Facing the outbreak of AI expectations and promises:
An age-old story on the Emperor's New Clothes

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It is generally agreed and accepted that Artificial Intelligence (AI) is mature to penetrate almost every aspect of our life. It is self-understood that the unprecedently rapid pace of AI infiltration is accompanied by an explosion and proliferation of extravagant news about the dramatic impact that AI will have on our lives and our being.

Despite the hype and the excitement that trails AI advancement, the real state of affairs is far from being satisfactory – despite of a long history, the principles of AI research and development (AI R&D) remain unclear and ambiguous. There are some good reasons to be suspicious about the extraordinary bright AI future that is awaiting us around the corner.

The reasons for such suspicious could be expressed as follows:

From the very beginning, from the first introduction at the Dartmouth College meeting in 1956, the notion of "Intelligence" in the term "Artificial Intelligence" was left undefined and remains undefined over all the years since then up to our time. That posits a state of uncertainty, which affects the whole AI history. That was an ancestral sin of the AI founding fathers and all the further history of AI is a pile-up of the consequences of this sin.

Because of this uncertainty, it was generally agreed and accepted that Human Intelligence is the most suitable paradigm of Intelligence, and in all further studies and investigations, we have to adhere to it as closely as possible. It was also agreed and accepted that Intelligence is an outcome of human brain activity.

The beginning of the AI era coincides with the mid of the past century. It coincides with the commencement of the computing era. So, in the spirit of the time, the brain was considered to be a computing device and intelligence was considered to be brain's computational by-product: Computational Intelligence – the term is still alive and is extensively used.

To facilitate computational brain modeling, Artificial Neural Networks (ANNs) were invented and put in use as the most suitable means for this purpose. ANNs were devised as a set of tightly interconnected computational units resembling the nets of biological neuron in human brain. It is worth to be mentioned that "computational" has always implied data processing possibility, ability and intention. It must be also acknowledged that all heroes of the today's AI renaissance – DLNNs, RNNs, CNNs, and all others – are corresponding modifications of the classical ANN prototype.

These mentioned above dogmas for years were the basic principles of the AI R&D advancement and are the load bearing pillars of the present AI's Arc de Triomphe. However, over the last decades, we witness a tremendous paradigm shift in contemporary scientific thinking – from a data processing (computational) approach to an information processing (cognitive) approach. In this regard, the brain does not seen any more as a computing device. It is recognized and acknowledged as an information processing apparatus.

What "Information" is and what is "Information processing", contemporary AI communities do not know (and I will not rush to explain that here – you can find the needed clarifications on my Research Gate page https://www.researchgate.net/profile/Emanuel_Diamant). I will only dare to draw your attention to a conclusion that obviously follows from the above "information" elucidations: if brain is busy with information processing Intelligence can be seen as an ability to process information.

This definition of intelligence allows to expand the domain of intelligence investigations far beyond the area of human intelligence. Indeed, contemporary neurobiology confirms that intelligence is not an exceptionally human trait and that it is inherent to all living beings, even to those that are devoid of brain or nervous system.

That raises again the conjecture that ANNs are incapable to fulfill their duties: it is pretty clear that ANNs (designed as a data processing implements) cannot be used for information processing modeling.

What remains then from the AI's brags and promises? In Andersen's story, the people recover their ability to see the things in a right way. In real life that does not come about. Sorry, sad, unfortunate.