

## **DIRDI speech**

Thank you to our hosts Carl and Daniel for organizing such a splendid Dinner here at Hatfield College.

On Monday Keir Starmer delivered a keynote speech declaring that artificial intelligence (AI) is the "*defining opportunity*" of our generation. The UK public sector is going all-in for adoption of AI, which should not only improve productivity, but also encourage industry uptake of AI to boost economic growth. With this backdrop, and as co-founder of a University of Cambridge AI spinout, I thought it is timely to highlight not only the opportunities but also the limitations of AI.

### **Opportunities**

A goal of the DIRDI is to achieve "Edisonian Commercialization" so I mention two ways that AI can drive development and then commercialization:

Firstly, in an era where research generates massive datasets, AI enables us to process and analyze data at speed and scale unimaginable just a decade ago. For example, AI algorithms in genomics can rapidly scan and manipulate DNA sequences to target disease-causing mutations. Therefore, AI can liberate researchers from tedious data analysis, and empowers them to accelerate scientific development.

Secondly, once the discovery is made in a University setting, AI can then help in the rollout to industry. AI can take advantage of all of the specialist know-how across an organization, embodying more knowledge than any individual employee. For example, the wisdom of the team behind the development can be captured by AI to ensure success for the company whilst the founding team i.e. yourselves move on to make the next discovery. Furthermore, the AI predictions will be consistent across an entire organization to ensure traceable and repeatable decision making.

### **Limitations**

However, it is not all positives, so I mention just two core skills that humans excel at but AI lacks:

Firstly, AI does not have emotional intelligence: It is one thing to be correct, but it is another thing all together to persuade others that you are right. Unfortunately, AI can neither develop a relationship with a client nor adjust its approach to best appeal to its audience. Perhaps even worse, if AI does not know the correct response it will confidently hallucinate rather than have the humility to admit that it is unsure. This lack of interpersonal skills is in stark contrast to the ethos of our gathering this evening, where the Fellowship we benefit from underlines the importance of building relationships.

Secondly, AI lacks creative intelligence: The first goal of the DIRDI is to achieve "Newtonian Discovery" and to define this I quote from our vision "*world-changing innovation is achieved by applying intelligent thought to a subject in a way that is novel, rather than through pursuing prescribed processes*" but this is the antithesis of AI that was trained on a library of information, so its ability to predict is constrained to the boundaries of that historical knowledge, acting as a stochastic parrot.

### **Conclusion**

In summary AI is a paradigm shift in scientific research. It holds the potential a powerful tool to greatly accelerate a scientist's work so they can focus on what humans do best: the core mission of novel research and driving impact.