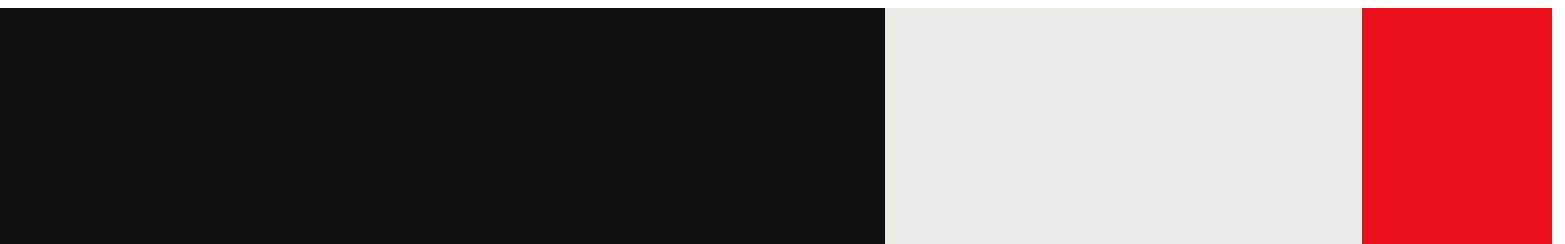


The Daily: What happens when you merge humans with AI chips, ChatGPT gets a memory, and Gemini's rough start

Audio



On today's podcast episode, we discuss what happened when the first human ever received a brain implant from Neuralink, the other potential benefits of this technology outside of helping people with paralysis, and what the ultimate goal of Neuralink actually is. "In Other News," we talk about what happens now that ChatGPT has a memory and what to make of Gemini's rough start. Tune in to the discussion with our analysts Jacob Bourne and Gadjo Sevilla.

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Episode Transcript:

Marcus Johnson:

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Gadjo Sevilla:

That's the interesting thing, because when a company's that big, they're thinking of ways to put it to use, right? And right there, there are opportunities whether or not that will be allowed or given approval, that's another thing.

Marcus Johnson:

Hey gang, it's Tuesday, March 5th, Gadjo, Jacob and listeners, welcome to Behind the Numbers Daily, [inaudible 00:00:47] podcast made possible by Nielsen. I'm Marcus. Today I'm joined by two folks, both of them are writers for our connectivity and tech briefing. One of them is an analyst who hangs out on the left side of the country. We call him Jacob Bourne.

Jacob Bourne:

Hey, Marcus, thanks for having me.

Marcus Johnson:

Hey, fella, thank you for hanging out. We're also joined by one of our senior analysts, he's on the right-hand side of America. It's Gadjo Sevilla.

Gadjo Sevilla:

Hey, Marcus. Happy to be back.

Marcus Johnson:

Hey, fella, happy to have you. Today's fact, gents, who invented the sandwich? Did you guys know who invented the sandwich?

Jacob Bourne:

The Earl of Sandwich, right?

Marcus Johnson:

Oh. I thought I was going to wow you. They're like, yeah. Yeah, we know.

Jacob Bourne:

It's one of those little unforgettable facts. Oh, there was somebody named Sandwich.

Marcus Johnson:

How do you guys even know this? He was from England.

Jacob Bourne:

Right. Yes.

Marcus Johnson:

All right.

Jacob Bourne:

They do teach us about UK history.

Marcus Johnson:

Well played, as well they should.

Gadjo Sevilla:

There was a story that he was too busy romancing people that he couldn't sit down to eat. So he just invented the sandwich.

Jacob Bourne:

I heard he had demanded the invention and he was bored with his food and demanded his servants whip him up something that was interesting and different. That's the story [inaudible 00:02:00].

Marcus Johnson:

Okay, so I do have how it happened here, or allegedly how it happened. So 1762, John Montague, the fourth Earl of Sandwich. Sandwich is a place in Kent, which is in the lower right-hand corner southeast of England. As the story goes, so the Earl of Sandwich was playing cards. He didn't want to leave the gaming table to eat. It appears he was quite a big gambler. He asked for a serving of roast beef to be placed between two slices of bread so he could eat with his hands, and the sandwich was born.

