AI/AGI/ML - A short overview

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After having spent about 200 workdays of my life getting familiar with the fields of AI/AGI/ML, I think it is a good moment for me to reflect back on my learning experience.

1 Artificial General Intelligence

Of the three domains, AGI is the least well defined. It has to do with general intelligence, but our definition of intelligence is still up for debate. Furthermore, the different known approaches in the field have different opinions regarding what sort of agent an AGI system should be. Should it be a self-contained entity with its own goals and purpose? Or should it be a system that is exhibiting human capabilities while being the servant of a human being or a group of human beings?

2 Artificial Intelligence

Next is AI, which encompasses many different types of approach to try and solve high level goals such as deciding, planning, organizing„ understanding, etc. AI is about the discovery of strategies to solve problems without having to provide the whole solution. I think it is also where goals for the ML field have been defined.

3 Machine Learning

Finally, ML is about using statistical approaches to solve problems. These problems have to be formalized and specify their input/output in the shape of data, may it be as text, audio, video, or simply vectors of numbers. Most of the recent and exciting development that has happened in ML is due to deep learning, which is the ability to develop deep neural networks that can learn to accomplish certain tasks without writing any explicit logic. This logic would be discovered by the network itself, with some help of the developer which would define a composition of modules that would process the data in order to create associations between the input and outputs.

4 Why AGI?

When I initially started my "adventure", I was interested in AGI. I wanted to know how a machine would be able to exhibit human behavior without having to tell it too much about it. I wanted to learn how you could teach a machine as you would teach a child. The AGI field itself does not currently have any curriculum as to what you should learn about, nor a reference book you can refer yourself or others to (when asked "What should I first read if I want to learn AGI?"). One can be interested in anthropomorphic aspects such as memory, intelligence, perception/senses, processing and so on, while others may be more interested about a computational oriented approach, such as the algorithms, the implementations, the computational complexity of diverse approaches and so on. I think it makes AGI a very interesting topic/field, however it lacks the definiteness of the other fields. One can see this by reading the various iterations of the book "Artificial General Intelligence", which is a collection of articles by various researchers that is generally published every year in relation to its conference.

When I started learning about AGI, I decided I would explore various venues and determine the approaches that matched the most my own interests and which looked the most promising. I looked at different venues such as cognitive science, set theory, logic, universal artificial intelligence, biology, and philosophy amongst others.

Along the road, AGI research has challenged many of my beliefs as well as how I see life. For those two reasons alone, I'm grateful I have been able to dedicate some of my time on it.

5 See Also

- My path to AGI