



ASTER
SEEDS HackSciArt
SEED 06-IA

RESEARCHERS

Dra. Carmen Graciani Díaz (cgdiaz@us.es)

Department of Computer Science and Artificial Intelligence

1. ESSENTIAL DIMENSION

(Objective descriptive information of the scientific seed)

NAME

"AI_General"

KEYWORDS

Artificial Intelligence, Automatic Reasoning, Neuroscience, philosophy of thought?

BRANCH

Artificial intelligence

ABSTRACT

Is it possible to design systems that can supply us to face situations that clearly put us at risk and that also require a combination of knowledge, adaptation, ingenuity,... to face the unexpected?

METAPHOR

I would need to hear what doubts arise from the proposed proposal in order to elaborate it. Since it is not a field in which I am working, but only a personal challenge that the proposal has led me to elaborate but which to date I have not raised, I would not know what is obscure about it.

PHASES OF THE USUAL SCIENTIFIC METHOD

Perhaps it may be a bit trite, since it is the basis of what is known as the "scientific method" of approaching a problem:

1. Observe: analyze the facts and collect data. What makes someone exceptionally good in that area? and what else does he do? what other capabilities/features of any other kind does it have? That is, "look at it" in detail.

2. State the problem: for what kind of situations do we want a “versatile” system? What capabilities do we want it to have?
3. Propose a hypothesis: Among everything observed, what do we think we should provide the system with? and how we do it?
4. Experimentation: Develop a basic system, with few of the capabilities that we consider really necessary, and put it to the test. Make slight changes and try again. Change back, add or remove based on the results and keep testing.
5. Organize, record and analyze the results: Do not go to the tun-tún, after each test, what has gone well? what has gone wrong? what are the causes? Do the changes make the system better or worse?
6. Conclusions: In addition to having a system capable of facing the challenge posed, you will know better what has led you to achieve it and it will allow you to expand it to face new challenges.)

TOOLS

It is quite “multidisciplinary”. For the study: books, magazines, talks, ... related to the subject.
For development:

- Programming (software is necessary, at the moment we don't "know" any other way to endow an artificial system with intelligence other than through some type of program), with all the tools that this entails.
- Engineering (hardware is necessary, since we want it to move and interact with the environment, at the moment we do not "know" any other way to provide mobility to an artificial system other than through some type of machinery), with all the tools that this entails
- People, are they a tool? The fact is that I do not consider this type of development possible without a team behind it that provides precisely those capabilities that we want to provide the system with.

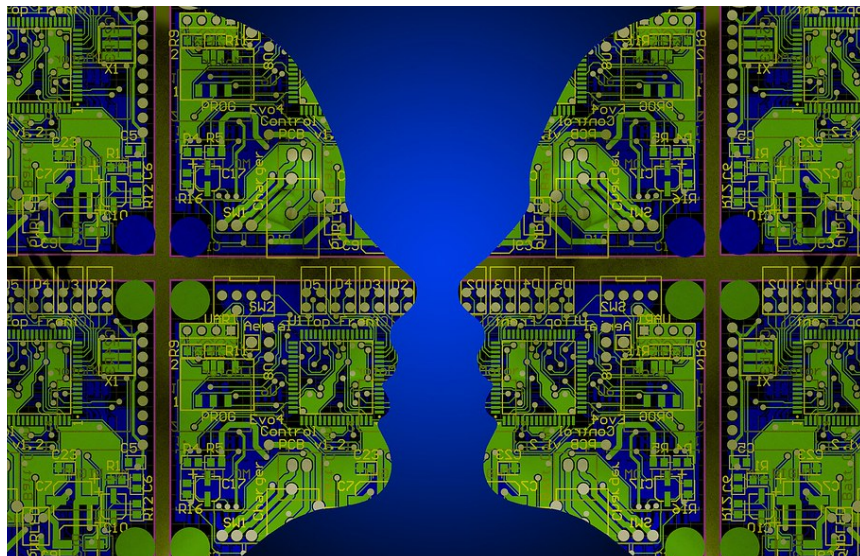
RESOURCES

More than resources that are used, it would be a starting point: does it really make sense to consider that systems with these capacities can be developed? What does a brain have that makes it capable of storing such a number of unrelated abilities and finding the most appropriate one for each situation? What is considered intelligent behavior? Are there innate skills or knowledge?

<https://www.nature.com/articles/s41599-020-0494-4>

My starting point, what has led me to consider these types of ideas, is a book I read a long time ago. In it, the existence of an intelligent species that had the ability to transmit to its offspring all its memories was raised. In this way, the only thing they did when facing a situation was to look for an analogy with one already experienced by an ancestor, to

"remember" how to deal with it. But that made it more and more difficult for them to add new information, since from time to time they were exposed to really new situations and had to "create" new memories. In the end, little by little they lost the ability to progress, and ended up disappearing when faced with a new species, which did not have those memories. For these, most of the situations they faced were new, which in the long run made them more capable of adapting to their ever-changing environment (even if the changes occur at a slow pace).



2. ADDITIONAL DIMENSIONS

(The following sections add subjective information from the scientific seed, in order to inspire creatives in the creation of a SciArt work. Some of the sections may not have information if the researcher chose not to specify anything.)

SCIENTIFIC MOTIVATION

I would like to study what makes apparently simple problems, such as managing in an unknown environment, extremely complicated when trying to solve them with an artificial system. It has always been said that experience is a degree, and it is clear that the more diverse it is, the more easily we are able to function in unknown environments. What makes us capable of finding relationships in apparently disparate situations, what allows us to resolve situations for which it would seem that we are not prepared. As they told me when I was little: "fill that head well, the more you accumulate, the more you can add, and thus you will always be prepared for any eventuality". Most artificial systems are specific to addressing a particular set of tasks and are difficult to reuse for completely different tasks.

I have always wondered what makes us intelligent and gives us the possibility of being so different from all the other beings around us. And, furthermore, with such a diversity of different intelligences. People you think you know well, including yourself, always surprise you with their abilities/reactions/ways of coping with new situations.

There are a multitude of dangerous tasks, or that due to our characteristics it is impossible for us to tackle, for which an autonomous system would be very useful: exploration of the ocean floor, rescue/rescue operations,... And it would be nice to have systems that could deal with a great variety of different situations.

METAPHYSICS

What makes us be so fantastic and, at the same time, so messed up?

ÉTICA

Many, all of those who are already proposing systems like ChatGPT or Dall.E

There is always the problem, before each new advance, of what use apart from the one that gave rise to its development it can have. And the more versatile (and that's the idea in this case) it is, the greater the possible alternative uses it can have. And, what has been said, **human beings are amazing! For better and for worse.**

COLORS

Red.

AROMAS

Spicy.

FAVORS

Acid (like that of sour sweets).

SOUNDS

Vibrant.