Jacob Bourne:

Okay.

Marcus Johnson:

But yeah, basically what you both said. All right. I was so excited about this one and everyone already knows. Fair enough. Well, today's real topic, merging humans with computers.

In today's episode. First in the lead, we'll cover what happens when you combine humans with AI. What could go wrong? Then for another news, we'll discuss what happens when ChatGPT remembers things, and Gemini's rough start. We start, of course, with the lead, and we're talking about what happens when you combine human beings with artificial intelligence. A brain chip startup, Neuralink is looking into this. It was founded by ex-Tesla and SpaceX owner, Elon Musk, and a bunch of neuroscientists back in 2016. And in May of last year, the company received FDA approval to start testing its brain implant technology in humans living with quadriplegia due to a spinal injury or amyotrophic lateral sclerosis or ALS. In September of last year, it received approval to recruit for the human clinical trial, and a few months after that, Neuralink announced that the first human ever had received a brain implant from the company where it's a brain computer interface, as it's called BCI.

Jacob Knutson of Axios explains that the device was implanted into the brain by a surgical robot that looks like a sewing machine with cameras, sensors, and a needle that's thinner than a human hair. Neuralink says the patient or subject is recovering well, and that initial results show promising neuron spike detection. That's the cellular activity between our brains and our nervous systems. A week or two after this, the company announced that the patient has fully recovered and is able to control a computer mouse using their thoughts, aka interpreting a person's neural activity, so you can operate a computer simply by intending to move the mouse cursor. Gents, the first question just has to be initial reactions. When you heard the first human ever has received a brain implant from Neuralink, Jacob?

Jacob Bourne:

Yeah. Well, my reaction is that this is something potentially big for humanity. Now, a patient controlling a mouse, actually, that happened about two decades ago. So while there's probably some innovation here that's old news. And so that's less of what makes me feel like this could be big for humanity.

Marcus Johnson:

Is this Matthew Nagle?

Jacob Bourne:

I don't remember.

Marcus Johnson:

2006.

Jacob Bourne:

2004, I thought actually, yeah.

Marcus Johnson:

2004, I found a piece by Andrew Pollack New York Times piece around that time. Yeah, 2006, his piece was, had a chap with spinal cord paralysis who got a brain implant that let him control the computer cursor. But the difference Sigal Samuel of Vox was noting the difference being that this brain implant was developed by a research consortium called BrainGate, with only about one-tenth the number of electrodes as Neuralink's device. But yes, it does sound like a very similar action that individuals been able to do.

Jacob Bourne:

But I think the crucial thing about this is that you have a tech company, Neuralink run by someone like Elon Musk, who has ambitions far beyond medical breaks [inaudible 00:05:41] with this technology. Just last year, he posted on X saying, when Neuralink has combined with Optimus, which is Tesla's human robot, the Luke Skywalker solution can become real. So that gives you an indication that this is going to be more than just a treatment for paralysis or other medical conditions.

Marcus Johnson:

The Luke Skywalker situation being...

Jacob Bourne:

We're going to be equipped with robotic like enhancements in space essentially.

Marcus Johnson:

Right. Luke Sky... Right, right. Okay. So referring to when he got his arm chopped off.

Jacob Bourne:

Right.

Marcus Johnson:

If you haven't seen the films, that's your own fault. You've had plenty of time and he gets his arm chopped off and then he gets a robotic arm.

Jacob Bourne:

Yeah, it's like a bionic human type adaptations.

Marcus Johnson:

Exactly.

Jacob Bourne:

Okay. And so yeah, that's apparently, I think where Musk wants to take us through Neuralink, and I think that's what's new about the [inaudible 00:06:29].

Marcus Johnson:

Okay. Gadjo, how about you?

