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Empire
of AI

Dreams and Nightmares
in Sam Altman's OpenAI

KAREN HAO

Epilogue

How the Empire Falls

I n 2021, I came across a story that felt different from any that I'd ever reported: the story of an Indigenous community in New Zealand that was using AI to revitalize *te reo Māori*, the language of the Māori people.

Like many Indigenous groups globally, the Māori had suffered from generations of horrific treatment under colonial rule; in 1867, under the Native Schools Act, which made English the only language that could be taught in schools, Māori children were shamed and even beaten for speaking their own language. After rapid urbanization swept across the country in the early 1900s, Māori communities disbanded and dispersed, weakening their centers of culture and language preservation. The number of *te reo* speakers plummeted from 90 percent to 12 percent of the Māori population. By the time New Zealand, or Aotearoa as the Māori originally named their land, had reversed its policies 120 years later, there were few *te reo* teachers left to resuscitate a dying language. Like so many other languages before it, *te reo* nearly disappeared off the face of the earth.

It's hard to fully convey the tragedy of losing a language. For the same reasons AI researchers first gravitated toward language to build their technologies, the loss of a language extends far beyond the loss of a form of communication. Each language encodes within it rich histories,

cultures, knowledge; it is the collective product of millions of people across time grasping for the sounds and written forms to capture the subtlest observations about the universe, about life, about the human experience; to share with one another stunning beauty and painful failure; to teach a child, to learn from an elder; to express love.

To lose a language is a global tragedy; it's also a personal one. To be severed from your inheritance and forced to preserve someone else's, or risk being beaten, is to establish, in one of the rawest ways possible, a clear hierarchy between whose history, whose culture, whose knowledge deserves to be passed down and whose is so insignificant it deserves to be erased.

Large language models accelerate language loss. Even for models several generations earlier like GPT-2, there are only a few languages in the world that are spoken by enough people and documented online at sufficient scale to fulfill the data imperative of these models. Among the over seven thousand languages that still exist today, almost half are endangered according to UNESCO; about a third have some online presence; less than 2 percent are supported by Google Translate; and according to OpenAI's own testing, only fifteen, or 0.2 percent, are supported by GPT-4 above an 80 percent accuracy. As these models become digital infrastructure, the internet's accessibility to different language communities—and the accessibility of the economic opportunities it provides—will continue to shrink, incentivizing more and more of those communities to prioritize learning and speaking a dominant language like English over their own.

It was up against this impending existential threat—a fundamentally different conception of what is existential—that an Indigenous couple, Peter-Lucas Jones and Keoni Mahelona, first turned to AI as a possible tool for helping a new generation of speakers return *te reo* to its vibrancy. Jones, who is Māori, and Mahelona, who is native Hawaiian, are partners in work and in life. The two men met and fell in love, Mahelona says, after a vision came to him in a dream: If he moved to New Zealand, he would meet a Māori boy with whom he'd share his life.

In 2012, the two moved from Wellington back to the town where

Jones was born, Kaitāia, in Aotearoa's northern reaches. Jones became CEO of Te Hiku Media, a public radio station that broadcasts in *te reo*, part of a broader network of media and other organizations engaged in *te reo*'s revitalization. In his new role, Jones identified an opportunity. Over its twenty-odd years of broadcasting, Te Hiku had amassed a wealth of archival audio of people speaking *te reo*, including a recording of his own grandmother Raiha Moeroa, born in the late nineteenth century, whose accent had yet to be distorted by the influences of the colonizers' English. Jones also had an ambition to record many more interviews with Māori elders to document their oral histories and native *te reo* before they passed away. These recordings, as Jones saw it, could be a precious language-learning resource, a portal back in time for newer generations of *te reo* speakers to hear the original sounds of their language and connect with the wisdom of their ancestors.

The challenge was transcribing the audio to help learners follow along, given the dearth of fluent *te reo* speakers. So in 2016, just as OpenAI was getting started, Jones turned to Mahelona, who was revamping Te Hiku's website, to figure out a solution. A polymath, Mahelona had studied mechanical engineering at Olin College, business management for his first master's, and physics and computational nanotechnology for his second as a Fulbright scholar in New Zealand. He quickly came up with the idea of using AI: With a carefully trained *te reo* speech-recognition model, Te Hiku would be able to transcribe its audio repository with only a few speakers.

