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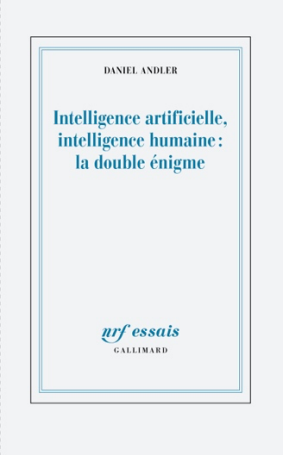

Artificial intelligence, human intelligence: the dual enigmas

What is the relation between artificial intelligence and human intelligence? What should it be, what will it likely be as it evolves? Those are questions as old as AI itself, and there is no shortage of answers to be found. The recent spectacular arrival in the public arena of ChatGPT and with it generative AI has brought the debate to a new level of intensity. Any answer depends on what we mean by artificial intelligence and what we mean by human intelligence. And neither of these notions is self-evident.

The first objective of the book is to present artificial intelligence, which is both a project and a series of technical achievements. Far from dating from yesterday, the project was born after the Second World War, and is rooted in a conception of the human mind which inspired both AI itself and cognitive science. It is impossible to understand today's AI and seriously speculate what its next steps might be without having an idea of its trajectory. Early AI, born in the 1950s, took conscious reasoning as its paradigm. From the 1980s onwards, AI a sharp turn away from this so-called "symbolic" AI, and espoused "connectionism", rebranded as "deep learning", which places perception at the heart of intelligence. Although AI owes deep learning its present triumph, the two approaches co-exist, as becomes evident by taking a closer look at the systems produced by AI. Although pitched at different levels of description, both symbolic and connectionist systems belong to the same special realm, that of input-ouput algorithms that produce solutions to certain problems encountered by human cognition.

The book then turns to human intelligence. While most psychologists understand it as the ability to solve problems, the author proposes to view it as the ability to deal with situations: an individual's intelligence consists in the way in which she acts in the concrete situations that she encounters. Nor does it reside in any specific mental process or function. Rather, it is a norm that applies to behavior: it qualifies the fit between an individual and his world. But there is no objective standard against which this fit can be measured, in the way a piece of string Is measured in inches or the power developed by a cyclist when climbing a pass is measured in kilowatts. Yet intelligence is not a purely subjective matter: like aesthetic or ethical judgments, it gives rise to reasoned debates which often, but not necessarily, lead to consensus.

The distinction between situation and problem (as made precise for the purpose of the analysis) is crucial: a situation presents itself to an individual in the here-and-now in the form of a call to act (including mentally) in a particular context. Human intelligence manifests itself in the way the human agent organizes context — an operation that for an intelligent artificial system makes no sense. It does not encounter situations. It only solves problems that human agents put to it.

Now is often happens that when facing a given situation, a human agent will formulate a problem, one whose solution, she believes, will indicate how best to act. It is only at this point that artificial intelligence can help humans, and in fact it can solve an ever-increasing variety of problems.

This is how the work sets out to resolve two closely related enigmas. The first is that human intelligence, although it undoubtedly results from our mental capacities, and manifests itself in every situation thanks to the particular deployment of these capacities, does not reside in any of the components, or combination thereof, uncovered by cognitive science. (This is in line with the common intuition that it is elusive.) The second enigma is that despite its spectacular progress, artificial intelligence, while constantly aiming for human intelligence, does not come significantly close to it.

What place, then, should be assigned to such a powerful intellectual tool, which is devoid of intelligence in the human sense of the term? This is the central question in the ethics of artificial intelligence. It is not a matter of deploying artificial intelligence in an ethical way - how can we ensure that the introduction of intelligent artificial systems takes place under the right ethical conditions? The more basic question is whether, when and under what conditions it is ethical to deploy AI, in view of its expected and probable net contribution and the concrete conditions under which the deployment would be carried out.

Yet the profession, encouraged by its recent successes, forges ahead, and aims, at least officially, to catch up with and even surpass human intelligence. The race to give its systems ever-greater autonomy, which in the eyes of their designers is an essential part of true intelligence, is in fact leading us towards an unknown fraught with threats. What artificial intelligence should bring us is not colleagues or replacements, but docile assistants of a new kind, with whose help we may be able to solve some pressing problems, both small and large.

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