Marcus Domingo

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Summary/Discussion #1

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Artificial Intelligence Learning Commonsense

Davis and Marcus (2015) illustrate the difficulties in artificial intelligence (AI) representing and responding with commonsense. They describe how it is difficult for machines to understand pronouns without having a knowledge of verb and sentence structure (Davis & Marcus, 2015). Commonsense issues arise in other aspects as computer vision (computer’s ability to recognize objects or assume they are there) and robotic manipulation (the AI’s ability to react to random events). They also point out the success of commonsense in AI. Many successes have been reached in taxonomy reasoning (categorizing), temporal reasoning (commonsense of time), qualitative reasoning (if this…then this thinking), and action and change. Action and change is very common among humanoid robotics and describes when given a certain event, the robot performs a certain action then waits for another event. They also go on to point out major challenges for commonsense. They main idea is that commonsense takes a wide general knowledge about many things. Not necessarily that we need to know how things work but we can infer from commonsense knowledge (if something has a handle it can most likely be pulled, pushed, turned). Davis and Marcus (2015) also describe the different techniques used to approach these challenges such as mathematically grounded approaches, large-scale approaches, and knowledge-based approaches. They conclude that they don’t think there is one solution to all the challenges of developing commonsense in AI, but a strong starting point might be understanding human commonsense more (Davis & Marcus, 2015).

Davis and Marcus (2015) show great strength when they talk about the different techniques and approaches towards commonsense in AI. In the large-scale approaches they begin to talk about different programs that have been attempted to hardcode (write word for word) the knowledge bases of commonsense (Davis & Marcus, 2015). This really points out that having AI learn commonsense is extremely difficult. If someone were to hardcode commonsense there would be billions and billions of lines of code. Therefore, they present that there isn’t one way to overcome all these challenges. That a combination of all these approaches will lead to the commonsense of AI it is just a matter of balance. This does highlight the topic of their article being commonsense reasoning in AI and the steps to take towards accomplishing this very difficult feat.

References

Davis, E., & Marcus, G. (2015). Commonsense Reasoning and Commonsense Knowledge in Artificial Intelligence. *Communications of the ACM*, *58*(9), 92–103. https://doi.org/10.1145/2701413