This is where Te Hiku's story diverges completely from OpenAI's and Silicon Valley's model of AI development. Intimately familiar with the devastating effects of colonial dispossession, Jones and Mahelona were determined to carry out the project only if they could guarantee three things—consent, reciprocity, and the Māori people's sovereignty—at every stage of development. This meant that even before embarking on the project, they would get permission from the Māori community and their elders, asking them if the endeavor was even something they wanted; to collect the training data, they would seek contributions only from people who fully understood what the data would be used for and

were willing to participate; to maximize the model's benefit, they would listen to the community for what kinds of language-learning resources would be most helpful; and once they had the resources, they would also buy their own on-site Nvidia GPUs and servers to train their models without a dependency on any tech giant's cloud.

Most crucially, Te Hiku would create a process by which the data it collected would continue to be a resource for future benefit but never be co-opted for projects that the community didn't consent to, that could exploit and harm them, or otherwise infringe on their rights. Based on the Māori principle of *kaitiakitanga,* or guardianship, the data would stay under Te Hiku's stewardship rather than be posted freely online; Te Hiku would then license it only to organizations that respected Māori values and intended to use it for projects that the community agreed to and found helpful.

"Data is the last frontier of colonization," Mahelona told me: The empires of old seized land from Indigenous communities and then forced them to buy it back, with new restrictive terms and services, if they wanted to regain ownership. "AI is just a land grab all over again. Big Tech likes to collect your data more or less for free—to build whatever they want to, whatever their endgame is—and then turn it around and sell it back to you as a service."

From beginning to end, Jones and Mahelona pulled off the project without compromise. At one point, they kicked off an education campaign to teach more Māori people about AI and a community competition to crowdsource data donations and annotations. Within ten days, Te Hiku gathered three hundred ten hours of high-quality transcribed audio from some two hundred thousand recordings made by roughly twenty-five hundred people. The level of engagement was unheard of among many AI researchers—one that is a testament to the level of trust and excitement Te Hiku's approach engendered within its community. People were more than willing to donate their data once they understood and consented to the project, and with full trust that Te Hiku would continue to steward that data appropriately.

That data pool paled in comparison to the six hundred eighty thou-

sand hours of audio that OpenAI ripped from around the web to train its speech-recognition tool, Whisper. But it is yet another lesson to be drawn from Te Hiku's experience that the three hundred ten hours still proved sufficient for developing the very first *te reo* speech-recognition model with 86 percent accuracy. Where OpenAI seeks to develop singular massive AI models that will do anything, a quest that necessarily hoovers up as much data as possible, Te Hiku simply sought to create a small, specialized model that excels at one thing. In addition, Te Hiku benefited from the cross-border, open-source AI community: As its starting point, it used a free speech-recognition model from the Mozilla Foundation called DeepSpeech, which itself is an artifact of a different vision of AI development. Like Te Hiku, Mozilla trained the model only on data donated with full consent and built it using a neural network architecture developed by the Bay Area–based research lab of the Chinese company Baidu. In all, Te Hiku used only two GPUs.

I wrote about Te Hiku's work before ChatGPT swiftly seized the dominant AI development paradigm, all but tossing consent, reciprocity, and sovereignty out the window. But in the years since, I've come to see Te Hiku's radical approach as even more relevant and vital. The critiques that I lay out in this book of OpenAI's and Silicon Valley's broader vision are not by any means meant to dismiss AI in its entirety. What I reject is the dangerous notion that broad benefit from AI can only be derived from—indeed, will *ever* emerge from—a vision for the technology that requires the complete capitulation of our privacy, our agency, and our worth, including the value of our labor and art, toward an ultimately imperial centralization project.

Te Hiku shows us another way. It imagines how AI and its development could be exactly the opposite. Models can be small and task specific, their training data contained and knowable, ridding the incentives for widespread exploitative and psychologically harmful labor practices and the all-consuming extractivism of producing and running massive supercomputers. The creation of AI can be community driven, consensual, respectful of local context and history; its application can uplift and

strengthen marginalized communities; its governance can be inclusive and democratic.

