a conversation's context and answering questions in a personalized manner.



When Apple integrated Siri into the iOS operating system for iPhone, it opened whole new doors to new kinds of their phones or used as through them.

The program, which converts spoken commands into a "digital" form, with the use of a "digital" interface, is the most widely distributed example of a cognitive assistant to man.





Learning and Organizing

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Talking to Machines

1 Executing Commands

There is a long road between the spoken command and its fulfillment, though. The first step
in the process is to convert the audio of speech into meaning. The two main applications of
speech recognition—dictation and command recognition—have forced researchers to pursue
parallel methods that balance vocabulary ascent, and context results.

Grammar-based voice recognition is catnip for situations where the program has a very
good idea of what the speaker will say, its most common application is in interactive Voice
Responses (IVR) systems, such as those that some airlines use to interpret spoken reservations
and requests for information. These are often conversational.

A recorded voice asks the speaker a question, then listens for the response. As a result, the
system needs to understand only a limited vocabulary. But according to Don Franklin, vice
president of product and strategy for the Enterprise Business Unit at Nuance, responses can
vary widely. A caller might be asked the question, "When a phone prompt system asks you to
please say yes or no, we might be pretty confident the speaker will say yes or no but, yes, yes
could be, yes, that's correct or yes and in the Southern states some people will say yes, yes,
mid am' on the mean. So even for something as simple as yes or no, you need quite an
extensive list of phrases."

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Talking to Machines

Talking to Machines

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Talking to Machines

Contrast

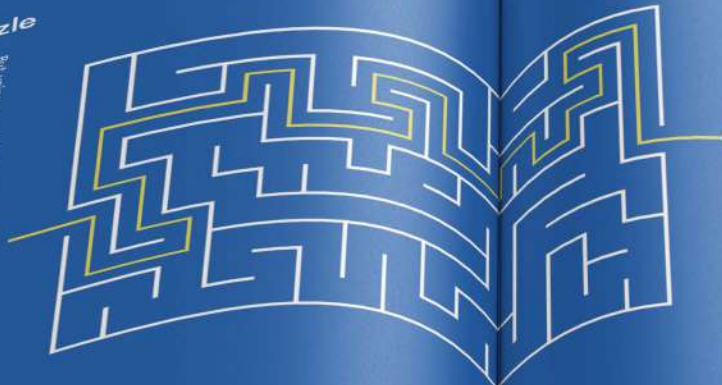
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A language-based voice recognition
optimized for dictation. It makes it
transcribe every word it hears into
vocabulary. It gives up the
variety of accents.

According to Peter M.
the division of Nuance
Naturally Speech
programs no longer
training per

puzzle

But voice recognition is only a small part of the puzzle. Before a computer can schedule that dinner with Lisa, it needs to understand that "dinner" is an event of limited duration, that Lisa is a person whose contact information is found in the device's address book, and so forth.



Some of this understanding came from a Defense Advanced Research Projects Agency (DARPA)-funded project called the Agency for Computerized Language Acquisition, part of the Language Acquisition Research Center that Leary's PAL Group created. The goal was not to voice a program that would understand a language, but to create a program that would be able to understand the meaning of what is in everyday talking and writing, or to recognize and act on the meaning of what is said through an underlying pattern of words. Both desktop applications and Web services.

Investigator C. Raymond and his team faced the challenge of solving a problem that just poses the question: "What does it mean?"

out, "How can we understand the meaning of what is said through an underlying pattern of words? Both desktop applications and Web services."

investigator C. Raymond Perault describes the challenge of solving for analogies in natural language. "Movie titles are typically just phrases in the language," he explains. "The Analysts and the system would have to find that phrase and say, 'Get me the records to solve for as a movie title.' On the other hand, it would make it easy to build a rule-based system as well." Humans, especially, are typically using context, which is difficult to capture in lists, a such as the thematic titles of movies, and the system is taking an analogy from CALO organizations, adding a computer development suggestion to a class of Web site pages, eventually interacting with a person who built the site, and a new approach to a set of data, a company that spun out of ST





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