

# The Consciousness' Drive

Charles Cole

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Information Need and the Search for Meaning

 Springer

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# Preface

Needing information and searching for that information are things we do constantly every day of our waking and sleeping lives. We have always done this as a species: needing, finding, and using information to go about our business, to get through life relatively intact. With Google and mobile phone technology, this sort of low-level information search—the location of our next appointment, the weather forecast—has become more systematized. We have to clearly formulate our information need into a query, then select which source in the results list is the most relevant. But there is a difference with the advent of this systemization of information search. The information economy is, with the ubiquity of high-level information at our finger tips, transitioning into the artificial intelligence (AI) economy with the emphasis on new knowledge searching and production. Google now allows us to explore information when we need to produce new knowledge. We have to construct the new knowledge from the information but the effect of the search is the new knowledge production inside our heads.

These can be small knowledge production events like identifying a problem at the office. But these new knowledge production events can be important like discovering cancer drugs or solving a rocket problem so we can go to Mars.

The problem with using information search to produce new knowledge, both on a small, day-to-day basis, and for the much larger more important issues, is that we as humans don't know our real, deep-level information need in these situations, so we have to make do with a compromised-level of the need, where we have to guess at what we don't know but need to know.

I began to link information need levels and knowledge production in my previous book (Cole 2012). But that book had many references to previous research and was aimed at the scholar community.

In this book, I wanted to make the writing more conversational for a broader readership, keeping my references to research material to the bare minimum. I copied the structure of a detective novel, building my argument to a climax in Chap. 16. For our video game, video-on-demand times, I visualized the ideas that form the structure of the book's thesis or argument in over 90 original diagrams.

But above all, I set the link between information need and knowledge production in evolutionary psychology, a perspective people are reading and talking about. I step back from the minutiae of cognition to go as big-picture as humanly possible. In a way, it is a return to our sources: how we humans naturally think, and why we naturally search for new information because our consciousness drives us to need it.

There is another reason for my change in emphasis between the 2012 book and this one, an intervening factor: the rise of artificial intelligence (AI) as a topic of general discussion in the newspapers. *The New York Times* predicts that in a little over a decade from now up to a third of US jobs will be transformed by AI (Lohr 2017). AI-equipped devices or machines can now learn to respond to new stimuli they find in the environment, for which they haven't been programmed for in advance, by collecting large quantities of environmental data and ascertaining patterns from those data. We will soon be in the world of *2001: A Space Odyssey*, director Stanley Kubrick's prescient 1968 prediction of Hal, a super knowing AI-equipped computer, taking control of the spaceship.

What became evident to me is that the sciences involved in information search (computer science and information science, as well as cognitive science and psychology) must really look at how humans relate to the world, their consciousness, to distinguish human thinking from the computational thinking of the AI-equipped machines that will soon be living and working amongst us.

I asked myself: what is the uniquely human factor in finding and using new information to produce new knowledge. I'm thinking about big knowledge events underlying discovery, inventions and creativity. What is this exceptional human factor that can't be imitated by AI algorithms? Is there in fact an underlying aspect of our thinking that can't be imitated by these machines?

Humans actually ignore a great deal of data around them when they think. We know what information is generally relevant to our task, and ignore the rest. That is why we are so efficient, so able to make decisions, usually the correct one, quickly and without fuss. AI can certainly do this, and eventually it will make these calculations about what is relevant and what is not relevant faster and more efficiently than we can. I examine this in Part II of this book. But that is only half of our human exceptionality. What is the other half?

The other half of our consciousness' exceptionality is why we need new information, why we are constantly searching for it, not just to get by, but to produce new knowledge. We need information to perform tasks we have already done. Machines can do this. But we humans also seem to need information for things we don't have an immediate or even a potential use for. This is the more mysterious x-factor in our human species makeup that cannot be imitated by AI algorithms. It is something about our consciousness, its drive or intention in seeking out new information in the world around us that makes us an exceptional species. Somehow, the same world we've lived in for hundreds of thousands of years, changes. Not the world, but the way we see it. We see different information. We can not only recognize this new information, but we can bring it inside us where we use it to construct new knowledge.

Search engines must be designed in consequence in our new knowledge economy, shifting the searcher's search from what she already knows to what she doesn't yet know but needs to know. This is the true genesis of new knowledge production, not the pattern recognition learning of AI-equipped robots.

That is the perspective on information need, information search, and search engine design taken in this book.

\* \* \*

The book is structured in three parts, with each part containing an Introduction and Conclusion that relates the theories and models of the book to the real conditions of a searcher conducting an information search using a search engine:

- Part I defines the exceptionality of human consciousness and its need for new information, how we frame our intersection with the world unlike any other species.
- Part II investigates the problem of finding our real Q1-level information need during information search: how we are blocked from finding it by our exceptional ability at framing our intersection with the world.
- Part III elaborates the book's solution to this framing problem and its operational implications for search engine design for searchers whose objective is the production of new knowledge.

There have been many influences in my 25-year career as an information scientist. I would like to acknowledge TD Wilson, Carol Kuhlthau, Brenda Dervin, Tefko Saracevic, Nicholas Belkin, Amanda Spink, and Marcia Bates. And there were professors during my McGill undergraduate days I would also like to acknowledge, as their teachings, which I didn't understand at the time, have unconsciously guided me in my research: Peter Hoffmann (German history) and Charles Taylor (philosophy).

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