

Chapter 2: The Intellectual History of Artificial Intelligence

Top Ten Salient Sentence Strings

1. As ridiculous as this sounds, its similarity to the current wave of concern about superintelligent machines and runaway AI posing a threat to humanity is stronger than a casual observer might expect. Little or nothing in the field of AI today, other than wild speculation, supports these concerns—at least for the foreseeable future. And if it ever does, we're likely to have plenty of warning.
2. To better understand how the aspirational connection between machine and human intelligence clouds and colors our understanding of this important technology, imagine the confusion and controversy that powered flight might have suffered if airplanes were described from the start as "artificial birds."
3. Had McCarthy chosen a more pedestrian term that didn't suggest a challenge to human dominance or cognition, like "symbolic processing" or "analytical computing," you might not be reading this book right now. Progress in the field might have merely seemed like what it is—the continuing advance of automation.
4. A typical smartphone today is literally over 1 million times more powerful than the computing devices available to the early AI researchers.
5. This masterful work brought together recent progress in syntax, semantics, question answering, dialog, logic, knowledge representation, and computer graphics to create an astonishing display of apparent machine intelligence, bearing the implicit promise that we might soon be able to engage in dialog with computers as intellectual peers.
6. As impressive as this dialog is, what it fails to communicate is just how fragile question-answering systems like this were at the time, both in terms of what they could discuss and how limited the inputs had to be. Still, just about anyone—whether an AI researcher or member of the general public—could be forgiven for suspecting that human-level AI was just around the corner.
7. As an interesting historical aside, the idea of capturing expertise in "if-then" rules dates back at least to the seventeenth century bce, when an ancient Egyptian papyrus scroll codified the knowledge of surgeons in this form
8. Learning is not inconsistent with the physical symbol system hypothesis; it's just not obvious a priori how it fits in.

9. Learning presumably comes mainly from experience, practice, or training, not solely from reasoning, though this can certainly be helpful. To say that something is learned implies that it is more than just captured and stored, as data is in a database—it must be represented in some way that it can be put to use.
10. But what an artificial neural network actually detects is incredibly sophisticated and complex correlations between the images—regardless of whether they are rotated, stretched, partially obscured, or the like. After training on perhaps millions and millions of images, it develops the ability to detect similar patterns in pictures not presented to it previously. In other words, it learns to identify pictures of cats all by itself.