Te Hiku isn't the only organization pursuing new paths for AI development. Through the course of my reporting for this book, I was repeatedly inspired by the many organizations and movements around the world that have blossomed to resist the empires of AI, assert their rights to self-determination, and envision a new way forward.

After Timnit Gebru was ousted from Google, she founded a nonprofit in December 2021 to continue her research. She named it DAIR, the Distributed AI Research Institute—"distributed" to defy centralization. "That was the first word that came to my mind," Gebru says. She imagined building a team of researchers from around the world who would stay embedded in their communities to bring the rich experiences and perspectives of their local contexts to the institute's work, while also using that work to benefit those communities. "Tech is impacting the whole world out of Silicon Valley, but the whole world is not getting a chance to impact tech," she says.

Alex Hanna, a sociologist and one of the Google coauthors on the "Stochastic Parrots" paper, became the first to join Gebru as DAIR's director of research. Hanna's first order of business was to write a research philosophy to further elaborate the ethos of the organization's work. To do so, Gebru and Hanna hired DAIR's third person, Milagros Miceli, another sociologist and computer scientist who had been conducting research into the AI industry's exploitative labor practices. Together they wrote their philosophy: "Our research is intended to benefit communities which are typically not served by AI and create pathways to refuse, interrogate, and reshape AI systems together."

They created seven pillars for the philosophy's implementation, including centering and forging meaningful relationships with communities affected by but not yet typically represented in AI research, treating them as true partners in the pursuit of knowledge production, fairly compensating any forms of labor involved in the creation of research and technologies, questioning the systems underpinning AI development that marginalize those who've always been historically marginalized,

and working with those communities to dream up alternatives that could bit by bit remold the world toward one they wanted to inhabit.

From there Miceli embarked on a new research project to put their philosophy into practice. She created the Data Workers' Inquiry and invited data workers from around the world to formulate their own research questions about the data-annotation industry and how to make it better. Regardless of where they lived, she paid them a standard researcher's salary in Germany, where she is based, to reflect the value of the work they did: twenty-five euros an hour.

"There's always this false logic around data work: What is the minimum that we can pay these people? That comes from a colonialist logic: You choose a place that allows you to do the most with the cheapest budget and where you can really steal from people, steal resources at low cost," Miceli says. "The question is why are these companies paying two dollars an hour if the work is making them billions or trillions in revenue? Why don't we look at how much these companies *can* pay instead of how much less these workers can take?"

Among the fifteen workers who participated in the first round of the inquiry were Oskarina Veronica Fuentes Anaya from Venezuela and Mophat Okinyi from Kenya. For her project, Fuentes partnered with an animation artist to create a video about her experiences, and collaborated with other data workers to highlight their shared challenges: the scarcity of the tasks on the platform, the unpredictable and uncontrollable working hours, and the abysmal pay. These days Fuentes works on five data-annotation platforms at the same time to make a little more than the minimum wage in Colombia, around $335 a month. Each task pays on average between one and five pennies; she still forces herself to wake up when tasks arrive in the middle of the night. "We are ghosts to society, and I dare say we are cheap, disposable labor for the companies we have served for years without guarantees or protection," she wrote for her project. Since the Data Workers' Inquiry, she has continued to speak about these experiences in online talks and webinars in the hopes of applying pressure on companies and policymakers to enforce better worker treatment.

A continent away, Okinyi is also organizing. In May 2023, a little over

a year after OpenAI's contract with Sama abruptly ended, he became an organizer of the Kenya-based African Content Moderators Union, which seeks to fight for better wages and better treatment of African workers who perform the internet's worst labor. Half a year later, after going public about his OpenAI experience through my article in *The Wall Street Journal*, he also started a nonprofit of his own called Techworker Community Africa, TCA, with one of his former Sama colleagues Richard Mathenge.

