4 takeaways from EmTech Digital's AI conference

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MIT Technology Review recently put on its EmTech Digital conference. It will come as no surprise that this year's focus was generative artificial intelligence (AI).

There is a sense that generative AI, in its many different forms, is important and that it will have an economic impact, but it's not yet clear exactly how this will manifest itself in the coming years.

Below we discuss the four key takeaways from the conference.

1. Changing how we interact with Microsoft Office Software

It is well known that Microsoft has made significant investments in OpenAI and that there is a close relationship between the two firms—GPT-4 is accessible on certain Microsoft Azure service platforms, as an example. Microsoft had only just mentioned the import and expected impact of AI to its future business results as it reported on the period ended 31 March 2023, so we were curious what more they could add in a short presentation.

However, Microsoft mentioned one of the most exciting things across the entire conference. We are all searching for 'use cases' and we are also all trying to figure out what it will look like to communicate with Office 365 software in 'natural language'.

Microsoft's representative noted that he had seen an example case where there was a Word document, and that the technology was able to seamlessly interface with PowerPoint and to go from having a Word document to having a version expressed in slides.

In WisdomTree's research team, taking a source file in text form and converting it to a potential presentation is an important function; some situations require slides, some situations require emails, some situations require Word documents. It takes a really long time to laboriously change a Word document into relevant, impactful slides. If there was a way for the file in Word to communicate with PowerPoint to create at least a rough draft with slides, over the course of the year within WisdomTree's research team alone this would save a rather large amount of team hours.

Since it probably could also work in reverse (PowerPoint back to Word), maybe we are not far away from drafts of blog posts being created off of PowerPoint slides.

2. Did you realise that AI cannot hold a patent?

Part of what is sparking the current generative AI revolution has to do with creation. People are excited for the capability to create images, molecules, text, to name just a few things. However, the world is seeking to get a better handle on the legal ramifications. One such example regards Stability AI's image generation capability. Getty Images, a major holder of rights to photographic content, has alleged that the use of their images in this way runs afoul of its licensing provisions, and that their images are quite valuable for training purposes due to diversity of subject matter and detailed metadata1.

The value of access to training data, therefore, is coming to light.

Another thing we did not realise was that, if AI is involved in the creation of something novel, AI cannot hold a patent, which could have interesting intellectual property implications in the US. An article in the National Law Review, published on 2 May 2023, affirmed that "Federal Circuit Holds That AI Cannot Be an "Inventor" Under the Patent Act - Only Humans Can Get Patents2."

3. The magic of defect detection

One of the most exciting presentations, in our opinion, regarded 'defect detection' from the firm Landing AI. In recent years, we have spent a lot of time thinking about electric vehicles, and WisdomTree as a global business has many funds that focus on different metals, different types of companies—basically all sorts of ways that investors can align an investment with trends they are seeing. The world needs more batteries, that much is clear, but batteries need to be assembled in a way that limits defects.

When people mention 'computer vision' by itself, without an application, it doesn't always sound exciting or capture the imagination. Seeing the presentation immediately helped us to picture all of the new factories being built to assemble more battery cells, taking advantage of certain funding provisions in the Inflation Reduction Act in the United States. Picturing a computer vision system, deployed at scale, able to catch defective battery cells in close to real-time, could be immensely valuable. All manufacturing companies could benefit from better defect detection. It was interesting to hear in the presentation how there is so much money in things like 'Targeted Advertising' and 'Internet Search' that this is where a lot of AI applications are developed, but if a company can serve the totality of need across different manufacturing concerns, it could be a big market as well and immensely valuable if these systems can really catch defective products before they are shipped.

It was also particularly powerful to watch a demonstration of how a company might have a series of pictures in a database and use AI to 'learn' to recognise a particular attribute, like a crack. This could deploy better defect detection at scale as well as putting model training in the hands of people without PhD's in data science, both very impactful things.

4. The maths of drug development is prohibitive

A few presentations during the event concerned drug discovery, and for good reason. It was mentioned that the development of a given molecule into a drug takes roughly $2 billion, 10 years and has a 96% failure rate along the way. While we need drug therapies, the statistical specification of that journey does not sound compelling, and it makes those drugs that get through extremely expensive.

Whether it is Nvidia or Exscientia presenting, so far the critical element is not to say that ‘AI is creating drugs’ but rather ‘AI is improving our chances’. Chemistry and physics are much like languages and there are certain rules that govern how they work. Generative AI does not always craft finished prose, but it is able to put many options to the page quite quickly. Generative AI for drug development is most likely to help researchers make better, higher probability attempts at further study.

One thing that was very notable to hear was that we might be at a transition point in how research is done. Human researchers seeking the cure or a new therapy for a particular disease converge quite closely around a lot of similar ideas. For approaches run by humans, this makes sense. But for approaches with machine learning closer to the forefront, there may not be enough diversity across the data from the attempts such that the machine learning algorithm can find notable relationships across the data that human researchers would have been less likely to see.

If machine learning algorithms are closer to the forefront, it can change the way certain types of research, like drug discovery, are done such that the systems are getting the appropriate breadth of data from which to draw out patterns and relationships.

Conclusion: 2023 as a turning point

History is replete with turning points. eCommerce, internet search, smart phones, the app economy, social media—all of these things had a ‘beginning’ where success was far from assured and we could not have predicted exactly where the technologies would go. Even if AI has been developing for many years, maybe 2023 will be seen as somewhat of a beginning, in that it marked the point after which non-technical people were using AI just like it was any other application.

1 Source: Brittain, Blake. “Getty Images lawsuit says Stability AI misused photos to train AI.” Reuters. February 6, 2023.

2 Source: “Federal Circuit Holds that AI Cannot Be an ‘Inventor’ Under the Patent Act—Only Humans Can Get Patents.” The National Law Review. May 6, 2023. Volume XIII, Number 126.

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