

In collaborazione con



March 2, 2018 - Università di Milano-Bicocca

The "Università degli Studi Milano Bicocca", in collaboration with "The Innovation Group" organises on March 2, 2018 in Aula Martini, Building U6 at the "Università degli Studi Milano Bicocca, a:

SEMINAR:

"MYTHS AND REALITY OF ARTIFICIAL INTELLIGENCE"

Theoretical issues and practical developments

Welcome speech: Giancarlo Mauri, Head of Department of Informatics, Systems and Communication (DISCo)

Speakers:

- **Stefania Bandini**, Complex Systems & Artificial Intelligence Research Center Department of Computer Science, Systems and Communication University of Milano-Bicocca
- **Giorgio de Michelis**, Full Professor of Interaction Design and Informatics for Organizations, University of Milano-Bicocca
- **Derrick de Kerckhove**, Professor, Università Federico II Napoli, formerly Director McLuhan Program in Culture & Technology, Toronto
- **David Orban**, Founder, SingularityU Italy Summit
- **Giacomo Tesio**, Programmer
- **Carlo Batini**, Presidente del Corso di Laurea Magistrale in Data Science, University of Milano-Bicocca
- **Roberto Masiero**, Presidente, The Innovation Group

THE THEME OF THE SEMINAR:

Which are the theoretical, philosophical foundations of what we call “Artificial Intelligence? And which are its main social and ethical implications, challenges and concerns?”

According to Luciano Floridi (“The Fourth revolution”) two souls of A.I. are facing each other: the engineering and the cognitive one. This brings us back to John Searles “Chinese room” argument, or, in other terms, to the famous “Turing test”.

Are we really facing a “weak” and a “strong “A.I.”? And do we agree that what we see as major achievements of A.I. are simply the results of powerful syntactic engines, capable of manipulating enormous arrays of data, but structurally unable to achieve the semantic level, where you have to manipulate not simple data, but information – data with a meaning?

As Floridi says: “The snag is semantics. How do data acquire their meaning? This is known in A.I. as the “Symbol grounding process”.

Somebody, as Eric Schmidt, believes that we are fast approaching this level. Floridi on the opposite thinks that we are very far from it and that, while the engineering souls of A.I. has achieved excellent results, the cognitive approach didn’t go very far at all.

And while, according to a purely “syntactic” approach, the statement of Chris Anderson, «The end of theory: The data deluge makes the scientific method obsolete» (2008) makes perfect sense, this statement on the opposite, according to a semantic perspective, could become very questionable.

All this has to do with a major debate related to the philosophical and the knowledge theory; but relevant issues are even being raised as far as the ethical implications of A.I. are concerned, for instance as far as the relationship between predictivity and anticipation is concerned.

And all these theoretical issues entail major practical implications: is it legitimate talking about “intelligent” refrigerators, laundry machines, or even “intelligent” smartphones with a neural processor, or was it right E. W. Dijkstra when saying that “The question of whether a computer can think is no more interesting than the question of whether a submarine can swim”?

On the other hand, there are schools of thought that on the opposite theorize that in a few decades the intelligence of the machine will surpass the combined brain power of all human beings combined.

Consequent practical perspectives are, of course, very different. But we should not proceed with engineering new architectures, devices, and tons of gadgets, without discussing in depth the underlying theoretical issues.

This is the reason why we believe that this opportunity of sharing and discussing different views will be welcome by all, philosophers, academics, practitioners, and industry leaders.

APPENDIX

PRELIMINARY ABSTRACTS:

Stefania Bandini, Complex Systems & Artificial Intelligence Research Center Department of Computer Science, Systems and Communication University of Milano-Bicocca

“Artificial Intelligence: breaking borders towards new challenges”

Artificial Intelligence (AI) is becoming a popular scientific and technological issue, pervading future scenarios of our living. Many applications of consolidated AI-based solutions are active and used in several fields of everyday life, despite of its visibility. AI approaches are now used to improve more traditional ICT techniques, allowing to break the borders of disciplines through new integration possibilities, and offering unexpected spaces to the creation of a new generation of complex technological systems. In the "back stage", AI scientists are facing the era for the development of innovative ideas, models and solutions which will feed our research and living moods. The main purpose of this talk is to illustrate some of the future AI-based scientific and technological scenarios in order to give a taste of its most challenging (but realistic) goals, from cyber-physical systems to new forms of nature-based and collective intelligence.

