Wearable AI: will it put our smartphones out of fashion?

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Imagine it: you're on the bus or walking in the park, when you remember some important task has slipped your mind. You were meant to send an email, catch up on a meeting, or arrange to grab lunch with a friend. Without missing a beat, you simply say aloud what you've forgotten and the small device that's pinned to your chest, or resting on the bridge of your nose, sends the message, summarises the meeting, or pings your buddy a lunch invitation. The work has been taken care of, without you ever having to prod the screen of your smartphone. It's the sort of utopian convenience that a growing wave of tech companies are hoping to realise through artificial intelligence. Generative AI chatbots such as ChatGPT exploded in popularity last year, as search engines like Google, messaging apps such as Slack and social media services like Snapchat raced to integrate the tech into their systems. Yet while AI add-ons have become a familiar sight across apps and software, the same generative tech is now making an attempt to join the realm of hardware, as the first AI-powered consumer devices rear their heads and jostle for space with our smartphones. One of the first out of the gate will be the Ai Pin from California startup Humane. Only a little bigger than a tin of Vaseline, it's a wearable device that attaches to your shirt via a magnet. It can send texts, make calls, take pictures and play music. But it doesn't support apps or have a screen. Instead, it uses a laser to project a simple interface on to your outstretched palm, and its inbuilt AI chatbot can be instructed through voice commands to search the web or answer queries in much the same way you would expect of ChatGPT. "I am planning to train Ai Pin to be my personal assistant and facilitate my writing and creative work," says Virginia-based consultant Tiffany Jana, who's pre-ordered the device before its initial US launch in April (Humane hasn't yet announced a full global release schedule). She travels frequently and hopes it will be able to take the place of an accompanying photographer and translator. "I don't have all the assistants and the massive team that once supported me. I've always been a technophile and I enjoy ChatGPT." Facebook parent company Meta, meanwhile, has already put out a pair of AI-powered smart glasses in partnership with Ray-Ban, and Chinese companies TCL and Oppo have followed suit with AI spectacles of their own. They all do much the same thing as the Ai Pin, and are being marketed for the way they connect to an AI chatbot that responds to voice commands. If all of this sounds remarkably similar to what the voice assistant on your smartphone or the Alexa in your living room is already capable of, that's because it essentially is. "Using AI in new devices is standard even nowadays," says David Lindlbauer, assistant professor at the Human-Computer Interaction Institute at Carnegie Mellon University in Pennsylvania. "Everyone uses Google's suggestions, Apple Siri for interacting with their phone, or smart suggestions for