In August 2024, as we caught up, Okinyi envisioned building TCA into a resource both for the African AI data worker community and for international groups and policymakers seeking to support them. He had been organizing online conferences and in-school assemblies to teach workers and students, especially women, about their labor and data privacy rights and the inner workings of the AI industry. He was seeking funding to open a training center for upskilling people. He had met with US representatives who came to visit Nairobi to better understand the experience of workers serving American tech companies. He was fielding various requests from global organizations, including Equidem, a human and labor rights organization focused on supporting workers in the Global South, and the Oxford Internet Institute's Fairwork project.

For the Data Workers' Inquiry, he interviewed Remotasks workers in Kenya whom Scale had summarily blocked from accessing its platform, disappearing the last of their earnings that they had never cashed out. He used part of the donations that TCA collected to support them through the financial nightmare. "As the dust settles on this chapter, one thing remains clear: the human toll of unchecked power and unbridled greed," he wrote. "These workers' voices echo the hope for a brighter and more equitable future . . . it's a call to action to ensure that workers everywhere are treated with the dignity and respect they deserve."

In his own life, the dignity and respect that Okinyi has received from his advocacy has reinvigorated him with new hope and greatly improved his mental health, he says. Not long before our call, he had received news that he would be named in *Time* magazine's annual list of the one hundred most influential people in AI. "I feel like my work is being appreci-

ated," he says. That isn't to say the work has come without challenges. In March 2024, he resigned from his full-time job at the outsourcing company he worked for after Sama. He says the company's leadership didn't appreciate his organizing. "They thought I would influence the employees to be activists." That same company shifted some of its projects to Ghana as the union and TCA grew more vocal. He's heard that Kenyan government officials have complained that the worker agitation is scaring away investments and leaving more Kenyans jobless.

The global nature of the industry has made Okinyi even more committed to bringing international attention to African data workers. Even if the Kenyan government were supportive, Kenyan law alone would do little to restrict the behavior of AI companies. Most of these companies come from the US and San Francisco specifically, he says. There needs to be a concerted international effort to hold them accountable.

In Uruguay, Daniel Pena draws the same conclusions. The AI industry's supply chain is convoluted and expansive. "They take energy from here, the data goes there, they extract minerals from somewhere, they bring workers from somewhere else," he says. Against these sprawling impacts and the massive, powerful companies behind them, each community fighting their local struggle can feel isolated and disempowered, especially when hamstrung by their own governments that "need the companies to maintain an appearance of a stable economy." Shortly after I met him, he learned that his own government ignored his petition with over four hundred signatories to more extensively study the social and environmental impacts of the Google data center in their country. The environmental ministry instead quietly approved the project, revealing the decision only after the thirty-day public contestation window was over, he says. Pena isn't giving up. He's been speaking with MOSACAT in Chile and reaching out to as many other communities as possible that are also resisting the tech industry's exploitation and extractivism. By connecting their movements across borders, by sharing information and resistance strategies with one another, he sees a path to building more collective power that can pressure and evolve the industry toward something better. "We need to fight on a global level," he says.

· If OpenAI's mission is a formula for constructing empire, what is the formula for dissolving it? As I write this book, it's impossible to know the fine-grain details of how this company and the fast-paced AI industry will continue to unfold. Perhaps one of OpenAI's many competitors will supersede its leading position; very likely the tactics of these empires of AI will evolve in how they develop models, exploit labor, and expand computing infrastructure. But regardless of how things play out in two years or ten years, there are things we should do that shouldn't change.

In her 2019 talk at NeurIPS, during the Queer in AI workshop, Ria Kalluri, an AI researcher at Stanford, proposed an incisive alternative to the question of how to ensure AI does "good." Goodness, benefit to humanity—these terms will always be in the eye of the beholder. Rather, we should ask how AI shifts power: Does it consolidate or redistribute that power? To put it in the frame of this book, does it continue to fortify the empire, or does it begin to wrest us back toward democracy?

Speaking to a technical audience, Kalluri focused her talk on fundamental AI research—how scientists could use this question to evaluate which forms of AI to build and which directions to advance the field. Her question is just as critical to all other aspects of AI. How should we develop AI applications; how should we use them; and, ultimately, as I asked at the start of this book, how do we govern this technology to shift power back to people?