Giorgio De Michelis, Full Professor of Interaction Design and Informatics for Organizations at the University of Milano-Bicocca

“Intelligent Machine or Knowledge Technology?”

In the first years of the third millennium the discussion about Artificial Intelligence regained momentum, when, thanks to the development of hardware and software technology, leading researchers and practitioners of Artificial Intelligence raised with new systems, new visions and new theories the challenge of machines versus human intelligence. In this text I will shortly survey this debate, avoiding to discuss the ethical legitimacy or the reliability of the objectives of Artificial Intelligence. Even if human intelligence has dimensions that artificial ‘super’ intelligence can not take into consideration, cognitive computing systems, in fact, have become really and definitively better, at the level of pure rationality, than human beings. Instead of putting machines in competition with human beings I suggest to consider them “rational” aids and/or supports of the latter.

Keywords

Cognitive Computing, Situated Knowledge, Rationality

Derrick de Kerckhove, Professor, Università Federico II Napoli, formerly Director McLuhan Program in Culture & Technology, Toronto

“The acceleration of Artificial Intelligence by connectivity”

Connecting intelligences is not reserved to humans. Now machines do it too.

It is largely once the old expert systems began to interconnect among themselves, along with a new, critical, access to huge data sources, that AI came back to the fore of public attention, where it had been lying fallow for decades.

There is evidence that AI works in networks more and more connecting and interconnecting with data banks as well as screens and machines.

The growing presence of Big Data is changing the concept of intelligence itself.

It is quite possible to imagine, and eventually construct, a sort of Universal AI that would access all programs, all data banks, all communications systems, all sensors.

People and institutions would simply plug into it, the way we plug into the Internet today. Such a powerful AI would bring with it a kind of datacracy (already shaping up fast in China).

Where does that leave us? At some point, we may have to train AI to provide questions, not only answers.

David Orban, Founder, SingularityU Italy Summit

“Thriving in a world dominated by AI”

Giacomo Tesio, Programmer

“The delusions of Neural Networks”

What is the essence of Neural Networks? Why they need big data set?

Why they work so well in image recognition? Where is the intelligence?

Who is accountable for them? And what are the real dangers?

The hype around artificial intelligence is hurting the AI itself.

Any humble programmer can see that we need a more scientific approach to the matter.

And we have to start by changing the language we use, clearly stating what we cannot do.

Carlo Batini, Presidente del Corso di Laurea Magistrale in Data Science, Università degli Studi Milano Bicocca

“Data Science ethical and knowledge challenges and concerns at a glance”

There are two cultures to reach conclusions from data:

- One assumes that the data are generated by a given stochastic model
- The other uses algorithmic models and treats the data mechanism as unknown

The two cultures are facing each other and their clash, together with the progressive development of a cognitive approach, is raising major knowledge and ethical challenges, that will be reviewed and analysed in the course of the speech.

Roberto Masiero, President, The Innovation Group

“Social implications of the A.I. revolution: should we treat data as labor?”

A.I. is getting better all the time, and is going to transform a host of industries. But the algorithms that make clever machines tick must usually be trained on massive amounts of data, that are mostly provided by users, who “pay” for useful free services by providing firms with the data they crave. Similarly, in order to learn for instance to recognise a face, machines must be trained by human beings who teach them.

This way the data become part of the firm’s capital and a major source of competitive advantage. All the value is intercepted by the firms that actually act as “data refineries”.

Even so, as AI improves, the amount of work made vulnerable to displacement grows, and even more of the value generated in the economy accrues to profitable firms instead than workers, or users who were originally the owners of the data.

But the free-data model is at least partly responsible for the still small contribution of AI to overall productivity growth. A school of thought believes that, rather than being regarded as capital, data should be treated as labour and regarded as property of those that generate that information and provided to firms under fair contracts and related payments, in money or services.

This would break-out the monopsony of the largest digital platforms and unleash a competition that would result in a higher contribution of AI to the productivity of the overall economic system and to a fairer redistribution of the value generated by the data.