HOW I HAVE LEARNED TO THINK
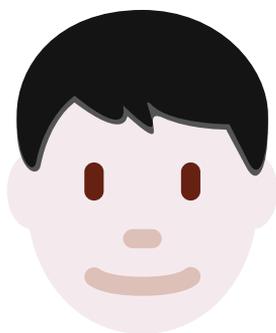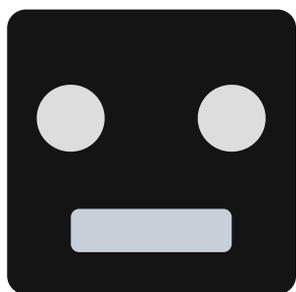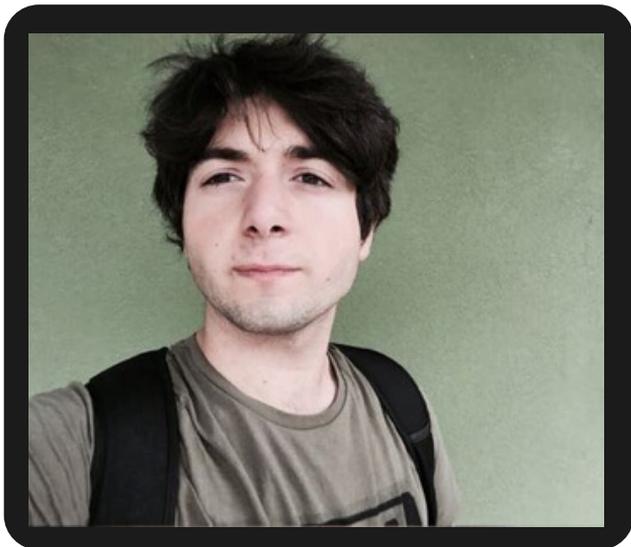
ANTONIO SCAPELLATO

Su di me

Hi!

My name is Antonio and I am the author of this ebook!

Check my website or my social profiles for more! 😃

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Premise

I am not a great writer and I am still far from being able to define myself as a great expert, an appellation that should however be attributed to a person's CV rather than a personal feeling. However, I have decided to write black and white the beginning of a path that I hope will suggest many other pages to write and projects to create.

"To Think"

*"*think v. tr. and intr. [from lat. think] With use absol., and sign. generic, exercise the activity of thought, that is, the psychic activity for which man acquires self-awareness and the world in which he lives: I think therefore I am".

The thought I believe is one if not the greatest power of man, our only true weapon, our only true defense, our very being. "The activity for which man acquires self-awareness and of the world" is in the definition of thought that it is clear that it is a characteristic of man, only we can think no other being or thing known to us can do it. .. quite right?

The search for answers

Since the dawn of time, man has tried to understand the truths about himself and the reality that surrounds him; it was enough to observe the sky and wonder why it had that color, observe a field of flowers and wonder why some were the same as others, but different from others still; we could thus say that thought comes from observation. First, observation allowed man to see beyond the systematic survival of being, observing put us in front of questions that other living beings seemed not to ask themselves.

However, these questions needed answers, answers that had to be researched, elaborated, reasoned, verified. I don't think every one of us today finds himself living the same experience that our hypothetical ancestor lived. A mistake that many people make, trying to judge those who deal with "science" and even worse than those who deal with "vulgar" information technology, is to think that these people follow only convenience, profit or pure fun, but not it is so for everyone.

The search for answers

I speak from personal experience, but I was shocked at my first meeting with a researcher, I was almost enchanted to observe how passionately he talked about his subject, that glow in the eyes and that smile on the face that only those who really believe in it can have.

