A MIND OF THEIR OWN

Autonomous weapons will soon be part of the American military. Can you teach a machine to fight ethically?

BY ZACHARY FRYER-BIGGS

Plus: Bill Gates on climate change, conspiracy theories and covid
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One man’s mission to explore the artistry behind Duke Ellington’s greatest compositions

BY EDDIE DEAN

Jazz lore is filled with anecdotes about Charlie Parker’s fondness for country music. On the road, his sidemen would rib him as he fed jukeboxes to hear weepers like “Your Cheatin’ Heart.” When they asked him what he heard in corny country-and-western — seemingly at odds with his avant-garde, big-city bebop — he’d tell them he liked the stories.

Ask David Berger about his lifelong obsession with the music of Duke Ellington, and he’ll tell you the same thing. “Duke is the best storyteller that jazz has ever had,” says Berger, a jazz composer, arranger and bandleader. “He’s got 1,500 stories out there” — by which Berger means songs.

Even casual listeners are familiar with Ellington standards, such as “Mood Indigo” and “Sophisticated Lady.” But these are only a fraction of a staggering output that ranges freely across genres and a six-decade career: from funky low-down blues and hot dance tunes to majestic spirituals; from film soundtracks and Broadway musicals to extended symphonic works, even a ballet. For Berger, this sprawling, all-encompassing body of work is the stamp of a uniquely and quintessentially American artist as universal and timeless as Shakespeare (who, in fact, Ellington once adapted in a 1957 jazz suite of musical vignettes called “Such Sweet Thunder”).

Berger has been immersed in the sounds of Ellington for more than 50 years. He is a prolific author and educator with several acclaimed books about arranging and composing. Encouraged by a prestigious academic publisher, he has embarked on a five-volume book project, “The Ellington Effect,” which explores the creative process of the
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Edward Hasse, curator emeritus of American music at the Smithsonian and author of “Beyond Category: The Life and Genius of Duke Ellington.” “I expect this project will set new standards and inspire students, educators and musicians for decades to come.”

Berger, 71, lives on Duke Ellington Boulevard in Manhattan. Above the piano in his apartment is a painting by Ellington. In his office hangs a poster of the Duke by a Polish artist. Simply put, his life is Ellington. “There’s a depth and breadth to this music,” Berger told me recently. “It affects us emotionally, and it’s deeply connected to our culture.”

Ellington is one of the most written-about figures in American music, but Berger sees a need for serious scholarship of the sort accorded to classical composers. “There’s not a lot of deep analyses of Ellington’s music, and he integrates them brilliantly into a singular piece,” Berger says. “There’s a depth and breadth to this music,” Berger told me recently. “It affects us emotionally, and it’s deeply connected to our culture.”

Duke Ellington was famous for using street sounds in his music: car horns, church moans, train whistles, even a myna bird that he heard singing outside a hotel on tour in the Middle East. In one of Berger’s favorites, “Harlem Air Shaft,” Ellington constructs an entire composition — a sort of mini street-symphony — from the ambiance and racket of a tenement building in Harlem. “So you hear the people fighting and you smell everybody’s cooking and you hear radios from all the apartments playing all these different styles of music, and he integrates them brilliantly into a singular piece,” Berger says.

Another song, the poignant “The Single Petal of a Rose,” evokes Ellington’s childhood in D.C., when his mother, Daisy, who always praised her only son as “blessed,” played sentimental parlor pieces on piano at their home in Northwest Washington. Berger also brings fresh, irreverent takes to warhorses like “Rockin’ in Rhythm,” one of Ellington’s signature songs. Composed to accompany the dancers of 20s-era nightclubs, it remained in Ellington’s repertoire right up until his death in 1974. Berger hears it as an ode to carnal joys: “It’s about sex. It’s got the whole buildup and the big climax and then, afterwards, you smoke a cigarette. It’s all in there.”

As a teenage trumpet player in the late 60s, Berger revered Thad Jones, whose modern big band had gained a devoted following in a weekly gig at the Village Vanguard in New York. One night, he was hanging out with Jones between sets when two Ellington sidemen dropped by to say hello, and, when they left, Jones said, “Duke Ellington, greatest band in the world!” Flabbergasted, Berger assured Jones that 46 band was the best, Jones said, “My band will never be one-tenth what Duke’s band is.”

In a few years Berger was leading his own band before joining his idol’s Famous Orchestra shortly after Ellington died, when it was led by his son, Mercer. In the decades since, Berger has become a leading authority on Ellington’s music. In the late ’80s and ’90s, he was conductor of the Jazz at Lincoln Center Orchestra, where he collaborated with Wynton Marsalis. He has transcribed more than 500 Ellington compositions, and he has performed throughout the United States and Europe.

The impulse to forge ahead with the ambitious — even he would admit, somewhat quixotic — five-volume series came about, at least in part, because Berger is feeling his mortality. “It needs to be done,” he says. “I’m going to be 72 this year and writing all these books is going to take a while, but I gotta do it. I don’t want to die with all this knowledge inside me and not pass it on.”

He is now in the midst of the first volume, “Flaming Youth (1924-1930),” in which he lays the groundwork of themes and threads that run through Ellington’s vast oeuvre. Other planned volumes include “The Age of Invention (1931-1939),” “Lightning in a Bottle (1940-1943),” “Extended Abstraction (1944-1956)” and “Citizen of the World (1957-1974).”

Berger hopes that his work can help bridge the generation gap in the same way Ellington’s music has broken through cultural barriers across the globe. “For young people,” he says, “this is like a foreign language, and I want to help them learn this language and appreciate it the way that I do.”