The work of Te Hiku, of DAIR, of Okinyi, Fuentes, and Pena are each examples of the work that can and needs to be done to redistribute power. But the governance question is about how to create the conditions under which more of this work can proliferate and flourish.

In her talk, Kalluri raised the idea of different axes of power. This book touches on three: knowledge, resources, and influence. As it stands now, OpenAI and its competitor empires have control of each of them: through centralizing talent, eroding open science, and sealing their models from public scrutiny, they control knowledge production; through hoarding funding, data, labor, compute, energy, and land, they control and diminish other people's resources; through creating and reinforcing

ideologies and producing wildly popular demonstrations that captivate global imagination, they command far-reaching influence. Each of these reinforces the other. Controlling knowledge production fuels influence; growing influence accumulates resources; amassing resources secures knowledge production.

The formula for dissolving empire thus requires the redistribution of power along each axis. The suggestions and recommendations I lay out here are exemplary but by no means comprehensive. First, to redistribute knowledge, we need greater funding to support its production outside the empire. That involves supporting researchers who can conduct independent evaluations of corporate models so we are not solely reliant on companies to understand their capabilities. It involves supporting organizations like DAIR that can pursue completely new directions of research, such as new forms of AI beyond large language models that are more efficient with data and energy. It involves supporting organizations like Te Hiku that can pursue task-specific, community-driven AI applications that strengthen marginalized communities. Independent knowledge production also includes the work of journalists and civil society groups who can embed within communities and be on the ground to help us understand, rather than merely speculate about, the textured realities of the impact of these technologies.

Redistributing knowledge will also need policies that require companies to relinquish key details about the training data and technical specifications of their models and supercomputers. Only then could independent corporate model evaluators do their work. UC Berkeley researcher Deborah Raji, who has continued to engage with global policymakers after the Schumer forums, says this is also a bare minimum for guaranteeing the real-world safety of corporate systems. That is, not the theoretical rogue AI harms of Doomerism, but the existing real-world harms, from discrimination to misinformation to job automation, that consumers and communities can already face if widely deployed models aren't properly tested. "We have the CFPB that monitors consumer finance products. We have the FDA that monitors medical devices. But for some reason when it comes to AI products, there's just no oversight," Raji says. AI models

should in fact require more transparency than the average product. "These are data-defined systems. They're not deterministic. So we need to know more about these systems to understand what they're doing."

Such transparency is additionally crucial for measuring the impact of AI on the environment. In this regard other products once again already submit to evaluations that AI products do not. "If you're using a car, if you are buying an appliance, you have an Energy Star rating," says Sasha Luccioni at Hugging Face. "But AI is so integrated into our society, so widely used in products, and we don't have any information about the sustainability of these systems."

With this transparency, we would also begin to redistribute power along our second axis: resources. By hiding the ingredients of their models as their intellectual property, the empires of AI have thus far been able to get away with seizing other people's IP without credit, consent, or compensation. Visibility into company training data would make such extractive and exploitative behavior far more difficult. So, too, would visibility into company supply chains, including where they contract their labor and where they're negotiating new leases of land to build more power plants and data centers, which so often happens under shell entities.

Redistributing resources also requires stronger labor protections across the board, not just for the data workers directly contracted by the industry but for all workers at risk of having their outputs co-opted into training data or their jobs being automated away. The Hollywood strikes, which successfully secured writers and actors protections against certain uses of AI, illustrated the critical role that unions will play in resisting the devaluing of human labor, the depression of wages, and the consolidation of money away from workers in the hands of AI companies.

Finally, to redistribute power along our third axis, influence, we need broad-based education. The antidote to the mysticism and mirage of AI hype is to teach people about how AI works, about its strengths and shortcomings, about the systems that shape its development, about the worldviews and fallibility of the people and companies developing these technologies. As Joseph Weizenbaum, MIT professor and inventor of the ELIZA chatbot, said in the 1960s, "Once a particular program is un-

masked, once its inner workings are explained in language sufficiently plain to induce understanding, its magic crumbles away." I hope this book is just one offering to help induce understanding. It builds on the work of the many scholars, journalists, activists, and educators before me who have dedicated themselves to public education. May it be a new ground upon which many more after will rise up and build.

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