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AI ??

I recently blogged about common misconceptions of artificial intelligence that have held businesses back from embracing AI and reaping benefits from it. My post, “Common Misconceptions of AI – and Why They Must Be Overcome,” points to an undercurrent of fear – fear that AI will steal jobs and take over our lives. But in fact, AI promises to enrich our lives in ways we are only beginning to comprehend. Let’s take a look at one such example: the digital twin.

How a Digital Twin Can Help People Get Better at Their Jobs

How many of you can relate to this scenario? John, a middle-management executive, is a father of two kids. During his day, he feels like he’s stretching his brain in 100 directions while he juggles

multiple demands. On any given day, he’s reviewing detailed financial reports, tracking the status of sales leads, managing his travel expenses, and conducting team meetings while in the office, at home, and on the way to work – all while struggling to carve out some quality time with his family. He often wishes he could have a “digital twin” of himself fly to Europe for a team meeting while he stays at home to read bedtime stories to his kids.

Actually, perhaps the better question might be, "How many of you don’t relate to the above scenario?" Managing multiple tasks (oftentimes at once) is the reality of doing business today. Now here’s the interesting news - we’re getting closer and closer to making it possible for digital twins to help us live our increasingly complicated lives.

I’m not talking about a digital twin that simply repeats pre-programmed messages like Princess Leia’s hologram did in Star Wars. I mean smart virtual identities who replicate your thoughts in mixed reality. Consider, for example, the work Microsoft has been doing to develop a digital twin that combines mixed reality and AI to make it possible for someone to have a hologram deliver a speech in a language different from their own.

In the above example, Microsoft showed how mixed reality and Microsoft’s Azure AI services could free up Microsoft executive Julia White to deliver a presentation in Japanese in a separate location even though she does not speak Japanese and could not be in two places at once. With AI, she could train her digital twin to break barriers of space, time, and language.

The Foundation for a Digital Twin Exists Now

To be sure, Julie White was showing off a demo. But all of these technologies exist today. We already use their components when we use virtual assistants for tasks such as booking travel or scheduling a meeting. But those are simple tasks. Virtual twins manage multiple, complex tasks. They are the clone that John, you, or me oftentimes wish we had when we are mired in work – especially tedious, time-consuming tasks such as analyzing financial data.

Rather than taking jobs we want, digital twins can take away jobs we do not want to do. That's the beauty of AI - a virtual twin handles the things you don't have time for or passion to tackle.

The Opportunity to Improve Productivity

I see a big opportunity for the digital twin to improve employee productivity in a dramatic way. In the modern age, executives are expected to do more with less, which means booking their own travel, handling increasingly complicated calendars, and booking conference rooms.

All those tasks are supposed to be easier with technology, but as anyone who has tried to book a meeting with multiple people across time zones can attest, even the best digital technology isn't always enough to help someone book and then stay on top of a single meeting online.

The corporate life learning curve is even steeper for new employees who inevitably find that learning the administrative side of their job is even harder than they dreamed. A digital twin, powered by AI, can do all that tedious but necessary work, while the employee focuses on the things that matter most.

Three Breakthroughs That Will Help

To be sure, the notion of a digital twin poses some challenges and questions. For example, consider the enormous amount of data that your personal devices would need to accommodate in order to manage a digital twin. And consider the fact that people need to get more comfortable with AI. These issues can and will be overcome because of three major developments.

- **Mixed reality humanizes the AI experience.** The uptake of augmented reality (AR), mixed reality (MR), and virtual reality (VR) will play a big role in helping people become more comfortable with a digital twin. That's because AR, MR, and VR present incredible potential to humanize a digital assistant. Already, society is getting more comfortable using these forms of immersive reality even if we've not adopted them commercially in a widespread fashion. As noted above, the notion of a hologram is not so far-fetched. People are willing to pay money to see holograms of musicians – up to $125 a ticket to see a hologram of Frank Zappa

perform, which shows that the technology can seem warm and approachable if used correctly. I believe the next step is for businesses to find that human touch for the digital twin.

- **5G technology paves the way.** 5G, or fifth generation cellular network technology, represents a leap ahead of current wireless technology. 5G technology promises to offer mobile internet speeds that will speed up the process of sharing and downloading complex data. Wireless chipmaker Qualcomm says that initial download speeds under 5G will be 1.4 gigabytes per second, which is 20 times faster than what people can get with 4G. In addition, with 5G, computers can respond faster to commands, which is crucial for making the human/machine interface more useful. All U.S. carriers are adopting 5G in some form or another, and a broader uptake is expected to hit in 2020. It will take some time, but the adoption of 5G will support experiences such AI and mixed reality with the stronger, more reliable technology network they need to process large volumes of data in both a corporate and consumer setting.
- **Deep learning performance improves.** For machines to understand intent and respond appropriately, designers need to do a lot of heavy lifting to train the required deep learning models. The effort involved can require an enormous drain on time, data, and computer power. But times are changing. Researchers are making breakthroughs that enhance deep learning performance more efficiently. For example, a design team at the University of Waterloo is has developed a new family of neural networks, AttoNets, that are smaller and more agile. As noted in SciTechDaily, AttoNets "are being used for image classification and object segmentation, but can also act as the building blocks for video action recognition, video pose estimation, image generation, and other visual perception tasks." As reported in MarkTechPost, AttoNets uses Generative Synthesis, which was shown to accelerate the deep learning design for autonomous driving greatly. A technology such as this could conceivably accelerate the deep learning design for a digital twin.

We're already using digital assistants such as voice, however robotic they might sound. But the point is, we are using them. Together, mixed reality, 5G, and an improvement in deep learning performance will hasten the uptake of a warmer, smarter, more evolved form, in other words, the digital assistant.

Pact.AI Can Help

Centific partners with major brands to enable the technologies that serve as a foundation of digital twins. We call it PactAI. With Pact.AI, Centific provides a complete end-to-end portfolio of data science and data engineering services, AI application enablement, AI solution accelerators, advanced AI frameworks, and end-to-end delivery that will establish, elevate and enable your AI product vision. Centific is helping clients in high tech, banking/financial services/insurance, telecom, retail, consumer packaged goods, manufacturing, and healthcare solve various business challenges with AI. Contact us to learn more.

About the author:

Yong Liang is Associate Vice President and Product Lead for AI related solutions at Centific. He works on several up and coming AI technologies that support enterprise business.