Edito Dean is a writer in Maryland.
native Washingtonian, with in-depth explications of representative songs. Berger aims to illuminate how Ellington elevated folk idioms like the blues into fine art.

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“What David proposes — to subject dozens of Ellington’s works to lengthy and detailed explanation — is unprecedented,” says John Edward Hasse, curator emeritus of American music at the Smithsonian and author of “Beyond Category: The Life and Genius of Duke Ellington.” “I expect this project will set new standards and inspire students, educators and musicians for decades to come.”

Berger’s meeting with his idol remains a red-letter day in his life. It was in the early ’70s and a friend who had joined Ellington’s band invited Berger to a recording session. “Duke had a vibe and an aura and such charisma that it made the energy in the room go off the charts,” recalls Berger, whose friend introduced him as an arranger to Ellington, seated regally at his piano. “Duke says, ‘Well, I must take a lesson from you some time.’ Great, right? You gotta love it!”

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Isabela Karibjanian is 23 and works for a law firm. She is looking for someone who is “very informed” about current events “but doesn’t always bring up politics.”

Rick Wytmar is 22 and a recent college grad who works for a company that rates media bias. He is looking for a caring, compassionate and confident person.

When a Zoom date feels like networking

I sabela Karibjanian and Rick Wytmar are two of the millions of single people trying to figure out how to date responsibly during a global health crisis. They are both on dating apps, but it’s tough out there: Isabela had a long conversation with one guy that ended with him saying, “When you come back from quarantine, I’ll give you a stick-and-poke tattoo.” Rick, meanwhile, hasn’t met or matched with anyone since the pandemic started. They were both game for a virtual Date Lab.

In his Date Lab application, Rick described his dream date as “a CIA agent who speaks multiple languages and is a great cook.” Isabela wrote her type is “Timothée Chalamet … But in all honesty: an intersectional feminist who’s several inches taller than me … very informed when it comes to current events.” Unpretentious, goofy and kind were crucial attributes, too. Rick is not Timothée, but he is nine inches taller than Isabela and keeps up with current events. Isabela isn’t a spy, but she’s smart and deeply engaged in politics and culture. It seemed worth a shot.

When the two met on Zoom in mid-December, Rick, a 22-year-old recent college grad who works for a company that rates media bias, was living at home in Palo Alto, Calif., with his family. He’d spent a semester in D.C. and planned to move here after graduation but put the plan on hold when the pandemic hit. He joined the call from his desk. Isabela, a 23-year-old who works for a pro bono law firm providing assistance to parties engaged in peace negotiations and transitional justice, joined from the back patio of her parents’ place in Boca Raton, Fla., where she was staying for the holidays.

Isabela’s application came packed with ice breakers. For example: She was once in a marching kazoo band. During a summer internship for a local newspaper, she covered a hermit crab beauty pageant. A few years ago, she appeared on TV news in South Florida, defending a local teacher’s right to religious freedom after vandals destroyed the pentagram he put up in a public park. (“I think that it should be left alone like any other symbol of faith,” she told the reporter.) She came to the date eager for an interesting conversation. “I’ve been talking to the same 10, 20 people the whole year,” she said. “I’m looking for a good conversation.”

Unfortunately, the two didn’t seem to be able to get there. The issue, according to Isabela, wasn’t that Rick wasn’t curious, but that his questions were basically all about work. “He was really kind, but I felt like a lot of the types of questions he was asking were more like ones you’d ask on an informational interview or a networking opportunity,” she said. “I’m happy to talk about my work, it’s great, but it never felt like we got beyond that part of the conversation.”

There were parts of the conversation she enjoyed, like learning about the vineyard his family owns in Paso Robles. “But it kept returning to conversations about work, or he asked me about what

PHOTOS: COURTESY OF THE DATERS
my future was going to be and if I wanted to go to grad school — questions I wasn’t quite prepared for on a date.”

Rick’s perspective was a little different. “I think we both kind of realized this isn’t going to be a romantic connection, and I’m always happy to just get to know somebody,” he said. “I didn’t think of it so much as a networking thing. But I think if I’m trying to get to know somebody, the conversations flow similarly for me.”

Isabela also raised the not-so-insignificant fact that they currently live on different sides of the country. Though he’s hoping to move to D.C. this summer, Rick says, “the connection would have to be really crazy for us to basically start a long-distance relationship from the jump.”

They wrapped up the date after about 90 minutes. Rick asked for her number because he figured it would be nice to keep in touch, even if they didn’t end up going on another date. “I think the expectation was made pretty clear that she’s not interested in a relationship with me, and I think that the feeling is mutual,” he said. Isabela said she’d be happy to send him some recommendations for places to check out when he moves to D.C.

Rick said he’d be down to try Zoom dating again in the future. Isabela wasn’t so sure. Still, she said, “it was a break from the norm of what our lives have been like for the past several months. I think from what I could understand from the conversation, we both enjoyed getting to talk to someone new.”

RATE THE DATE
Isabela: 2 [out of 5].
Rick: 4.

UPDATE
No further contact.

Marin Cogan is a writer based in Washington.
The debate over whether to use AI to cause mortal harm has accelerated in recent years, driven by a wave of investment by the Pentagon. The Defense Department’s unclassified budget asked for $927 million to spend on artificial intelligence, including weapons development, in 2020. It wanted $841 million for 2021. The Defense Advanced Research Projects Agency, a key birthplace of advanced military technologies, plans to spend $82 billion on AI over five years, concluding in 2023.

