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Summary/Discussion #2

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Artificial Intelligence in Scientific Discovery

Gil et. al (2014) describes the role of artificial intelligence (AI) in scientific discovery. They state that reasoning abilities for analyzing scientific data have been present in AI since the 1970s (Gil et. al, 2014). Since then AI has made many advances in based on 3 factors: “steady scholarly advances, Moore’s law and steady exponential increases in computing power, and exponential increases in relevant data in volumes never previously seen.” (Gil et al, 2014). They highlight that search engines are a gold mine for scientific studies. Search engines are powered by AI and they can be customized and refined to find content of specific kinds which allows us to go beyond search limitations. AI can even be use to summarize scientific research. Gil et. al (2014) states that AI can read in large amounts of data at fast speed that stream from modern lab equipment. They describe the relationship of AI with advances in science as a virtuous circle that “works well if balanced and well oiled” (Gil et. al, 2014). They end with pointing out two challenges, scientists limited interests in AI and the AI community’s limited work to publicize AI to scientists.

Gil et. al (2014) heavily support the thesis of their paper when talking about search engines. The ability to surpass any boundaries on searching for viable research information leads to more possibilities of scientific discovery. Gil et. al (2015) states “to tag not just scientific articles but also figures and videos, blogs, data sets, and computational services”. This shows that AI has expanded the limits from searching for research and topic papers on a subject to discussion boards and videos that have some relevance. Including the search engine portion in their paper alone shows how much of an opportunity AI has in aiding scientific discovery.

Gil et. al (2014) and Davis and Marcus (2015) focus on two different aspects of AI. Davis and Marcus (2015) describe AI and its advancements in commonsense knowledge. They do describe the challenges and difficulties in this though. This is where the two articles touch. Gil et al. (2014) talks about the challenges in relaying AI to scientists and motivating scientists to take more interest. Another way the two articles touch is through the commonsense aspect. Davis and Marcus (2015) talk of how commonsense works in the human mind and how it should show similarities in AI. Gil et al. (2014) show the use of the commonsense of AI when they talk about search engines and how with AI they can search much more than what we were previously limited to. Both articles describe the advancements AI have made and the places AI can take us in two different fields. Which arises the question, should we rely on AI this much?

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

Gil, Y., Greaves, M., Hendler, J., & Hirsh, H. (2014). Amplify scientific discovery with artificial intelligence. *Science*, *346*(6206), 171–172. https://doi.org/10.1126/science.1259439