

Why I'm optimistic about AI: The case of DeepMind

By Wayne Visser

When it comes to AI, I lean towards optimism. Here's why. It isn't a case of denial or blind faith. We must acknowledge and tackle any negative impacts (e.g. the recent energy spike from large language models like Gemini, ChatGPT or Grok) or the risks (e.g. malevolent AI algorithms or agents). But we should also tune into the potential. Let's take DeepMind as a case to show what is possible - and how it's already happening.

Co-founder and CEO of DeepMind Demis Hassabis shared the 2024 Nobel Prize in Chemistry for his AI model AlphaFold that predicts protein structures. Off the back of this work DeepMind is already having positive impacts in the health sciences, such as helping to advance treatments for rare genetic diseases and tackling antibiotic resistance. Isomorphic, a DeepMind spinout, is working to accelerate drug development.

Without diminishing this vital work on health, I happen to be more interested in the environmental impacts and potential of AI. For example, I am convinced that AI will become much more energy efficient, in addition to the fact that most Big Tech companies already use renewables. We saw signs of this with DeepSeek, which uses 90% less energy and 92% less carbon than ChatGPT. So what about DeepMind? There are 3 opportunity areas I'm tracking:

1. Climate science - In 2019, Hassabis co-authored a paper "Tackling Climate Change with Machine Learning" on how AI can improve smart grids, disaster management, and emissions reduction. Now DeepMind is putting a lot of those ideas into practice. For example, Graphcast is allowing us to model climate systems more accurately, and WeatherNext is being used by farmers, city leaders and energy utilities to increase resilience.
2. Energy systems - DeepMind's GNoME platform has identified 2.2 million novel crystal structures. Among these are 380,000 predicted stable materials that could be used in next generation battery storage, including 528 potential lithium-ion conductors. GNoME has also found 52,000 layered compounds (similar to graphene) that may be the key to room-temperature superconductors, which would revolutionise energy efficiency.
3. Biomaterials - Because DeepMind has made its AI models and databases like AlphaFold and GNoME public, others are able to innovate. For example Materiom are designing 100% bio-based packaging and materials based on biology and AI simulation, while companies like Zymergen and Bolt Threads are using the AI-driven

protein design (like AlphaFold) to engineer biomaterials like synthetic spider silk and mycelium leather.

Science and technology is always a game of risk and reward. And in the case of AI, the upside is massive. That's not to downplay the risks or negative impacts - these also need attention and mitigation. But understanding the opportunity space for regenerative outcomes for climate and nature puts the fear-mongering and doomsday predictions into perspective. There's work to be done, but AI should be a harbinger of hope.

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