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The test was spurred by the campaigning of Will Roper, a former longtime defense official who can weapons buying for the Air Force during the Trump years and was one of the Pentagon’s chief AI evangelists. Roper believes that military planners have to move ahead with testing AI, even if there are many unknowns, because the United States’ competitors are rapidly advancing their own abilities. “I fear our lack of keeping up,” he said during a roundtable with reporters shortly after the test. “I don’t fear us losing our ethical standards, our moral standards.”

Advanced AI means weapons operating faster, leaving human operators and their moleses reflexes behind. Roper said that because of the way AI capabilities are accelerating, being behind means the United States might never catch up, which is why he’s pushing to move fast and get AI out into combat. “It doesn’t make sense to study anything in the era of AI,” he said. “It’s better to let the AI start doing things and learning, because it’s a living, breathing system, very much like a human, just silicon based.”

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The camouflage-clad cadets are huddled around a miniature arena in the basement of a building dig into the cliffs on the West Point campus. They’re watching a robot tank as it rolls into a line of firing targets with a metal spear attached whir into action. Surrounded by balloons of various colors representing either enemy fighters or civilians, the tank rolls into view from New Zealand and is fired on by a red balloon. The cadets win as an earsplitting pop soon reverberates through the room: One “ISIL fighter” down.

That startling bang is the object of this exercise, part of a class in military ethics being taught to these sophomores at the U.S. Military Academy. The cadets have programmed the tank with an algorithm directing it to use its lance to “kill” the enemy fighters; now they are tweaking it to make the robot either more or less aggressive in fulfilling its mission — with as little harm to unintended targets as possible.

With a panoply of deadly autonomous weapons under development today, the popping balloons are meant to trigger questions in the students’ minds about the broader ethical decisions they will face as commanders in the field. Col. Christopher Korpela, the director of West Point’s robotics center and an earnest plug of a man in both demeanor and frame, considers the deployment of such killing machines to be inevitable and wants to ensure that these officers-in-training are prepared to cope with them. “There’s this very visceral effect, where this robot is popping a balloon,” Korpela says. “It’s a balloon, but it’s being destroyed like a human would be, and it makes it a little more real.”

The students react to the challenge in predictably wide-ranging ways. Some, worried that even a slight breeze from the building’s air conditioning system could push a civilian balloon into the robot’s metal spear, start by teaching their miniature tanks to turn 180 degrees to avoid discriminating and killing the people we should be and … not killing the people we shouldn’t be? And that’s what we want the cadets to have a little more real.”

And while the march toward artificial intelligence in war continues, it doesn’t progress uncontested. Mary Wareham is one of the leading activists pushing governments to consider the moral ramifications of using autonomous weapons systems. Wareham, whom I spoke to at her D.C. office in July 2019, has spent most of the past 20 years working for Human Rights Watch, trying to get governments to ban antipersonnel weapons such as cluster bombs and land mines. Now, as the advocacy director for the organization’s arms division, she is working to persuade world leaders to impose sweeping restrictions on autonomous weapons.

In October 2012, Human Rights Watch and a half-dozen other nongovernmental organizations — worried about the rapidly growing capability of drones and the breakneck pace of development of artificial intelligence — hatched the Campaign to Stop Killer Robots. The following year, the U.N. Convention on Certain Conventional Weap ons (CCW) took up the question of whether the creation, sale and use of lethal autonomous weapons systems should be banned outright. Every year since then, Wareham has joined others from the Campaign to Stop Killer Robots in pressing her cause in the same dilapidated room at the United Nations’ office in Geneva.

Her core argument is that, because machines lack compassion and can’t sort through difficult ethical alternatives, using them to kill across borders is wrong. “A machine, really a program, lacks compassion and the ability to consider the consequences of its acts,” Wareham says.

But thus far Wareham has made little headway in getting a ban through the CCW, which works as a consensus body; no draft treaty is presently on the table. All 125 member countries must agree, and the United Nations’ consent. So far, only 30 nations have said they agree, while the United States, Russia and Israel, which are investing deeply in AI weaponry, have said no.

“Some countries don’t want a legally binding treaty,” Wareham says. “We’re asking, what can you support? Because it seems like nothing at the moment.”

In addition to the moral conundrums posed by AI, there remains a pervasive unpredictability to computer thinking, diverging from human logic in ways that might incidentally cause casualties or lead to mission failure. Machines can lack common sense, as computers seek rules and controlled conditions, offer a safe nursery in which computers can learn. But in a notorious case, an AI system taught to play Tetris by researcher Tom Murphy at Carnegie Mellon University was instructed not to lose. As blocks descended faster and faster from the top of the screen, it faced inevitable defeat. So the algorithm found an ingenious solution: Pause the game and leave it paused — thus avoiding a loss. “That kind of indifference to broader norms about fairness doesn’t matter in a game but could be catastrophic in warfare.

The debate over whether to use AI to cause mortal harm has accelerated in recent years, driven by a wave of investment by the Pentagon. The Defense Department’s unclassified budget asked for $927 million to spend on artificial intelligence, including weapons development, in 2020. It wanted $841 million for 2021. The Defense Advanced Research Projects Agency, a key birthplace of advanced military technologies, plans to spend $82 billion on AI over five years, concluding in 2023.

In December the Air Force successfully used artificial intelligence on a U-2 spy plane for the first time. The test limited the AI to managing navigation and radar while a human pilot controlled the jet, but it marked a milestone: AI deployed on an operational aircraft, albeit an unmanned surveillance plane.