The computer science that surrounds us

The alarm clock on your mobile phone rings meticulously set every evening
You wake up
Look at the cell phone
Reply to messages
Go to work
Before arriving you will have already looked at your mobile phone at least 2 more times
You stop at the traffic lights
Look up and see a billboard, one of those that dazzle you at night and that change advertising 30 seconds - Finally arrive and record the time of entry, yes with that card that they always ask you at the entrance. Finally come in
You stop at the coffee machine
You go to your office
Use the same card as before to open the door, you never know which intruder might want to enter without authorization - You sit down - Turn on the computer - Turn on the TV to check the latest news - Look at your cell phone for the umpteenth time - In no time, another day is approaching and everything starts again.

The computer science that surrounds us

This is probably the typical day already for many people and it will be for many others.

The mobile phone, the billboard, the "card", the machine, computer, television and many others still are the IT structures with which the human being finds himself related. This is the computer science that always surrounds us with more.
As ignorant of the sector I began to ask myself questions, which as it happens for many young people and very young, very often they do not find any answers.

Growing up luckily for me I never stopped ask me questions, much less look for them answers.

The question arises here: What is the computer science? Why is it increasingly present?

Well first I would write the information I have about the problem, then I would try to operate, think, elaborate, manipulate on that same information and immediately after I would give the solution. Nothing particularly complex. Have you understood everything? If yes, you have just learned what is most important in computer science.

The computer science that surrounds us

Input

• • •

Input
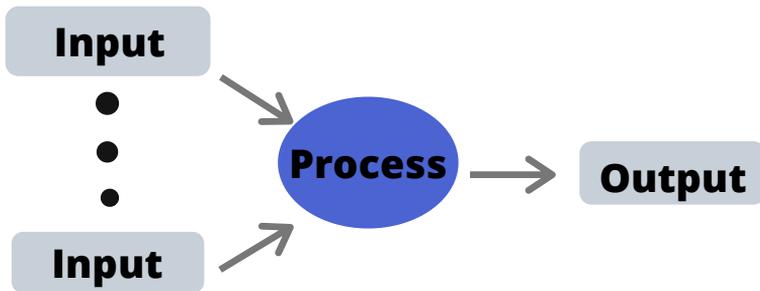
Process

Output

With inputs we mean all the information that we are aware of and with output the result that we are able to draw from processing them. In all this the key word of this science, of this discipline is obtained: "Information".

Information is the heart of information technology and tell me when in history has information ever been so present, so relevant and in constant movement as it is today? The great versatility and the great possibilities of application in every field of man are the factors that have led to the great development of this science which should now be accepted and omnipresent. We can therefore define information technology as the science that deals with information and its collection, their creation and their treatment, through technological supports. Know that wherever there are or could be names, numbers, dates ... and their processing, information technology is and will be present.

A bit of History

As the word itself suggests, computer science is not only information, but also automation. It seems strange that Al-Jazari is credited with the first documented programmable automaton project in 1206. In fact, very little is known about this Arab mathematician and engineer, but his primacy is not unknown. His automaton consisted of a simple ship with four musicians floating on a lake to entertain guests at court parties.

A bit of History

The mechanism shown in the drawing is very simple, but it can well give us the idea how well more than 8 centuries ago man had already begun to "build" other men and replace them. Let's jump almost 3 centuries and arrive at Leonardo da Vinci who designed a more complex automaton around 1495: notes rediscovered only in the fifties in the Atlantic codex and in small pocket notebooks datable around 1495-1497 that show detailed drawings for the construction of an armored mechanical knight, who was apparently able to stand up, wave his arms and move his head and jaw. In engineering Da Vinci shows himself as an incredible luminary capable of noticing, creating and innovating what most people could not even have imagined.

Calculus

Not only has man always tried to automate his work, but he has also tried for centuries to manage calculations and numbers as well as possible.

As early as 2000 BC, the need described above led the human being to seek solutions to perform those functions that characterize modern machines. (Input, processing, result and memories to be able to manage information without it being lost).