apps on their phones." The difference, he says, is that these new and forthcoming devices try to embed their AI capabilities in "a less obtrusive and more ubiquitous manner". That design intention is most obvious in the forthcoming Pendant from US startup Rewind and the Tab AI from software developer Avi Schiffmann. These small devices are designed to dangle around your neck and passively record everything you hear and say during the day, before transcribing and summarising the most important bits for you to read back at your convenience later. They're productivity tools, essentially, that bundle the sort of generative AI features seen elsewhere into a standalone device. A problem of purpose? But why would you want a device that does little more than what your smartphone is already capable of? In part, to free yourself from its less welcome elements. Humane is pitching the Ai Pin as a way of curbing the overuse of smartphones by offering the same essential functions without the addictive apps that keep us compulsively scrolling. "An alcoholic is not addicted to the bottle, but to the contents," says Christian Montag, head of molecular psychology at Ulm University in Germany, by way of analogy. Social media platforms in particular, he says, often have an interest in deliberately prolonging screen time to present more adverts to us or harvest our personal data. And while experiments have shown that using a smartphone in greyscale mode reduces user retention, getting rid of its screen altogether could have an even more profound effect. It's a paring down that may seem counterintuitive to the tech world's ever-growing appetite for new features and gadgets, but is perhaps not as alien as it would first appear. "A lot of people wear headphones throughout their day," says Lindlbauer, "so it is perfectly feasible to move away from the temptation to doom-scroll towards technology that provides access to the digital world constantly but unobtrusively." Yet wearable tech has a patchy history. Google tried to popularise the idea of smart glasses back in 2013 with the launch of Google Glass. Although lacking an AI chatbot, it was similarly designed as a smartphone replacement that would provide information to users through a lens display and could respond to voice commands. "Many consumers found Google Glass to be unfashionable and compared the product to cyborgs," says Jannek Sommer, associate professor at the University of Southern Denmark's department of business and management. The first iteration of the Samsung Galaxy Gear smartwatch faced similar problems, too, with its advertising drawing an ill-received association between the device and the sci-fi gadgets of Hollywood films. "After some years following this approach," Sommer says, "the industry slowly realised that their positioning was off." Indeed, the Ai Pin is all minimalist design and rounded corners, while Meta's partnership with Ray-Ban is indicative of the kind of sartorial credibility it hopes to earn. Even with wearable tech, though, looks aren't everything. "While hype, novelty and fashion are important drivers in the wearables market, the industry's failure to consistently provide consumers with an experience of practical value seems to be a serious barrier," says Sommer. "And this speaks to the still quite immature state of the technology." Nowhere was this demonstrated better than during the Ai Pin's debut reveal video. Asked to estimate the amount of protein in a handful of almonds, it confidently misstated the nuts' nutritional content. Then, later in the reveal, it wrongly advised the best place from which to view a forthcoming solar eclipse. These "hallucinations" – in which an AI model gives false information or fabricates details – are common to all chatbots and similarly derailed the launch of Google's AI chatbot, Bard, last year. But even were these problems to be ironed out, wearable AI devices still face issues of purpose. Samsung, Google and other manufacturers have already rolled out AI-powered features in their latest models of smartphones, equipping them with the same productivity tools – namely, message drafting, translation and instant querying – that these wearable AI devices boast. And just last month, German telecoms company Deutsche Telekom showcased a smartphone concept that relies solely on AI and supports no apps at all. "Most effort in the foreseeable future will be focused on integrating generative AI into existing form factors, as this will offer more obvious commercial opportunities," says Reece Hayden, senior analyst at global technology intelligence company ABI Research. As such, it's perhaps telling that Humane's own chief executive, Imran Chaudhri, has conspicuously refused to break down the time he spends using his Ai Pin versus his regular phone. Until we see an application of AI that necessitates a new form of device, our smartphones, laptops and desktops will probably continue to be the primary way we interact with the tech. Thinking bigger Yet discussions about those wider applications are starting to be had. For some, the tech's future lies not in how it can be integrated into existing platforms, but how it may fundamentally change the way we access them. "You won't have to use different apps for different tasks," said former Microsoft chief executive Bill Gates in a blogpost that outlines his vision. "You'll simply tell your device, in everyday language, what you want to do," then leave it up to the device to work out what apps, platforms and information are needed to complete the task you've set it. It's an idea that will be put into preliminary practice by the R1. Produced by California AI startup Rabbit, the R1 is a handheld device that looks a little like a portable games console and operates much like a powerful voice assistant. But rather than simply connecting to an AI chatbot that generates passive responses to your commands (as other wearable gadgets do), it's designed to interact directly with the apps on your phone on your behalf. The idea, then, is for the R1 to act as an all-in-one interface for your devices – a sort of central app through which you can control everything else. "We're not building products for new use cases; we are creating what we feel are better and more intuitive ways to address existing use cases," says Rabbit chief executive Jesse Lyu. He describes the R1 as a "digital companion" that won't replace your smartphone, but make it easier to use. The value of that approach will be seen when the R1 launches later this year. Although we can expect similarly experimental devices to follow. Sam Altman, chief executive of OpenAI, the company behind ChatGPT, is already reportedly in talks with former Apple chief designer Jony Ive to explore hardware ideas. And a troupe of startups and Silicon Valley heavyweights are now competing to create the chips and processors these new devices will need to power their AI models. Whatever form these AI devices eventually take, they'll have a tough job competing with the

globally connected, hyperfunctional, intuitively controlled glass rectangles in most of our pockets– although, as ubiquitous as smartphones may seem, even they have a shelf life. “The smartphone has only been with us for about 15 years,” says Lindlbauer. “I don’t want to believe that the smartphone is the pinnacle of technology, or that we will be using smartphones the same way we are now in [another] 15 years.” • This article was amended on 2 April 2024. Jannek Sommer is an associate professor, rather than an assistant professor as an earlier version said.