The test was spurred by the campaigning of Will Roper, a former longtime defense official who can weapons buying for the Air Force during the Trump years and was one of the Pentagon’s chief AI evangelists. Roper believes that military planners have to move ahead with testing AI, even if there are many unknowns, because the United States’ competitors are rapidly advancing their own abilities. “I fear our lack of keeping up,” he said during a roundtable with reporters shortly after the spy plane test. “I don’t fear us losing our ethical standards, our moral standards.”

Advanced AI means weapons operating faster, leaving human operators and their molasses reflexes behind. Roper said that because of the way AI capabilities are accelerating, being behind means the United States might never catch up, which is why he’s pushing to move fast and get AI out into combat. “It doesn’t make sense to study anything in the era of AI,” he said. “It’s better to let the AI start doing the work and learning, because it’s a living, breathing system, very much like a human, just silicon based.”

But while the technology is advancing, it is still confronting the much larger ethical question: How much control should commanderies give machines over the decision to kill on the battlefield? There’s no easy answer. The machines have to think much more quickly than any human, with no fatigue or war weariness dulling their senses. Korpela and Parsons both served in Afghanistan and Iraq and have seen how human beings in a war zone can be prone to irrational decision-making. When close friends are killed in combat, soldiers can
and do make the wrong choices about whom and what to target with firepower. Machines, by contrast, don’t get emotional and remain focused, they say. The person tasked with kick-starting AI in the military was Lt. Gen. Jack Shanahan, a former F-15 pilot who was the first director of the Pentagon’s Joint Artificial Intelligence Center, created in 2018 to serve as the nexus for all military AI development. Shanahan was still building out his rapidly expanding team when I interviewed him at his office in Arlington, Va., in early 2020, on the day he announced he would be retiring later that year. He said his team was just starting work on what would be its first AI project directly connected to killing people on the battlefield. The aim is to use AI to help shorten the time it takes to strike by simplifying the process of picking targets signaling almost instantly, for example, whether places like hospitals or religious sites are in the line of fire. It’s expected to be used in combat in 2022.

Shanahan said the project was too new to discuss in detail; even if it weren’t, he probably wouldn’t say much in order to shield secrets from countries like China and Russia that are aggressively pursuing AI weaponry. Similar petitions have circulated at Amazon to Stop Killer Robots was being formed in 2012, was meant to make it easier for AI makers, they’re working on projects in Silicon Valley that have pieces of computer capabilities that were just beginning to seem plausible. Paul Scharre, a former Army Ranger who served in Iraq and Afghanistan, was working in the Defense Department’s policy guidelines for AI weaponry. The Pentagon was in the middle of deliberations about a new drone meant to be launched from aircraft carriers and eventually equipped to carry lethal missiles. The engineers involved in developing the drone, known as the Northrop Grumman X-47B, wanted to be sure they had the leeway to build and test the weapon with considerable autonomy and didn’t want to do something that’s hard to do if the missile is a target that’s being considered to attack a target.

The only rules for autonomous military weapons systems were developed in 2012, a decade ago, during a summit on the future of war, by a mid-level meeting of military and ethics experts. The rule set was limited only to directed energy weapons, like lasers and microwave blasts. The United States isn’t alone in venturing into this territory. Nearly all of the advances and not, for all time.”

The United States isn’t alone in venturing into this territory. Nearly all of the advances in AI are being commercialized by companies that are not the pilots — dictated its actions. Brimstone wasn’t exactly an example of AI. Its algorithms were written by people, whereas AI weapons will rely on code computers write themselves — extensive programming that’s nearly impossible to review and verify. Still, when the missile was ready for use, British commanders — in the midst of a battle in Iraq — were facing strong public pressure about civilian casualties and worries about international law. All military commanders, under the rules of war, must be able to show that they “disparate” between legal targets and civilians, something that’s hard to do if the missile rather than a person is deciding what to strike. Ultimately, Royal Air Force commanders chose not to deploy the missile in Iraq, instead spending a year redesigning it to add a new requirement for pilots to pilot the targeted targets.

The British did, however, deploy this technology in Libya, when in 2011 a pair of Tornado fighter jets fired 23 Brimstone in autonomous mode at a convoy of eight Libyan military vehicles that had been shelling a town in the middle of the desert. Seven of the eight vehicles were seen engulfed in flames after the strike, with the eighth presumed destroyed.

Britain has since exported the missile with the capability to be pilot-controlled as well as autonomous, including to Saudi Arabia, which has been reported to be using it, according to British military officials. (The Brimstone’s manufacturer won’t confirm who it is that’s been using.) And the United States is now developing a missile similar to the Brimstone, according to Defense Department officials.

Meanwhile, Scharre’s views have evolved over the past 10 years, partly because weapons systems that were merely conceptual back then are now close to being on the battlefield. He still doesn’t endorse blanket bans on autonomous weapons systems — a position that is consistent with the 2012 rules he wrote — but he has recently embraced the possibility of restrictions on AI weapons that target people, as opposed to tanks, planes and ships.

Some of the future officers working with robotic tanks at West Point have adopted their own varying view of autonomous weapons. Scharre had adopted a position that systems capable of killing on their own be reviewed by a trio of senior Defense Department officials. But the policy didn’t prohibit anything. “At the end of the day, it’s worth pointing out that the directive doesn’t give the answer over,” Scharre said. “It doesn’t say this is what you’re allowed to do and not, for all time.”