Calculus

Far be it from me to say that these projects were not innovative and extraordinary, but the truth that despite all the ingenuity and skill still lacks that element that makes us scream in danger, that makes us scream in artificial intelligence. The situation changes drastically in modern times, thanks to the work of Alan Turing. The

passage in this case is not only technological, but also "philosophical". Alan M. Turing was a British mathematician and cryptographer, considered one of the fathers of computer science and for some (including myself) the father of computer science. Turing's life has not been one of the happiest, on the contrary he has always been forced to face a world that in society from science to culture was not yet ready for a person like him. One of the most incisive events will be the death of Christopher Morcom, the only true friend he had ever died suddenly on June 29, 1927. The fact that Turing was a genius was not so unpredictable. He was a great academic, studied in Cambridge with honors and then moved to Princeton University where he studied for two years, finally obtaining a Ph.D. In those years he published the article "On computable Numbers, with an application to the Entscheidungsproblem "in which he described, for the first time, what would later be called the" Turing machine ".

Dall'uomo alla macchina

"The electronic calculator that is proposed here should be something different, in that it will be able to face and solve problems in their entirety. Instead of repeatedly using human labor to extract material from the machine and reinsert it at the right time, all of this will take care of the machine itself. " Mechanical intelligence - Alan M. Turing The psyche Alan Turing is affected by a series of events from a young age. As an introverted boy, he was often bullied. His only true great friend and he is also thought of love at a young age was called that Christopher was a school friend. One day suddenly dies As I have already explained the "machine", it begins as a project to build a real mechanical brain, this is an element that is underestimated by many even by "experts" in the sector. I think it is very important to keep in mind that the machine, already at the base, is much more similar to man than you might think. In his complete biography published in 2014 you can read his letters and the extreme pain that this event had caused him. "I am so glad the stars were shining on Saturday morning, to pay their tribute as it were to Chris."

Dall'uomo alla macchina

Structure
Any electronic calculator has its own structure, in modern times this structure varies from computer to computer from smartphone to smartphone .. the theoretical structure however does not change and is still valid today.

Usually the Von Neumann machine structure is cited as an example, I prefer to use
my version:

Ior consider this as the structure of the
"Brain" of everything. Let's analyze each element: Processing unit (CPU): This component deals with the execution of the code or in a more "vulgar" way performs the calculations. Temporary memory: This component takes care of storing the information that must be processed by the calculation unit. When the brain is turned off, the contents of this memory are lost for this reason

Dall'uomo alla macchina

everything must be saved in non-memory
temporary.

Non-temporary memory
memory):
This component takes care of preserving
permanently information once
the information is no longer needed for the calculation
unit e
it is no longer needed even for temporary storage.

Bus:
This component takes care of the transmission
information from one component to another,
it is a real road on which they travel
information.

To these elements / components it is also fair
add input and output devices
output (ex: keyboard and monitor).

We have no way of interacting with the brain like this
built if we don't add components that
allow us to send them messages and to see them.

I am not an expert on the subject and I am not
I will extend out of respect, but the memoirs mentioned
above
do not remember the concept of short memory a little
and long term of our mind? ..

From men to machine

The code with which we are written
Each component, each machine, each of us uses a language to communicate. The machine language is composed (at the base) of 0 and 1.
NB: I say at the "base" because now nobody would dream of acting on a machine or programming using pure binary code as there are more sophisticated languages and techniques. However, the fact remains that everything is translated and re-translated always in 0 and 1.

The machines have a code called "Firmware" inside them. This code can be perfectly compared to our genetic code.

NB: Firmware is essential and present in almost all electronic devices, especially if they have to perform limited functions (Eg: the remote control of your television has firmware).

