Sharing Traditional Edo Culture Through AI

A Tokyo-based startup has developed AI models that accurately represent traditional Japanese culture, aiming to help people understand and connect with it.

The optical character recognition (OCR) model miwo can translate traditional handwritten text into modern Japanese.

F rom business and research to personal use, AI is rapidly being incorporated into a wide range of fields. However, AI tools versed in local contexts and cultures remain limited. In Japan, the Tokyo-based startup Sakana AI aims to address this gap.

Beginning its activities in January 2024, Sakana AI's team includes a mix of Japanese and international members. They share a vision for creating smaller-scale, flexible AI models based on the ideas of evolution and collective intelligence.

Clanuwat and the team at Sakana AI aim to develop AI models that deeply understand Japanese context.

"We want to build AI models that actually understand Japanese context: Japanese culture, Japanese society," says Tarin Clanuwat, a research scientist with Sakana AI.

Generating Interest in Traditional Art and Literature

Clanuwat, who grew up in Thailand and earned a PhD in classical Japanese literature in Tokyo, loved traditional Japanese culture from a young age. However, she worries that interest in classical literature is falling, in part because it is seen as intricate. Indeed, many today have difficulty reading the traditional Japanese handwritten script.

In her work at Sakana AI, she is developing AI tools to make classical Japanese literature and traditional culture more accessible and interesting.

First, Clanuwat created miwo, an optical character recognition (OCR) model that scans traditional handwritten text—called *kuzushiji*—and converts it
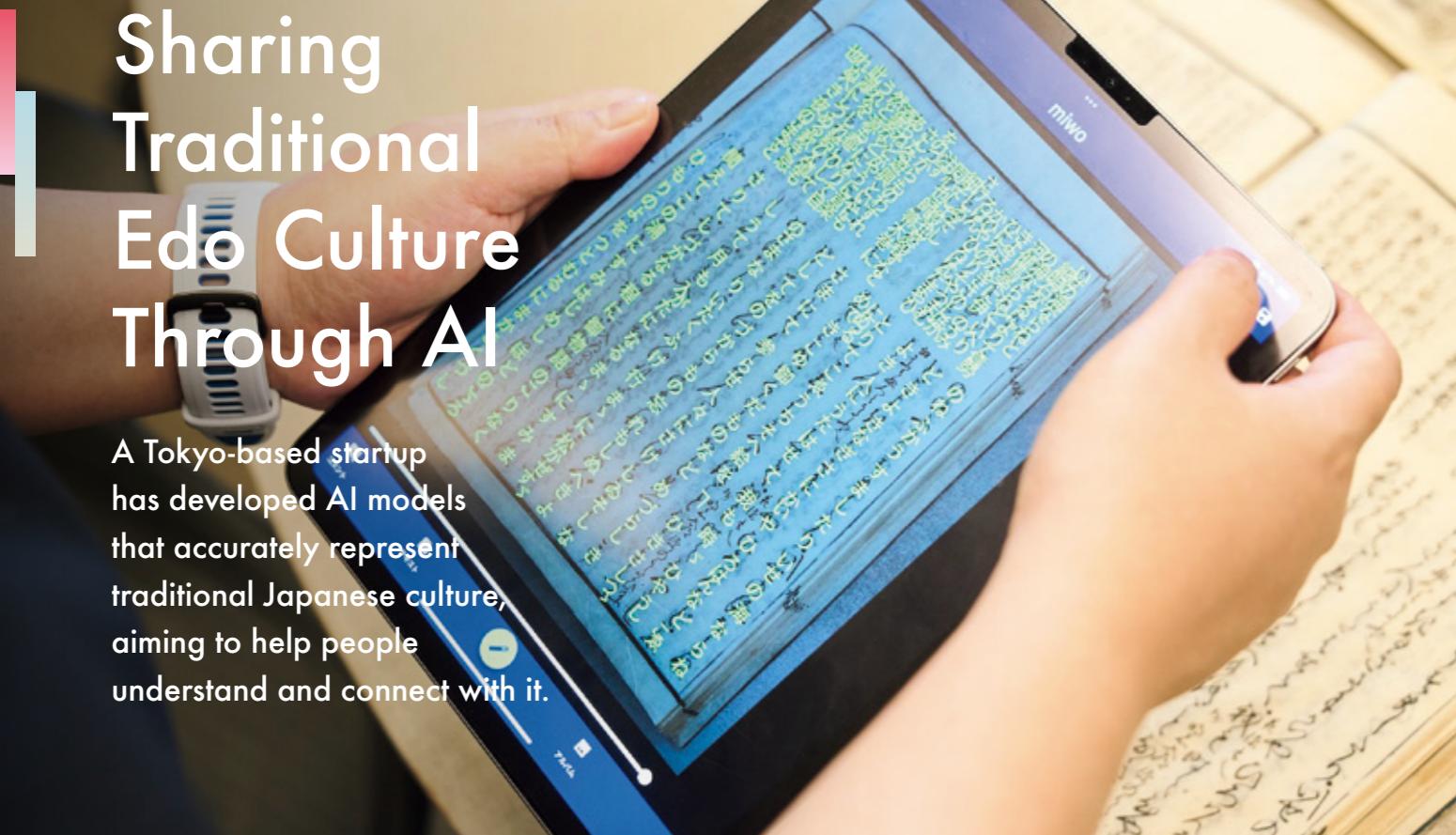
Images generated by Evo-Ukiyoe v2 (under development), which was developed by Sakana AI.