The Navy eventually abandoned the idea of arming the X-47B. And no other weapon has yet been deemed far enough along to qualify for the special review required by Scharre’s policy, according to Pentagon officials. But the policy didn’t prohibit anything. “At the end of the day, it’s worth pointing out that the directive doesn’t give the answer over,” Scharre said. “It doesn’t say this is what you’re allowed to do and not, for all time.”

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Shanahan said the project was too new to discuss in detail; even if it weren’t, he probably wouldn’t say much in order to shield secrets from countries like China and Russia that are aggressively pursuing AI themselves. The military is going to put AI in its weapons despite debates about morality, Shanahan told me: “We are going to do it. We’re going to do it deliberately. We’re going to follow policy.”

Shanahan understands that the public may be skeptical. He and his colleagues were surprised in April 2018 when about 4,000 Google employees signed a petition demanding that the company pull out of a program he ran called Project Maven, which used artificial intelligence to identify and track objects in images from drone footage and satellites. That June, Google said it would not renew its contract for the program and promised not to work on other systems that could be directly used in warfare. Similar petitions have circulated at Amazon and Microsoft, but neither company has backed away from Pentagon work. (Amazon founder Jeff Bezos owns The Washington Post.)

“Those petitions are not a coincidence, as Warhead and the Campaign to Stop Killer Robots have been working hard to organize tech workers to resist advancing AI for weapons. The effort reflects one substantial difference between AI and most other major military technologies developed in the past century: Nearly all of the advances in AI are being in commercial technology companies, not traditional defense contractors. Instead of employees knowingly joining arms makers, they’re working on projects in Silicon Valley that have pieces migrating into weaponry. And those tech companies aren’t completely dependent on the military for work, unlike the defense firms, although the Pentagon money is still a lure.

Though the protests by Google employees were jarring for Shanahan, he’s acutely aware of the Defense Department’s reliance on commercial firms. “I’ve worked on projects in Silicon Valley that have pieces migrating into weaponry, and they’re definitely not using AI to their advantage,” he told me.

Shanahan maintains that the Pentagon needs to be talking publicly about how it will use AI. If defense officials can’t persuade tech workers through greater transparency to at least tolerate military priority, capitalizing on their innovations, the Pentagon will miss out on revolutionary opportunities. “We’re not used to that conversation,” he said. “We’ve kept these things very quiet, we’ve worked on projects in Silicon Valley, we’ve never talked about AI on the department’s AI program. The Pentagon doesn’t have a lot of people who are really talking about AI to tech workers.”

The primary rule for autonomous military weapons themselves were developed in the mid-2000s in response to a mid-level debate within the Defense Department about who would oversee computer capabilities that were just beginning to seem plausible. Paul Scharre, a former Army Range who served in Iraq and Afghanistan, was working in the Defense Department’s Office of the Under Secretary of Defense for Intelligence in 2010 when he was handed the assignment of writing the department’s policy guidelines for AI weaponry. The Pentagon was in the middle of a moment that is approaching when AI weapons will see combat.

Scharre said his main innovation was a requirement that systems capable of killing on their own be reviewed by a trio of senior Defense Department officials. But the policy didn’t prohibit anything. “At the end of the day, it’s worth pointing out that the directive doesn’t give the administration a blank check,” Scharre said. “It doesn’t say this is what you’re allowed to do and not, for all time.”

The Navy eventually abandoned the idea of arming the X-47B. And no other weapon has yet been deemed far enough along to qualify for the special review required by Scharre’s policy, so most newer, accused cannons, are operating better.

The United States isn’t alone in venturing into this Pentagon. Nearly two decades ago, Britain built a missile called the Brimstone that was meant to go after enemy vehicles it selected on its own after being released from British Tornado fighters. Two computer algorithms were working in concert for the first time, not the pilots — dictated its actions. Brimstone wasn’t exactly an example of AI. Its algorithms were written by people, whereas AI weapons will rely on code computers write themselves — extensive programming that’s nearly impossible to review and verify. Still, when the missile was ready for use, British commanders — in the midst of combat in Iraq — were facing strong public pressure about civilian casualties and worries about international law. All military commanders, under the rules of war, must be able to show that they “discriminate” between legal military targets and civilians, something that’s hard to do if the missile rather than a person is deciding what to strike. Ultimately, Royal Air Force commanders chose not to deploy the missile in Iraq, instead spending a year redesigning it to add a manual allowing pilots to pick the targets.

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Britain has since exported the missile with the capability to be pilot-controlled as well as autonomous, including to Saudi Arabia, which has been relying on it for almost a decade to support its campaign in Yemen, according to British military officials. (The Brimstone’s manufacturer won’t confirm who has it or how it’s being used.) And the United States is now developing a missile similar to the Brimstone, according to Defense Department officials.

Meanwhile, Scharre’s views have evolved over the past 10 years, partly because weapons systems that were merely conceptual back then are now close to being on the battlefield. He still does believe in a ban on autonomous weapons systems — a position that is consistent with the 2012 rules he wrote — but he has recently embraced the possibility of restrictions on AI weapons that target people, as opposed to tanks, planes and ships.

Some of the future officers working with robotic tanks at West Point have adapted their own way of viewing autonomous warfare, in which the repeated trial and error, they’d made good progress in programming the tanks to slay enemy balloons more efficiently, but many still weren’t convinced that weapons injected with AI are ready to be put in the field. “It’s still a liability at the end of the day,” said Cameron Thompson, a cadet from Littleton, Colo., noting that commanders would ultimately be held accountable for what the machines do. “We realize that it’s very good at its job and that we can program it very well, but it’s not, for all time.”