We can also compare them:

From men to machine

The only way to understand how similar the machine actually is to man is to put them both close together, one almost doesn't believe it .. N.B: the machine code in the figure () is coded

in hexadecimal for a better visualization, in reality everything is decoded in series of 0 and 1. Both the human code and the machine code use symbols, in the case of the machine code: 0 and 1 (also called binary code), in the

case of man: A, C, G and T. From the code of both it is noted that the machine has 2 N (0.1) of possible values, while man

we could say that it is much more complex in that he has 4 N (A, C, G, T) of information

possible. We have analyzed some of the most obvious similarities between man and machine. I think that at this point everything seems

much clearer. I claim that God created man in his image and likeness, we simply did it

same thing with the "machine". The camera is the eye, a microphone is the ear, a case the mouth ... and will allow us to see, hear and be able to do what before

we could only have dreamed.

From men to machine

Paradoxes
Here I would like to propose two of my personal
paradoxes: If you do something while nobody is
there, except
a video camera, can anyone say that someone saw
you?
Let's assume as a central idea that we can only be
"seen" by humans, the conclusion more
logic is to say that if someone will see the
recording then someone has seen us, but us
we could never know when and who could ever see
that recording, a reasoning
similar leads us to not be able to answer yes or no
to the question asked.
Starting from the idea that if a camera sees us it
means that nobody has seen us, it is totally from
to exclude, as well as the idea that this is true only
in case of unexpected human action.
The only possible solution at this point is to accept
that dogs observe, birds watch,
whales hear even cars see. If we are able to act
thanks to ours
code, anything else could do exactly what we do
with the right
code. This is not a real paradox, but if
this claim was totally true would not only change the
path towards which the
scientific progress is moving, but also the world
view of many people.

The game

Having created the car so close to a
human being .. can a machine therefore think?
"I propose to consider the question: can machines think?".
With these words, Alan Turing addressed the problem of mechanical intelligence, all long before I was born or artificial intelligence
and what follows from it became public knowledge and a reality with which it affects us
clash (maybe a little late). To answer this question, which
it seems more philosophical than technical, it proposes what he called "The imitation game"
imitation). This game consists of two subjects A and B, and one
candidate. The game is based on the following rules:
- A and B must be a man and a woman.
- The candidate does not know who the man is and who he is
woman.
- The candidate must ask questions to find out which of the two is the man and who is the woman.
Now we replace A / B with a machine, according to Turing we could define that the
machine is able to think if the candidate is confused and unable to determine
between the two who is the machine and who the man.

Il gioco

PI personally believe that machines have been able to think
for some time.
If "thinking" means the action of drawing lessons / results
through the analysis of the
perceptible, machines have always done it, in
different way, but they do. Just like each of us thinks
differently from the other, because it should be strange to
conceive that machines think
differently from us? The question changes if we wanted cars
capable of thinking exactly like a generic human being, which
in my opinion is not
impossible, but you should still understand its usefulness.
At the center of it all is our well-being, the solution to our
problems, otherwise

Il gioco

even an "intelligent" machine would not make much sense. So we can draw from "the game of imitation" two solutions: Machines, like humans, think (albeit differently).
Just like machines, we too have an algorithm and even one
machine with the right code could "think" like us. However the usefulness of
having machines that think exactly how humans still remain
Unknown. I call myself a supporter of the man-machine relationship, as the machine does not have to
transform into another man (as Turing theorizes in the game of imitation), but it must be
considered as another "race", another "species".
The communication between becomes fundamental
man and machine as both must still be able to understand each other.
This is not so absurd as it is enough to think that people still completely different in the
language and social class I can communicate with each other and that different machines do the same
brand and components. I

The game

This concludes my long premise, with which I have
tried to better understand a
all what I mean by computer science and
mechanical intelligence.
Summarizing: Information technology is the science
that deals with the collection and manipulation of
information in order to solve problems. This science
is based on the use of artificial tools ("machines":
calculators, computers ..) These "machines" are real
brains, with structural and structural principles
operation much more similar to the human being
than you normally think The intelligent machine is
not there
machine that is able to think and act exactly like the
human being,
besì is the one capable of solving problems,
understanding and making itself understood by man.
Once you understand these basic concepts it is
the moment to dive into the more technical part of
this book, moving on to the practice, creation and
demonstration of minds capable of understanding,
interact and learn.