to modern Japanese. She hopes to continue developing miwo to be able to process a wider range of documents, translate into other languages, and even answer questions about the text.

With its app already downloaded over 200,000 times, miwo is a great boon for researchers. "I want to make the AI able to access minor works that have not yet received significant, if any, scholarship. I really want to make the books that no one has read accessible," Clanuwat says.

Another of Clanuwat's AI creations is a chatbot called Karamaru, which communicates using vocabulary and a perspective representative of Japan's Edo period (1603–1868). Trained on 2,500 Edo-period books, Karamaru aims "to prove that we can use historical texts to train a model to actually understand historical context," Clanuwat says.

In addition to text, Clanuwat has collaborated with Ritsumeikan University's Art Research Center to develop an AI tool called Evo-Ukiyoe that can accurately produce images in the style of ukiyo-e, a genre of woodblock prints popular during the Edo period. A sister tool, Evo-Nishikie, can colorize woodblock prints from books. The models were trained on the 24,000 ukiyo-e prints in Ritsumeikan's collection.

Discovering Edo in Tokyo

Clanuwat is far from the only AI developer who feels the pull of Tokyo. She says Sakana AI receives many applications from developers overseas. "They think, 'Oh, I want to live in Tokyo once in my life,'" she explains.

For herself, Clanuwat hopes more people, whether they were raised in Japan or overseas, develop

an interest in traditional Japanese culture.

Tokyo is fertile ground for nurturing such an interest. The Jimbocho neighborhood, for example, is well known for its second-hand bookstores and galleries, some offering ukiyo-e prints and texts from bygone eras. Long-established shops are another link to the past: Clanuwat has found stores listed in city guides published during the Edo period that are still in business today.

Clanuwat hopes her AI model miwo will help scholars and others access little-studied classical Japanese texts.

"There are many places in Tokyo where you can actually touch the real Edo," she says. Even the physical books themselves can offer a glimpse into life back then—from between the pages of her Edo-period copy of *The Tale of Genji*, a classic Japanese novel, Clanuwat pulls a dried leaf, inserted by a previous owner to ward off paper-eating insects.

Clanuwat praises the people of Japan for carefully preserving documents and art across hundreds of years, passing on valuable knowledge to the people of today. With the help of AI, she believes, we will not let their efforts go to waste.