Weekly Progress Roundup

China fights off the desert, an AI tutor arrives at US schools, Google announces a new quantum chip.

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China is slowly winning its war on the desert

China's arid northwest is becoming slightly less so. Late last month, workers completed a 2,000-mile ring of trees around China's Taklamakan Desert, the latest milestone in a 46-year effort to control desertification. The initiative appears to be making incremental progress: *Reuters* reports that 26.8 percent of China's land is currently desert, down from 27.2 percent ten years ago.

Khan Academy founder brings AI tutor to American schools

Sal Khan, founder of the education non-profit Khan Academy, has partnered with OpenAI to build an AI tutor called Khanmigo, which is now being tested in 266 US school districts. Besides tutoring, the tool can give feedback on essays, write lesson plans, and flag plagiarism.

The promise of Khanmigo is a chatbot that younger students will engage with as a teacher rather than just a homework-completing machine.

Google announces cutting-edge quantum chip

Google has taken another step towards useful, scalable quantum computers.

Some brief context: bits, the basic units of classical computing, are binary, meaning they can only be in one of two states: 0 or 1. In contrast, quantum bits, or qubits, can exist in a superposition of these states, giving them a massive edge in certain types of computations. However, qubits easily lose their quantum properties when interacting with their environment. And, even under controlled conditions, their quantum operations are prone to errors.

With its latest chip, named Willow, Google made advancements related to both problems. First, it significantly improved how long qubits can maintain their quantum states. Second, it reduced computational errors while increasing the number of qubits:

"We tested ever-larger arrays of physical qubits, scaling up from a grid of 3x3 encoded qubits, to a grid of 5x5, to a grid of 7x7 — and each time, using our latest advances in quantum error correction, we were able to cut the error rate in half. In other words, we achieved an exponential reduction in the error rate."

Energy & Environment:

- Cutting-Edge Tech Is Guiding Nature Restoration in UK Forests
- Could a Multivitamin Help Save Coral Reefs?

Education:

- Developing Regions Are Far More Schooled than 20 Years Ago

Health & Demographics:

- Americans Far Safer from Cancer at Same Ages as in 1990
- Mali Rolls Out Cancer-Blocking Jab

Science & Technology:

- OpenAI's ChatGPT Will Respond to Video Feeds in Real Time
- OpenAI Makes Video Generator Sora Publicly Available in US
- Gemini 2.0 Has Enhanced Performance and Fast Responses
- Satellites Reveal Stunningly Detailed Maps of Earth's Seafloors
- New Ironmaking Breakthrough Achieves Huge Productivity Boost