

What Is Philosophy of Computing and Information Technology?

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Abstract: *The twenty first century is considered as influenced by the Information and Communication Technology (ICT) which has proven its efficiency in every area of daily life, no one can honestly conceive of a future society in which there are no more ICT facility, no matter what risks may be implicit in it.*

1. INTRODUCTION

According to the International Telecommunications Union (ITU), Internet users increased from 400 million in 2000 to 3.9 billion an estimated of 51.2% of the global population in 2018. In fact, there are 7.67 billion mobile cellular subscribers, almost equal to the total population of the world [1].

Philosophy has been described as having taken a "computational turn" relating to how computers and information technology shed new light on conventional philosophical issues, providing new tools and principles for philosophical reasoning, and pose theoretical and practical issues that cannot easily be answered within conventional philosophical frameworks [2]

According to Luciano [3], many of the writers who spoke of a "computational turn" correctly interpreted the practical and conceptual changes brought about by Information and Computation Sciences and Information and Communication Technologies have brought about a macroscopic transition, not only in science, but also in philosophy. It was the so-called "technology revolution" or "information revolution".

The "Information Age" has been brought about by the fastest growing innovation in history. The complete inescapability and high power have raised ICT to the status of the trademark innovation within recent memory, both logically and ichnographically.

The Computer revolution, the information Turn and the Information and

Communication Technologies Society have recently generated a lot of theoretical problems, uncertainty and chaos, a lot of new concepts and unforeseen issues, a number of new ways to explore old theories and problems, and so on. This new combination of contextual uncertainty and virgin territories is the kind of "reclaimable property" which philosophy is traditionally called upon to discover, clarify and chart. In this way, the contention goes, today we need a Philosophy of Information, saw essentially as a typical improvement throughout the entire existence of philosophy, a significant development of the philosophical outskirts whose time has plainly kind of philosophy that come, yet which unquestionably won't be the last.

2. PHILOSOPHY

Philosophy is a way of thinking about the world, the universe, and society. It works by asking very basic questions about the nature of human thought, the nature of the universe, and the connections between them. The ideas in philosophy are often general and abstract [4], but we have to understand it in an analytic, modern, Western philosophy sense.

- **Analytic philosophy** because it primarily concerned with the logical analysis of concepts rather than literary, poetic, or speculative approaches
- **Modern philosophy** because it is a technical term that usually refers to the has been done in the early 17th century
- **Western philosophy** in the fact that philosophers have worked primarily on it in Europe and North America — though, of course, there are many philosophers who do analytical philosophy in other parts of the world.

The philosophical search for truth is a never-ending process, evolution in philosophy consists, at least in part, of constantly bringing to light the secret presuppositions that find their way deep into our thought, too deep down for us to be even aware of them. But whatever the origins of these presumptions, of which we are ignorant, they must be brought to light and challenged. These bringing to light is what the advancement of philosophy is [5].

2.1 PHILOSOPHY AND SCIENCE

What is the connection among science and philosophy? I hold that way of thinking is on a fundamental level self-governing. At the point when one comprehends what is planned by this, one will see that the case is unassuming and that there are valid justifications for tolerating it [6]. The view comprises of two postulations:

- The Autonomy of Philosophy

Among the major questions of philosophy that can be answered by one conventional philosophical method or another, the majority can, in theory, be answered by philosophic analysis and argument without relying significantly on science.

- The Authority of Philosophy

As long as science and philosophy indicate to answer a similar focal philosophical inquiries, by and large, the help that science, could on a fundamental level accommodate those answers isn't as solid as that which theory could on a basic level accommodate its answers. In this way, ought to there be clashes, the authority of theory much of the time can be more noteworthy on a basic level.

According to Sebastian [7], the difference between science and philosophy as forms of scholarship is found in two sides to the objection regarding subject matters on the one hand, methodology on the other.

In subject matters, it is clear that philosophy explores topics such as cultures, political organizations, etc., about which the natural sciences have nothing to suggest. Science and philosophy cannot therefore be differentiated on the basis of their subject matter alone. The variations are often found in their formal objects and methodologies.

In Methodology, the explanation is that the common sciences look for clarifications in the methods of causal viability and material causation, though philosophy is keen on formal investigation, objectives, and deliberateness [3].

Now a question arises, is Science Philosophy?

On our point of view, we can state that science is philosophy, insofar as investigations and experimental techniques are viewed as "rational" and yield truth.

Nicholas [8], said: "Historically, philosophy is the mother of all sciences. Newton referred to himself as a "natural philosopher", while the term "scientist" did not emerge until the 19th century through the writings of William Whewell." And thus science is a philosophy

3. COMPUTER SCIENCE

Defining Computer Science is an old debate, many researchers have tried to provide different definitions depending on their period. In 1987, Dijkstra [9] tried to explain what computer science is by stipulating that the core challenge for computing science is hence a conceptual one: what (abstract) mechanisms we can conceive without getting lost in complexities of our own making." The problem with Dijkstra's definition is that it ignores implementation issues.

