Assignment01 Reflection

Question 1: Awad distinguishes between different “types” of AI. What classification scheme does the paper use and why do these types matter for scientific research?

Awad classifies AI based on the role it plays in scientific work rather than by how advanced or intelligent the system is. She shows that different types of AI support science in different ways, such as making predictions, finding patterns in data, or helping generate new research ideas. This matters because it highlights that AI is no longer just a data analysis tool. Instead, it is becoming part of how scientific questions are formed, experiments are designed, and results are interpreted.

Question 2: Does Awad make a clear distinction between AI as a tool and AI as a scientific collaborator? If so, what are the differences and what are some examples given to support the differences? Do these examples suggest a real shift in how science is conducted, or mostly an extension of existing methods?

Yes, Awad clearly distinguishes between AI as a tool and AI as a scientific collaborator. Traditional AI tools mainly speed up tasks scientists already do, like analyzing data or running simulations. In contrast, newer AI systems can suggest hypotheses, connect ideas across fields, and influence research direction. While humans still guide these systems, their increasing autonomy suggests a real shift in how scientific knowledge is produced, not just a faster version of older methods.

Question 3: What are some limitations or risks of using AI in science? How do these relate to issues such as interpretability, bias, reproducibility, or theory formation?

Awad points out several risks of using AI in science. Many AI models operate as black boxes, making results difficult to explain or justify. Bias in training data can lead to misleading conclusions, especially in sensitive areas like medicine. Reproducibility is also a concern when models are proprietary or constantly changing. Additionally, AI-generated results may prioritize correlations over theory, which can weaken scientific understanding if not carefully validated.

Question 4: According to Awad’s arguments, is AI more likely to *accelerate* scientific discovery or to *reshape* the scientific method itself? Do you agree or disagree?

Awad argues that AI does both, but its deeper impact is reshaping the scientific method. While AI clearly speeds up discovery, it also changes how knowledge is created by relying more on data-driven patterns than human-built theories. I agree with this view because AI increasingly influences hypothesis generation and experimentation, which alters the traditional role of scientists rather than just making their work faster.