Gadjo Sevilla:

So yeah, so actually there's this US company called Synchron who beat Neuralink to the first trials for brain computer interface back in 2022. That was a purely medical procedure. So what came to my mind is that it's like Jacob said, it's an Elon Musk company. So it could be a more aggressive player in the market, not just because of the limitless funding, but also because Musk does see it as a means to upgrade humans in many ways. So definitely to get approval, he has to clear the medical applications, but his big picture could be anything. I mean, really sky's the limit, which could be scary if you think about it.

Marcus Johnson:

Yeah, we're going to talk through some of those potential ambitions for Neuralink, but you are right. Yeah, Synchron, as you said, they did some work similar to this in 2022. They received

FDA approval for human trials of brain machine interfaces in 2021. So yeah, a lesser known company, but similar work. My first reaction or initial reaction was, wow, because I don't follow this as closely as you two gents, and so a lot of folks as well, they wouldn't have heard that this is possible, that this has happened. So my initial reaction was just, wow, they drilled a hole into someone's head and then put a chip into their brain with a needle thinner than human hair, and this person using their thoughts can now control things.

But my next thought after doing some reading was, this is very much just the first step, what you're alluding to, I would argue Tim Higgins of the Journal writing, the announcement itself marked an important step in this ambitious journey is a milestone similar to successfully launching the first rocket at SpaceX, and that was to lead up to Musk's effort to one day reach Mars or delivering the first electric vehicle at Tesla, which is leading up to his goal of eventually ushering in a renewable energy world. So very much the first step here, Mr. Musk mentioned that Neuralink was now trying to get the brain implant patient to click the mouse button with their mind as many times as possible. But outside of that, or getting this individual to do other things with their mind, what is the next step for Neuralink?

Jacob Bourne:

It's hard to say. Actually, the medical community has been a bit concerned about the level of transparency it's been getting from Neuralink regarding this clinical trial, human trial. It's been less than what you'd expect for this type of trial going on. So I think if it's not fulfilling that basic level of transparency, then we're not really going to get a lot of detail on what it's doing next as a company. But I imagine that it's going to, Musk and the leaders at Neuralink are going to have their foot on the gas pedal in terms of advancing this. What we do know from when it was at the animal stage of research for the brain-computer interface was that apparently employees who worked for Neuralink said that the experiments were rushed and as a result, caused unnecessary pain and suffering for some of the primates. And so that's a concern of course, now that we're working with humans, it's a concern along its own as well. But it begs the question, okay, is it going to continue to rush this technology?

Marcus Johnson:

Yeah, yeah. Next, next step, it seems like medical advancement is the route that they've gone down. Now, it's easier to get FDA approval for something like that than it's to put chips and humans minds and get them to move things just for entertaining purposes. Neuralink's marketed the device as being able to treat neurological diseases and injuries, but it does seem

as though, yeah, folks in these communities not convinced about Neuralink's altruism. But it's a shame because it does seem like a technology that could help a lot of folks in need. Over 5 million people live with paralysis in America according to the Christopher and Dana Reeve Foundation. That's a lot of people, but it does seem like there's quite a lot of skepticism in terms of the real intentions behind this. Gadjo, what do you see as the next step for the company?

Gadjo Sevilla:

I mean, it's a very limited segment. A few number of players in the market. I mean, they're not alone, but that just means lengthy training and standards testing before the FDA can allow them to go further. And to that, the FDA just I think, announced today that they're not satisfied with how Neuralink has conducted some of its tests. So they've taken issue with some of the methods that they're using and a lot of the tracking. So I think it's still definitely a long road ahead. However, people don't seem to be too convinced. A peer research paper said 70% of Americans said they would not want a computer chip implant that would allow them to better process information. So this is over and above the medical applications. If it's just being offered as a way to upgrade your brain maybe, it's going to be a very hard sell just because it's new and it's super invasive as well.

Marcus Johnson:

Yeah. So aside from the potential health benefits, helping people with paralysis, what are some other applications you could see folks using this technology for, getting excited about this technology?