These issues are very important to many computer scientists.

Let's explore Computer Science in its different so that we can have a broad view

3.1 COMPUTER SCIENCE IS THE SCIENCE OF COMPUTERS

Allen et al (1967), define computer science as the study of computers and the phenomena surrounding them by stipulating that: "Wherever there are phenomena ... there can be a science to describe and explain those phenomena, are computers. Ergo, computer science is the study of computers" [10]

In the concept of computer science as a study of computers, "computers" means hardware, programs or algorithms, and all that goes with them. Computer science is a study of computer phenomena, but a few years later, Parberry and Fellows [11] argue that "Computer Science is no more about computers than astronomy is about telescopes, biology is about microscopes or chemistry is about beakers and test tubes" and hence for them computer is not a science but a subsection of mathematic

3.2 COMPUTER SCIENCE IS THE STUDY OF ALGORITHMS

We can think of algorithms as computer programs, but CS is far wider than writing programs. This includes the scientific study of algorithms: what are their essential capabilities and limitations

3.3 INFORMATION TECHNOLOGY

Information technology (IT) is the use of any computers, storage, networking and other physical devices, infrastructure and processes consisting of three basic parts: computational data processing, decision support, and business software [12]

According to SearchDataCenter [13], IT is used in the context of enterprise operations as opposed to personal or entertainment technologies. The commercial use of IT encompasses both computer technology and telephony.

4. PHILOSOPHY AND COMPUTING

Philosophy has been described as having taken a "computational turn," referring to the ways in which computers and information technology shed new light on traditional philosophic problems, provide new tools and concepts for philosophic reasoning, and present theoretical and practical questions that cannot easily be solved within traditional philosophic frameworks [3], and hence Philosophy of computing is the investigation of the basic nature and principles of computers and the process of computation

Luciano [14], organizes the different relations between philosophy and computer science with its ICT applications into four areas:

4.1 SOCIOLOGY OF THE INFORMATION SOCIETY

The term information society has been proposed to refer to the post-industrial society in which information plays a pivotal role and have five characterizations: technological, economic, sociological, spatial, and cultural [15].

a. Technological: this refers to the way the wide-ranging innovations in information and communications, from cable and satellite television, personal computers, to internet has defined a new social order

b. Economical: The structure of the economy and its recent changes, in which information has come to play a defining role, has been described to constitute the information economy

c. Sociological: Sociologists have conceptualized the information society in terms of changes in occupational structure and consider the preponderance of information work in occupations to have created a new social order

d. Spatial: The impact of information networks on the organization of space and time has been the focal point of this discourse, therefore the concept of time shifting and space shifting is gaining place in this century of

Globalization

e. Cultural: The cultural conception of an information society is closely related to the information environment in which we now live. Access to a wide range of news and analysis, entertainment, personal and community help from across the globe through various media. In this new social order, while there is the freedom of choice with regard to a particular medium, the penetration of some level of information in everyday life has been inevitable

4.2 THE PHILOSOPHY OF INFORMATION

Philosophy of Information deals with the philosophical analysis of the notion of information both from a historical and a systematic perspective [16].

According to Anthony [17], the philosophy of information is merely philosophy concerning information and an attempt to determine what it is in the same sense that the philosophy of science is philosophy concerning science and what it is.

4.3 THE PHILOSOPHY OF AI (ARTIFICIAL INTELLIGENCE)

The philosophy of artificial intelligence is a collection of issues primarily concerned with whether or not AI is possible, with whether or not it is possible to build an intelligent thinking machine [18].

What seems worth anticipating here is that, in the past, the heated debate on the analogies, or even the potential identity, between brains and computers appears to have had the unfortunate counter-effect of keeping a number of philosophers away from other aspects of the digital revolution of equally profound philosophical interest.

4.4 PHILOSOPHY AND AIDED INTELLIGENCE

Aided intelligence is an alternative conceptualization of artificial intelligence that focuses on AI's assistive role [19], emphasizing the fact that cognitive technology is designed to enhance human intelligence rather than replace it.

The philosopher may be more interested in the root of actions performed by the aided intelligence in supporting human, and then the nature of these actions.

5. CONCLUSION

In summary, philosophers ought to have the option to benefit as much as possible from what has been made simpler by ICT, get the best out of what has been made feasible just because by ICT, lastly propose new ICT applications for future needs

In this a context, wondering what is implicit in the relation between computing, ICT and philosophy means to ask not only whether philosophers may be able to exploit recent technological innovations for their work, and if so, to what extent, but also what it means for a philosopher to be abreast of the technology of our time.

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