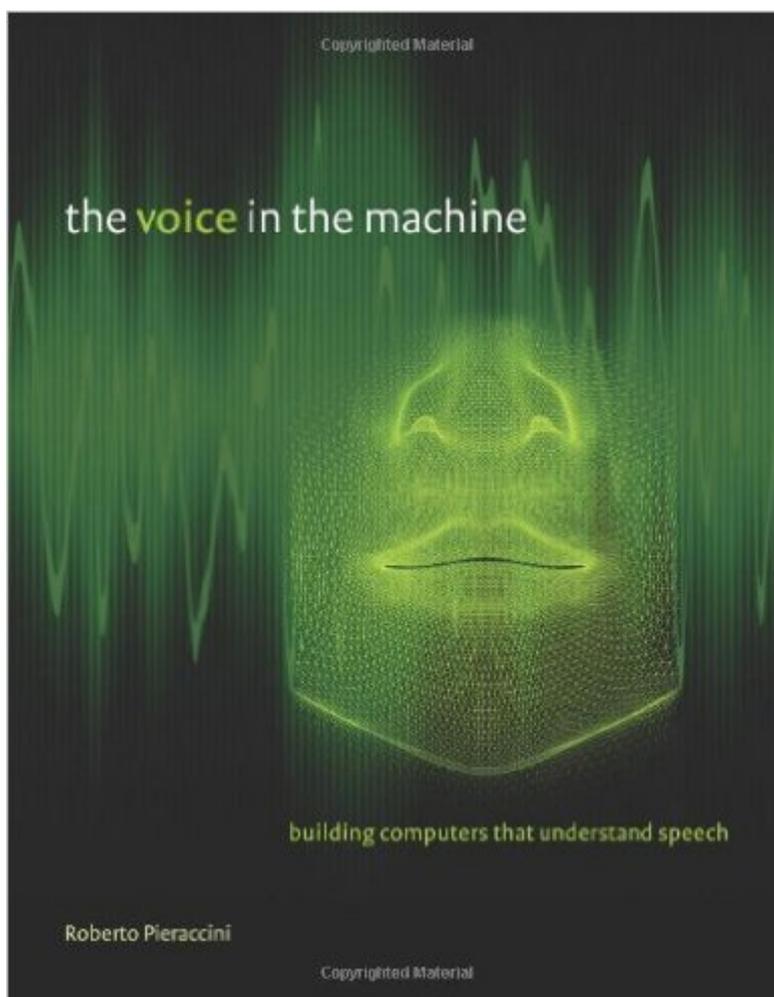


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# The Voice In The Machine: Building Computers That Understand Speech (MIT Press)



## Synopsis

Stanley Kubrick's 1968 film *2001: A Space Odyssey* famously featured HAL, a computer with the ability to hold lengthy conversations with his fellow space travelers. More than forty years later, we have advanced computer technology that Kubrick never imagined, but we do not have computers that talk and understand speech as HAL did. Is it a failure of our technology that we have not gotten much further than an automated voice that tells us to "say or press 1"? Or is there something fundamental in human language and speech that we do not yet understand deeply enough to be able to replicate in a computer? In *The Voice in the Machine*, Roberto Pieraccini examines six decades of work in science and technology to develop computers that can interact with humans using speech and the industry that has arisen around the quest for these technologies. He shows that although the computers today that understand speech may not have HAL's capacity for conversation, they have capabilities that make them usable in many applications today and are on a fast track of improvement and innovation. Pieraccini describes the evolution of speech recognition and speech understanding processes from waveform methods to artificial intelligence approaches to statistical learning and modeling of human speech based on a rigorous mathematical model -- specifically, Hidden Markov Models (HMM). He details the development of dialog systems, the ability to produce speech, and the process of bringing talking machines to the market. Finally, he asks a question that only the future can answer: will we end up with HAL-like computers or something completely unexpected?

## Book Information

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## Customer Reviews

I enjoyed reading this book! It is a comprehensive description of the evolution of the speech technologies focused on the major results of research and the changes of directions that the technology had in the last decades. The last chapter is about the advent of Siri and what will happen in the next future. Reading the book you will encounter many and many protagonists with their anecdotes, ideas and achievements. I see two main categories of people that might gain great advantage by reading this book. The first are those not involved in the evolution of speech technologies, the second are the insiders, who were involved either in research or at any level, even non technical, in the speech industry. For the former the book explains how a complex technology evolves in reality with all the roadblocks, turns, and steep paths while the author puts all his effort in explaining very complex engineering problems without formulas or technicalities, but using simple and enlightening analogies and examples. The book will help them to understand what is behind Siri, Google Voice, or every other speaking machine. For the latter, the professionals of the voice science and industry, it is very interesting to see how the author assembles a map of the past and current technology, the motivations and the forces behind it, and shows how all the pieces fit together in a technological landscape of the area in which they are currently engaged. For them it is like stepping out for a minute to gain a vantage point perspective and different points of view. I belong to the second category because I spent 20 years in R&D in the research lab in Italy where Roberto Pieraccini moves his first steps and then I was deep involved in the newborn speech industry.

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