Jacob Bourne:

I think some of the initial commercial applications we would see is people just interacting with their tech devices like smartphones and PCs using their thoughts, whether it's scrolling or clicking on something or opening an app. Now, all these devices are increasingly becoming AI enabled. So you can envision, this would probably be a bit further out, but someone being able to interact with ChatGPT, for example, a chatbot with their mind, instead of having to access it directly on a device, and this is in line with Musk's plan for an augmented human intelligence. Musk did say that this technology could help offset the AI related job losses that people concerned about.

Another way of seeing that is you won't have to worry about getting replaced by a computer if you become one, is the way I think about it. Another thing we could see is applications in BR and AR, making the technology more immersive, hyper-realistic, make it more of a sensory experience, not just appearing visual without the need for an external device. Now that said, a couple of neural links competitors at least have the same interface, but it doesn't have to be invasive. In other words, it can sit on top of your skull instead of be inserted inside of it. So that's a potential competitive factor for Neuralink, like Gadjo was saying, who wants this invasive procedure? It might not necessarily have to be so invasive.

Marcus Johnson:

Because there are quite a few other companies in this space, which I hadn't heard about, but BlackRock Neurotech, Precision Neuroscience, Paradromics, Gadjo mentioned Synchron. Any other applications come to mind for you, Gadjo, with regards to this type of merging of the human brain and AI outside of the health benefits?

Gadjo Sevilla:

If you just take it within the context of Elon verse, his number of companies. So could this be the next step for autopilot on Tesla OS? Can you apply it to SpaceX manned missions for monitoring and controlling personnel? I mean, that's the interesting thing because when a company's that big, they're thinking of ways to put it to use. Right there, there are opportunities whether or not that will be allowed or given approval, that's another thing. But certainly, I mean, once you get that first step, it wouldn't be too difficult to spread out to those areas.

Marcus Johnson:

So playing things forward and taking many more steps down this road. So Neuralink says its aim is to redefine the boundaries of human capability. That's what it says, but I'm wondering what you think of its actual ultimate goal and why it's trying to get there. Merging the brain with AI does seem to be what it's trying to do. Bill Chappell of NPR points out Mr. Musk has previously spoken about the idea of a neural lace, which could add a symbiotic digital layer to the human brain, merging it with AI. This is a concept that Mr. Musk has taken from one of his favorite science fiction authors, Iain Banks, whose book's focused on super intelligent AI. Why Mr. Samuel of Vox explaining that Mr. Musk thinks that because we are developing AI that will be smarter than us, Jacob to what you were saying, the plan should be basically, if you can't

beat them, join them, become an AI enhanced human yourself, and you'll be able to keep up with the pace of change. What do we make of this future, this vision that Neuralink has for humanity?

Jacob Bourne:

I mean, I think we just, again, look back to Musk, what has Musk said? Because it's again, a Musk-led company. And one of the things he talks about a lot is the potential threat that AI or artificial general intelligence, a super intelligent AI could have to humanity. And so I think one of his thoughts is to have this technology be a way to make AI and humans more symbiotic. So in other words, potentially solving that AI alignment problem where it's currently not in line with human values, but it could be, and maybe one way we get there is by having it be part of our brain. I think the other thing that Musk, again, you talked about this Marcus, is how he talks a lot about humans becoming interplanetary species. That's one of his big focuses right now with SpaceX. SpaceX has become integral to NASA's work.

And so I think this space exploration avenue is probably a big one for Neuralink in terms of having humans potentially control spacecraft with their minds or just having an AGI with a human's face to help you overcome some of the unforeseen challenges that you are sure to encounter there. But I think in general, I don't think we could talk about this technology without talking about the inherent digital privacy issue. And actually the UN last year warned about the potential for this type of technology to make human thoughts, it would be the end of privacy, no more private internal thoughts. And so I think there is a mind-reading angle to this too, in terms of what you could do if you really knew what people are thinking all the time, and that's probably part of what's involved.

Marcus Johnson:

Yeah, they were talking about the idea of a brain fingerprint, and there are some countries that have used that type of technology. Basically, it seemed like it was a lie detector, but for your brain. And so they could show you pictures and if your brain activity went crazy and it showed that you knew the person, if it didn't, it showed that you didn't know the person. As well as the idea of, so your thoughts being taken from you, but also the idea of what happens if this thing gets hacked, what happens if it can control the information that you are taking in or maybe control your emotions one way or another. So some pretty dystopian futures.

