

What We Learned from EM Tech Digital 2023

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MIT Technology Review recently put on its EM Tech Digital conference. This year's focus, which likely surprises no one, was generative AI.

The timing, in our opinion, was impeccable.

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

A few of our major takeaways follow.

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, for example.

Microsoft had only just mentioned the importance and expected impact of AI to its future business results when it reported on the period ended March 31, 2023, so we were curious what more they could add in a short presentation.

In fact, Microsoft provided one of the entire conference's more exciting glimpse of the future. We are all searching for 'use cases' as well as 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 the technology was able to seamlessly interface between Word and PowerPoint and to go from having a Word document to having a version expressed in slides.

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 require Word documents...the list is endless. It takes a long time to change a Word document into relevant, impactful slides. If there was a way for the Word file to communicate with PowerPoint to create at least a rough draft with slides, in the proper format, with sources cited...over the course of the year, and within WisdomTree's research team alone, this would save a large number of person 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 from PowerPoint slides...

Did You Realize that AI Cannot Hold a Patent?

Part of what is sparking the current generative AI revolution has to do with creation—people are excited about the capability to create images, molecules, text—to name just a few possibilities. However, the world is also 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 the diversity of subject matter and detailed metadata.¹

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

Another thing we did not realize was that if AI is involved in the creation of something novel, AI cannot hold a patent. This could have interesting intellectual property implications in the U.S. An article in the *National Law Review*, published on May 2, 2023, affirmed that “Federal Circuit Holds that AI Cannot Be an ‘Inventor’ Under the Patent Act – Only Humans Can Get Patents².”

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 (EVs), 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 in terms of the adoption of EVs and the use of batteries. The world needs more batteries—this 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 Landing AI's presentation immediately helped us to picture the new factories being built to assemble more battery cells, taking advantage of certain funding provisions in the U.S. Inflation Reduction Act. Picturing a computer vision system, deployed at scale, able to catch defective battery cells in close to real-time, could be immensely valuable.

Any company that is manufacturing anything could benefit from better defect detection, in that it saves money to not have to take in the returned products and disappoint customers. 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, this could also be a big market and immensely valuable if these systems can really catch defective products before they are shipped.

It was also particularly powerful to see a demonstration of how a company might have a series of pictures in a database, and that it is pretty simple to use the system to ‘learn’ to recognize a particular attribute, such as a crack. There is an element of deploying better defect detection at scale as well as an element of putting model training in the hands of people without PhDs in data science—both very impactful things.

The Math 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 and 10 years, and has a

96% failure rate along the way. While we need drug therapies, the statistics of that journey do 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 to say ‘AI is improving our chances’ rather than, ‘AI is creating drugs.’ Chemistry, physics—these are languages just like English, Spanish, French or Italian, 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 notable to hear was that we might be at a transition point in how research is done. Human researchers seeking a cure or a new therapy for a particular disease converge quite closely around 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.

2023 as a Turning Point

History is replete with turning points—e-commerce, internet search, smart phones, the app economy, social media—all these things had a ‘beginning’ when, if we are honest, 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 something of a beginning, in that it marked the point after which non-technical people were using AI just like it was any other application.

At WisdomTree, it is our opinion that investments in trends with lots of uncertainty and the chance of many different types of companies to do well could benefit from an ecosystem approach. People thinking about investing in equities that could capture the AI megatrend may want to look more closely at the [WisdomTree Artificial Intelligence & Innovation Fund \(WTAI\)](#).

1 Source: Blake Brittain, “Getty Images Lawsuit Says Stability AI Misused Photos to Train AI,” *Reuters*, 2/6/23.

2 Source: “Federal Circuit Holds that AI Cannot Be an ‘Inventor’ Under the Patent Act—Only Humans Can Get Patents,” *The National Law Review*, 5/6/23. Volume XIII, Number 126.

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