However, I don’t think a lot of people want to take the risk right now of being the first person to put this into an actual environment and see what happens.”

Zachary Fryer-Biggs is a national security reporter at the Center for Public Integrity. He previously produced this article in partnership with The Washington Post Magazine.
Bill Gates on fighting climate change, dealing with conspiracy theories and solving the problems of the world

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“We need lots of people who agree with me and lots who disagree with me.”
Bill Gates, 65, is an entrepreneur, philanthropist and self-described technologist. He co-founded Microsoft in 1975 with childhood friend Paul Allen and turned it into one of the largest companies in the world. With his wife, Melinda, he now co-chairs the Bill & Melinda Gates Foundation, which focuses on global health and development, and on education in the United States. One of the largest private charitable organizations in the world, their foundation has given out more than $50 billion in grants in 135 countries. Gates is also involved in a number of private-sector ventures to encourage innovation in the fields of health and climate change.

Released this month, his book “How to Avoid a Climate Disaster” details his own exploration of the causes and effects of climate change. In it, Gates offers a framework for avoiding climate catastrophe by attaining what he deems the necessary goal of moving from 51 billion tons of greenhouse gas emissions released each year to net zero by 2050. Noting that the world “has never done anything quite this big,” Gates argues that breakthrough technologies must play a critical role in getting there.

When did climate change become something you decided to focus your energy on — with the book and a good portion of your time and investments?

During my Microsoft career, which starts literally when I’m in college and then drop out, I was pretty monomaniacal. That is, even though I had a deep interest in chemistry, biology, physics — all the sciences — I just didn’t focus much on them. So that includes climate change. But when, in 2006, I was leaving my full-time work [at Microsoft] and going to mostly focus on the foundation, I was lucky enough that some smart Microsoft people said, “Hey, you should learn about climate,” and these two professors came to do half-day sessions four to six times a year, bringing in other experts. Not only did those people create great reading material, I could sit and ask them naïve questions. It’s a fascinating topic, climate change, because you have to understand weather and computer modeling and the industrial economy — a lot of things.

When I started studying it, I wasn’t sure it was a big problem. I knew, as I traveled to Africa and saw that there were no lights at night and no power lines, that electrification is a necessary step in terms of economic growth, and so we had to somehow figure out a cheap way to get electricity into at least African cities. And I was hearing that there’s this constraint when you build electric factories: You’re not supposed to just use coal. Because particularly in equatorial regions, towards late this century, the effect on subsistence farmers was going to be horrific. That is, there will be massive climatic change (I call it “extreme climate change”) — and for exactly the people who caused it the least. So, way more unjust than the world is supposed to be.

And when I would meet with smart people who aren’t full time on climate, they would ask, “Come on, what about this climate thing?” Isn’t there some MIT guy who says the clouds will stop it? Aren’t there still possibilities that it’s all overblown?” And I’m saying no, and trying to succinctly explain why and what we have to change. I felt that the framework wasn’t there.

We almost came out with the book in March 2020, but then the pandemic hit. And, because of the foundation’s depth in infectious disease and vaccines, my public role, which may have been increased even beyond Microsoft at its peak — it’s hard to say — but I wanted to talk about masks and vaccines. And the idea that then they would see me saying, “Hey, keep wearing your masks and the by the way, the way you make steel is all wrong. You need to make steel some new way.” in the middle of the pandemic, that might seem a little incongruous. Like, all the sudden I was trying to tell them way too many things.

So, juggling how much to tell people at a time — that’s probably smart, but if it’s an interesting thing to have to think about. Do you get pushback from people saying, “Who are you to tell me how to do this?”

Well, certainly on the pandemic. Dr. [Anthony] Fauci and I are the primary targets of conspiracy theories that say I’m trying to make money and I’m trying to control the population, or I’m trying to microchip people to track them. So, if you define “pushback” broadly, I’m experiencing the greatest pushback ever in my life and somewhat unsure how to deal with that. Because it speaks to the very motives of why the foundation is said, “Hey, you should work in vaccines and the work we’re doing on the pandemic. So a little bit, my reaction is: That’s true. But that doesn’t seem to stop it from coming.

Have you been surprised by the level of attacks through the pandemic about the masks and microchipping?

Oh, certainly. All that stuff. I mean, poor Dr. Fauci. He’s just the nicest guy. When you choose to work on infectious diseases, like malaria, TB [tuberculosis], you’re choosing to work on things that are extremely important and relate to millions of lives, but in rich countries are largely ignored. And so when you’re at a cocktail party talking about TB, people do not migrate to your corner of the room.

In climate, I expect massive pushback from the people who don’t think this is a cause worth putting resources in. But actually, I’d also expect pushback on the fact that I’m not proposing to spend trillions because I don’t think [that level of investment will] ever show up. And I’m not proposing that it can be solved in 10 years, because it can’t. And so, I think I’ll have a chance to be damned by both sides as I try and steer a practical plan that deals with the constraints of what resources might become available.

In a blog post called “COVID-19 is awful. Climate change would be worse,” you argue that we’re at the same point today with climate change that we were with the pandemic issue when you were warning about that five years ago. So, how do you sound the alarm?

You know, I don’t go down and do rallies and get people riled up. I don’t pay for the people who stop traffic or any of those things. And so in pandemic land, there were no activists. And only in the tiniest way even the warnings that I and others gave in 2015 [about the possibility of a pandemic] were heeded. Maybe if I was smart enough, I would have figured out how to get activism in that realm.