Jacob Bourne:

And if you look right now what's happening with tech companies trying to get data for AI model training, think about the amount of data they get from this type of interface where they have a steady feed of human thoughts. I mean, it would be incredible.

Marcus Johnson:

Yeah, yeah. We've seen this type of technology, as you mentioned for a while with Matthew Nagle back in 2006, controlling the computer cursor with his minds. And then we've got, as many folks, I was reading, already using neural implants that are similar to pacemakers to treat seizures that do not respond to medications. So the technology's out there, but who's using it and how they're using it obviously is a big part. It's the Pentagon as well, previously devoting funds to explore the potential for military applications. Good God. All right, that's all we've got time for the lead. We'll leave the conversation there. I'm sure we'll be revisiting it very, very soon.

Time for the second half of the show today. In other news, what happens when ChatGPT remembers things and Gemini's rough start. Story one. What happens when ChatGPT remembers things? OpenAI is adding a feature that lets ChatGPT remember information about individual users and apply it to future chats. Notes Axios is [inaudible 00:18:13] think ChatGPT, but with a memory. They note that the feature is rolling out to a small number of free and paid ChatGPT plus subscribers. First, users can see what ChatGPT is storing as memories opt to delete certain ones if they want to. Folks can also opt out of the memory feature entirely. But Jacob, what's the impact of ChatGPT being able to remember things you have previously told it?

Jacob Bourne:

I mean, I think this is really a prompt enhancing feature. In other words, you don't have to put as much effort into your prompt if ChatGPT already knows a lot about you in terms of what you usually prompt about, what output you want to get, details about you as a user. So it really saves a lot of time. Hopefully it would result in better, more useful output. The other thing is if we look at OpenAI's goals, specifically, CEO Sam Altman wants to build a super smart personal assistant. The startup is also working with AI agents that can take actions for you on your computer in the background, like booking flights for example. In order to do that successfully, the AI would have to have a good working memory to know about your preferences and what you want so that you don't have to prompt it. It would be able to act more autonomously if it's able to remember more information.

Marcus Johnson:

Yeah. Story two, Gemini's, rough start, Google suspended part of its latest AI technology, Gemini, after a user recently asked the AI to generate images of a German soldier in 1943. And eventually it turned out a picture of several images of people of color in German World War II uniforms. The AI also created an image of the US founding fathers, which inaccurately included a person of color as well. But Gadjjo, what do you make of this recent story?

Gadjjo Sevilla:

So the easy answer is that Google's Gemini has been overcorrecting to avoid white bias, and the result is the opposite. So it's skewed towards people of color to be more inclusive in their image generated results. But I think the big issue here is Gemini wasn't striving for accuracy. Rather it was editorializing the results of these prompts. And so that reflects really the greater problem with tech companies being the arbiters of content, since the AI is only as good as the data it's trained on. And for Google, it really doesn't bode well for them because Gemini is essentially a take two of BARD, and so they've had a year to improve. It was supposed to be better. And we are starting to see that it isn't perfect, and it also doesn't help Gemini is being touted as the replacement for Google Search and Assistant, which are key products for Alphabet.

Marcus Johnson:

Yeah, that's all we've got time for today's episode. Gents, thank you as always. Thank you to Gadjjo.

Gadjjo Sevilla:

Thank you very much.

Marcus Johnson:

Thank you to Jacob.

Jacob Bourne:

Thanks Marcus.

Marcus Johnson:

And thank you to Victoria who edits the show, James, Stewart and Sophie, the rest of the podcast crew. Thanks to everyone for listening in to the Behind the Numbers Daily, [inaudible 00:21:09] podcast, made possible by Nielsen. You can hang out with Sarah Lebow tomorrow, host of the Reimagining Retail Show, where she'll be speaking with our very own Susie David Canyon and Nancy Youssef at Soul for Souls, all about sustainability in retail.