The power of the Web

The power of the network "With slow and solemn gestures Dwar Ev proceeded to the
welding, in gold, of the last two wires. The eyes of twenty cameras were fixed on him and
the subteric waves brought twenty different images of the universe from one corner of the universe to the other ceremony. He stood with a nod to Dwar Reyn, and approached the lever of the main switch: the lever that would have connected, in one fell swoop, all gigantic electronic calculators of all the inhabited planets of the Universe - 96 billion inhabited planets - forming the super circuit from which the supercomputer would come out, a single cybernetic machine containing all the knowledge of all the galaxies. Dwar Reyn made a short speech to countless billions of spectators. Then, after a moment of silence he said: "Everything is ready Dwar Ez". Dwar Ez lowered the lever. There was a formidable buzz that concentrated all the power, the energy of ninety-six billion planets. Clusters of multicolored lights flashed on the immense picture, then, one after the other, they lessened. Draw Ez stepped back and took a deep breath. "The honor of asking the first question is up to you, Dwar Reyn." "Thanks," Dwar Reyn replied. "It will be one question that no cybernetic machine was able to answer on its own ". He turned back to the car. "Is there God?". The immense voice answered without hesitation, without the slightest crackle of valves or condensers. "Yes: now, God is there."

The power of the Web

The terror shocked Dwar Ev's face, who rushed towards the control panel.
A bolt of lightning from the cloudless sky incinerated him, and fused the lever nailing it forever to his
place." "The Answer" by Frederic Brown (1954) In a very short science fiction story by
1954 two of my next subjects are contained, namely the net and God.
A story with a science fiction setting, but with a touch of irony and reflection.
In 1954 there were no technlogies that we know today, but as I have already widely
described the computerization process had begun and in a few lines, Fredic Brown, an American scirtatore suggests two themes:

- The super computer circuit is God. Once started, this process cannot be stopped.
- The protagonist feels terrified, in a few words the disturbance of our society is described.

The power of the Web

The first theme is very simple to understand: The true power of AI and more generally it is released Network. In the broadest possible sense, a network refers to a set of devices of all types connected to each other. There is no logical concept or better physical structure than the network to be able to get the maxims performance. (In addition, as already seen before, the various components of a computer also form one network itself). At the beginning of the 1980s, information system architectures evolved from systems centralized to distributed systems. In these we can say that Moore's law is best materialized.

The power of the Web

A system is said to be distributed if the processing or the database are distributed in it.

The distributed system consists of a set of logically independent applications which

they can collaborate. The benefits of distribution are evident:

• Reliability: thanks to its intrinsic redundancy, an SD guarantees a high level of fault-tolerance.

• Integration: the ability to integrate different components together.

• Transparency: the system is seen as unique and it is impossible to recognize all the devices that are part of it without analyzing the network.

Economy: compared to building or buying a computer of similar capacity, the distributed system is much more convenient.

Fault tolerance.High performance.The constant need for greater performance even more economically than in the past has

led to the development of different solutions that exploit the concept of "network".

The call to the best of the human nature

We could also say that this passage was somehow foreseen by the same Michelangelo, whose mystery of his painting has been revealed in recent years famous. What at first glance looks like a simple cloak or blanket when viewed carefully it is nothing but a brain. In the face of continuous growth and development every beyond imagination. The human being is therefore called to become and show himself in the best of its nature. Conclusions In 10 years everything will be very different than now and I dare not think about what will be in 20, 40, 100! The truth is that the future is not far away and nobody scares this more than my generation. The change is constant and nobody can say what awaits us, all we can and we have to do is commit ourselves to building our future personally. For those like me who have just started a long one path towards IT development there is only one thing that makes sense to keep in mind:

"We can only see little ahead of us, but
we can see the many things that need to be done. "
(Alan M. Turing)

TO COMPLETE!!!