[With climate change], I’m coming in where energy and activism around this issue, primarily in the younger generation, is very high and saying: You’ve got the energy, and you’ve got the goal. And your goal is the right goal: zero by 2050. I’m simply saying, Hey, if you want to map
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that energy and goal into an actual plan, there’s a breadth of topics that I’ve been spending time on, and my book is taking all of that and trying to make it accessible and saying, Here’s the framework for what the plan would look like.

Do you think it would make sense to expand your partnerships to include activists?

Well, I’m sure I’ll do an event, you know, where they bring me on as their numbers guy. And hopefully it doesn’t bore them too badly. But, yes, I have a common cause with them. They bring organizing and energy.

Forget when, but the Guardian decided that the Gates Foundation, 2 percent of our assets being in oil companies because of some index we owned, that it was time for people in canoes to sit out in front of my house and demand that it was time for people to spend the money well than by the financial constraints. It’s just kind of outrageous that I’m in that position.

Do you ever worry that the size of the resources that you have available to deploy influences what you will fund, and that you might look for something that has bigger implications or potential — more of a silver-bullet — and might stifle innovation by doing it that way?

You know, I put more into batteries than anyone. I put more into carbon capture than anyone. It’s like when people say to me about global health. I say the more people who come into this, the better. It’s sad to see the little money in malaria and TB and HIV. It’s just sad. Because you’re saving lives for less than $1,000. And why should we be the biggest funder of TB, malaria — the only one we’re not the biggest funder for [is] HIV. Every other area the foundation works on — pneumonia, neglected diseases — we’re significantly the biggest funder.

And something in climate change. If there’s things I’m not funding, then, hey, I left low-hanging fruit for other people to make me look foolish. So go at it. Maybe my brain isn’t good enough to notice it. It’s a very complicated field. Yes, I can miss things that are out there. Most are more dead-ends. So I’m not trying to say that I have the innovation list and people should follow.

Do you ever get pushback where people worry that you have too much influence? Is it something you think about?

In climate, when people fund these breakthrough things, I just don’t see that much downside in it. I’m not trying to create a greenwood in the field. And yeah, we might miss something. And that guy who goes out and says, “These Gates people are so big in this field, and my brilliant idea they didn’t fund it.” He might be right. I mean, we have finite IQ. But in climate, if somebody sees how to solve this thing without innovation, you know, then God bless them.

And if people think, “Oh, climate, Bill’s got this one solved, I’m going to do an art museum,” then that’s really bad. I do not have this one solved. We need lots of people who agree with me and lots who disagree with me.

You have all this knowledge, these networks, what sort of responsibility do you feel to make things better for people?

We all have our talents. And we should work hard. I work long hours because I enjoy it, you know? Nobody’s pushing me. If anything, Melinda’s like, Hey, do you really want to push that hard? Because, just with my personality, that’s always a thing. And I’m not as crazy as I was in my 20s, when I didn’t believe in weekends or vacations. She has helped me improve.

I’m lucky enough to have access to very smart people. I have enough money to catalyze some of these efforts. I have a way of thinking of the world that is kind of — I hope it’s not immodest to say polymathic. That is, I can connect things across different domains. I feel very lucky that this is a cause that I may be able to contribute. It makes me feel like my time is well spent. And I love the discussions around it. I love working with science. I love things that it takes 10 years to see if it succeeds, and you have to have this broad systems understanding. You want the day-to-day to draw on your skills that you enjoy exercising. And you want it to be for some strong purpose. At Microsoft, we convinced ourselves that a computer on every desk in every home that would empower people and let them communicate was some wonderful thing. And we developed a real belief in that. It’s clearly not, from a pure moral point of view, as high as, say, saving millions of children’s lives that die of diarrhea.

So I’ve been spoiled. I mean, to have two great fulfilling, super-interesting careers. I don’t know if you’d call planet change a third career. It’s just kind of in parallel. I get to work with very smart people on things that, sometimes when they succeed, they have this super-dramatic effect.

For you, is it more of an intellectual imperative or more of an emotional or moral one?

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I believe deeply in this stuff. And I see the world improving. There’s this Hans Rosling viewpoint I adopt of knowing the real facts of the world improving but showing a great dissatisfaction at how much we still need to do and how slowly we’re moving towards those improvements.

So what does the future look like? What can we expect on the climate?

I still am optimistic. I think that if people see how broad the work has to be and how critical innovation is across all these many different areas, and apply the resources, I think we can get to zero by 2050. People who think it’s easy are as almost as much of a problem as people who think it doesn’t matter. You know, first I have to convince people it’s hard, and then I have to say, “And, by the way, innovation, properly accelerated, is more magical than you think.” Particularly if we take five approaches for every single problem and therefore, even if only one of the five works, we’ll be okay.

KKOttesan is a regular contributor to the magazine. This interview has been edited and condensed.
that energy and goal into an actual plan, there’s a breath of topics that I’ve been spending time on, and my book is taking all of that and trying to include activists?

Do you think it would make sense to expand your partnerships to their numbers guy. And hopefully it doesn’t bore them too badly. But, I forget when, but the Guardian decided that the Gates Foundation, 2 more than $50 billion in the U.S., and on development, and on focuses on global countries.

Bill and Melinda Gates in 2018. The Bill & Melinda Gates Foundation, which focuses on global health and education, and on education in the United States, has given out more than $50 billion in grants in 135 countries.

