AI Models: Why They Are Only as Good as Their Data

Isaac Morse

MCLA

CSCI-101 First Year Comp. Sci. Seminar

David Eve

11/06/25

Contrary to popular belief, AI models are not magical, mysterious or beyond human intelligence. In fact, AI models are not superior to human intelligence and are only as good as the data humans provide. There is this big stipulation where most people see this new technology as being “smarter” than any human on the planet. I can understand why the average person may think that AI is taking over for human intelligence, but this idea of it being more advanced than human intelligence is inaccurate. The thing people have to remember is who created AI. It was us as people who created it and because of that, AI cannot and will never be superior to human intelligence. The data we have acquired over our entire existence is all being fed into these AI models for it to give us feedback on whatever it is we are asking the model to do.

If I were to tell an AI Model to go and solve the cure for cancer, then it would spit back a bunch of information on how there is no cure and what we are currently working on in that field. On the other hand, if I were to ask it to maybe run tests and simulations on the research and experiments I had been conducting, it would do that quickly and efficiently. The difference is what I am asking the

model to do. I get specific with my questions and input data to either get the results I am looking for or to find an exact answer.

As a person who enjoys golfing, I like to use an app that is an AI controlled caddie, which keeps track of my score, handicap, and distances. Because I use the app correctly, it has helped me improve my game. This is because I used the app correctly and input accurate data from what I knew about my game prior to using the app. I input accurate distances and accurate round scores, which then the app would use GPS to give me a tip on what club I should be using, judging by how far away I am from the hole and by what my handicap is. On the other side of things, if I was to input bad data, being inaccurate distances and inaccurate scores, then the caddie would not be as helpful in suggesting what club I should be using. This is a great example of how false data leads to false intelligence within an AI model.

Korteling et al. (2021) says how AI lacks the ability to judge or verify the truth. Humans, on the other hand, can critically evaluate information based on experience, emotion, and moral reasoning. An AI model like the example given cannot figure out what is true and what is false unless it is told to. Even after all of that, it will depend on what humans define as truth. This creates huge problems in fields that use AI to make decisions. If you think about it, if people in law enforcement rely on AI to make decisions, it could directly impact someone's life. It almost feels like it would take out human reasoning as well.

On the flip side of things, there are some good things about these models when being fed with good data. Data that is diverse, accurate, and ethically sourced can make AI models more useful and

reliable. In my previous example about cancer, or even in healthcare in general, AI models trained on diverse datasets can help doctors identify diseases earlier and more accurately.

In Truong's (2024) article, she argues that AI should be seen not as a threat but as an opportunity to improve human work when used responsibly. "AI offers a chance to enhance human capabilities, not replace them." When a good data set is used, technology can become a powerful tool for innovation and problem solving, but it would still depend on human judgment and reasoning. The people who created this AI would have to decide what context is good for their model and make sure that the data is fair and inclusive.

This ongoing debate over whether AI can surpass human intelligence is as much philosophical as it is scientific. Many people believe AI is smarter because it can process faster. But in reality, people are just hung up on how fast it can do things. Where did the information come from? Humans. AI is not conscious or self-aware. Korteling et al. (2021) says that AI can beat humans in specific tasks but cannot perform tasks outside of the data the model was trained on. For example, if an AI model is trained on the game checkers, it has a very high chance of beating you. If you were to ask that same model to play a completely different game, the model wouldn't know how to win or even play it until it was trained on that game as well.

Goldfarb and Lindsay (2022) explain this difference by looking at military decisions. This is another example of how AI can help make decisions but once again cannot use human judgment. "AI excels at prediction, but judgment… remains a uniquely human responsibility." This shows where exactly AI is helpful but cannot take the place of human intuition or emotional understanding. Human

intelligence includes ethical decision-making and the use of reasoning. AI can help make decisions, but it cannot show empathy or understand normal human error.

Technology in AI is constantly changing and improving. Humans are responsible for what data it is trained on, how it is designed, and how it will be used. Goldfarb and Lindsay (2022) argue how important human involvement is for AI. They talk about how AI can take over predictive tasks while human intelligence needs to focus more on ethics and judgment. This challenges the fear that AI will replace human workers and instead allows new opportunities for workers to make more ethical and creative decisions. Truong (2024) supports this by saying that people should see AI as a tool and not a replacement. She talks about how education and awareness are needed so people can work with AI. People must remember that AI depends on the data people give it so we can create better models that represent everyone fairly. But for this to work, we need to be honest about how data is collected and used. When companies hide or distort data, people stop trusting AI. Making sure the data is accurate and fair is not only a technical task but also a moral one. Humans must guide AI so it helps people instead of causing problems.

AI is powerful, but it is not perfect. It only works as well as the data and people behind it. Even though AI is fast, it cannot think, feel, or make moral choices like humans can. Good data makes AI helpful, and bad data makes it unreliable. Korteling et al. (2021) and Zhang (2024) both explain that AI lacks human reasoning and creativity. Goldfarb and Lindsay (2022) state that humans still need to make the judgments while AI can handle the processing. Truong (2024) sees AI as a tool, not a threat. AI is not smarter than humans. It simply reflects what humans teach it. The future of AI depends on the people who choose its data and goals. In the end, AI is only as good as its data and its creators.

References

Korteling, J. E. H., van de Boer-Visschedijk, G. C., Blankendaal, R. A. M., Boonekamp, R. C., & Eikelboom, A. R. (2021). Human- versus artificial intelligence. *Frontiers in Artificial Intelligence, 4*, 622364. https://doi.org/10.3389/frai.2021.622364

Truong, Y. (2024, June 26). *AI is an exciting opportunity, not a threat*. AACSB Insights. https://www.aacsb.edu/insights/articles/2024/06/ai-is-an-exciting-opportunity-not-a-threat

Goldfarb, A., & Lindsay, J. R. (2022). Prediction and judgment: Why artificial intelligence increases the importance of humans in war. *International Security, 46*(3), 7–50. https://doi.org/10.1162/isec_a_00425

Zhang, J. (2024, October 1). *Artificial intelligence vs. human intelligence: Which excels where and what will never be matched*. UTHealth Houston School of Biomedical Informatics. https://sbmi.uth.edu/blog/2024/artificial-intelligence-versus-human-intelligence.htm

Gonsalves, F., Green, J., Parrish, A., Moxley, T., Seeber, C., & Williamson, A. (2023). AI—The good, the bad, and the scary. *Virginia Tech Engineer*. https://eng.vt.edu/magazine/stories/fall-2023/ai.html