EUROPE 20.03.2019 | Virginia Dignum

Not all AI is alike

Some alarmists claim that Europe is losing the AI race to the US and China. That's not only dangerous, but just plain wrong

Read this article in German or Russian.

A few weeks ago at Davos, US executives warned that China may be winning the so-called AI race with Europe. In another recent article, Bloomberg pointed out that countries are rushing to not be left behind. The author also correctly pointed out that there's still a long way to go before AI will be commercially viable. In its vision for AI, launched last December, the European Commission has described its concerns with the position of AI in this race, which some have claimed Europe already lost.

In my opinion, speaking of a 'race' is both wrong and dangerous to begin with. It puts the focus on competion and brings with it a sense of gloom and despair. So let me make two arguments: firstly, there is no race and secondly, if there was, it would the wrong race to engage in.

There's no race because of the very definition of a race: it's a competition of speed, usually judged by an objective measure like a clock or to a specific end goal. In AI developments however, we don't have an end point! Nor do we have a specific time to stop. Therefore, there's no way to determine when and where someone will win this so-called race. Suggesting that it can be won assumes a moment after which we can stop developing technology, and advancing humankind.

It's the wrong race

It's even more important to understand why it's the wrong race to engage in. The US and China are betting on machine learning developments, and in particular on deep learning, as the approaches that will achieve true AI, and enable them to 'win' that so-called race. These approaches rely on the availability of huge amounts of data and computational power, to enable machines to perceive, or learn, characteristics of a

particular domain. This approach is used to recognise faces in pictures, to determine the credit worthiness of mortgage applicants, and to diagnose cancer cells in scans or X-ray images. All of these are relevant and important applications, and the progress achieved in the last few years is truly remarkable.

The goal is not to win races, it's to ensure the well-being of humankind and the environment.

However, these approaches are focussing on one aspect of intelligence: the ability to perceive patterns and make predictions based on those patterns. True intelligence, on the other hand, includes more than that, like the capability to reason, interact and and decide based on little, incomplete and contradictory information. In short, we need to explore alternatives to statistical approaches to learning.

In fact, just a few weeks ago, a study analysing 25 years of AI research has concluded that the era of deep learning is coming to an end. Europe has traditionally been strong on symbolic approaches to AI and on (social) robotics. These are some of the areas that should be invested in and that will bring AI forward in the near future. Therefore, it would be a mistake to blindly follow US and China on their machine learning 'race' when we now have the opportunity to show the value of alternatives approaches, in which we Europeans may have an advantage.

The end of one kind of AI

Another reason why data-heavy approaches are not the way forward: they have a negative impact on human well-being and the environment. Any development that does not boost trustworthiness will ultimately not succeed. There's no business model for untrustworthy AI or unethical AI. The results and decisions taken by systems based on deep learning and neural networks are hard to understand and explain. Therefore they aren't sustainable in areas where the trust of users and experts is crucial.

Moreover, current approaches are very environment unfriendly: the amount of (energy) resources needed to store and compute data are already comparable to the needs of a small city. This is not sustainable especially if this type of AI relies on exponential growth of data and computational power.

Europe is home to strong, world leading, fundamental research in AI, and known for a strong ethical background and respect for human rights. Putting these at the core of advances in AI will lead to breakthroughs that can really bring AI forward in ways that are both financially

profitable and beneficial to human and environmental well-being.

But this will imply a new mindset when it comes to how we do business and how we create an inclusive decision-making process. Developing AI responsibly, grounded on ethical principles and human rights, doesn't represent a burden on research and investment, but rather a stepping stone bringing this powerful technology forward. More than a technical decision, Europe is the only place that, at the moment, can push for this vision and its required policies.

The goal is not to win races, it's to ensure the well-being of humankind and the environment.



Virginia Dignum
Umeå

Virginia Dignum is a professor at the Department of Computing Science at Umeå University in Sweden. She heads the research group 'Social and Ethical Artificial Intelligence'.