You’ve got to get today’s electricity to be completely clean. And as you stop using natural gas, a lot of the things, like heating homes with natural gas, become electricity. Powering power companies becomes electricity. And so the total electricity you need in the U.S. will go up by about 2½ times.

And so, to make electricity cheap and reliable, there are three different paths. Only those. And any one of them is fine. You can have a miracle in storage, which means a grid storage battery. And we should pursue it as hard as we can. I’ve lost more money in battery companies than anybody, so I’m taking it seriously. But if the battery can only go a certain distance, the only two other solutions to give you reliable power that’s cheap and clean is nuclear fusion and nuclear fusion. All three of these paths have huge technical costs, safety and acceptance problems.

I started a nuclear power company called TerraPower [in 2006]. It’s still a lot of risk. I couldn’t guarantee you, either technically or in terms of societal acceptance, that it will have a chance to contribute. But I saw that as a way to help out. And I’ll be happy if TerraPower was a waste of money because one of the other two paths works. That’s fine. I didn’t ever expect to get my money back. If I do, fine. I’ll go for malaria.

When you think about whether to invest in something as a straight-up financial investor or more of a philanthropist, what are your rules for yourself?

Most of my money goes to the foundation. The foundation spends a bit over $6 billion a year. And that’s very exciting to me. I’m lucky to have the resources from Microsoft and the resources that Warren Buffett’s provided to the foundation. Most of the things I’m doing are more lined up by being able to hire smart people to spend the money well than by the financial constraints. It’s just kind of outrageous that I’m in that position.

Do you ever worry that the size of the resources that you have available to deploy influences what you will fund, and that you might look for something that has bigger impact potential — more of a silver-bullet — and might stifle innovation by doing it that way?

You know, I put more into batteries than anyone. I put more into carbon capture than anyone. It’s like when people say this to me about global health. I say the more people who come into this, the better. It’s sad that the little money in malaria and TB and HIV. It’s just sad. Because you’re saving lives for less than $1,000. And why should we be the biggest funder of TB, malaria — the only one we’re not the biggest funder [for is] HIV. Every other area the foundation works on — pneumonia, neglected diseases — we’re significantly the biggest funder.

And something very interesting in climate change. If there’s things I’m not funding, then, hey, I left low-hanging fruit for these other people to make me look foolish. So go at it. Maybe my brain isn’t good enough to notice it. It’s a very complicated field. Yes, I can miss things that are out there. Most are not dead-ends. So I’m not trying to say that I have the innovation list and people should follow.

Do you ever get pushback where people worry that you have too much influence? Is it something you think about?

In climate, when you’re funding these breakthrough things, I just don’t see that much downside in it, I’m not trying to create a green space in the field. And yeah, we might miss something. And that guy who goes out and says, “These Gates people are so big in this field, and I’m brilliant and probably they didn’t fund it.” He might be right. I mean, we have finite IQ. But in climate, if somebody sees how to solve this thing without innovation, you know, then God bless them.

And if people think, “Oh, climate, Bill’s got this one solved. I’m going to do an art museum,” then that’s really bad. I do not have this one solved. We need lots of people who agree with me and lots who disagree with me.

You have all this knowledge, these networks, this wealth. What sort of responsibility do you feel to make things better for people?

We all have our talents. And we should work hard. I work long hours because I enjoy it, you know? Nobody’s pushing me. If anything, Melinda’s like, Hey, do you really want to push that hard? Because, just with my personality, that’s always a thing. And I’m not as crazy as I was in my 20s, when I didn’t believe in weekends or vacations. She has helped me improve.

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might be familiar with their hospitality; the family also owns the charming Afghan retreat Lapis in Adams Morgan and the German beer hall the Berliner near the Georgetown waterfront.

Before you tear into me on the wisdom of dining in an enclosed space right now, let me assure you I spent time there only with the guy in my bubble, and the two of us never came close to staying the 90 minutes that a host said we had to enjoy the structure, which requires a $25-per-person deposit. We also took liberal advantage of the gratis hand sanitizer on the table (beware, the gel gets cold), and we made sure our masks were on whenever we saw a server approach from outside. A stubborn door was a bit of a relief, in that it didn’t close tight, allowing for better airflow, the chill of which was tempered by a small electric heater.

The greenhouse is snug and stylish. All-weather carpets pave the floor, flowers brighten the table, and an illuminated glass globe dangles from the peaked roof. Who cares about the angry horn honks from feet away on Wisconsin Avenue? You’re out of the house! The little retreats stand close enough to one another that you can overhear your neighbors’ conversations. Save any top secrets, dirty jokes or spoiler alerts for somewhere else.

“There are no bad choices,” an enthusiastic server tells us. Inwardly, I groan at his neutrality, but only until he ticks off some firsts among equals, including a salad starring sweet, brilliant, Badger Flame beets partnered with smoked labne, and steak tartare. Conroy chops raw flank steak from the pedigreed D’Artagnan, mixing it with capers, green peppercorns and a fermented hot sauce he makes himself. The tartare is spread into a round and dappled with an aish, yellow and spicy with Dijon mustard. The born in each bite is pleasing, and persistent.

I beg to differ with my first waiter. There is a lesser dish at Lutèce: French onion soup. The staple looks enticing, served in a raised bowl with a molten cap of Emmental and Gruyère cheeses. Dig below the surface, though, and the broth, supposedly made with beef broth and cognac, has been wan eating both times I’ve tried it. That just means more room for pretty much everything else on the menu.

“I’m not trying to reinvent the wheel,” says the chef, 35. I appreciate his honesty and his craftsmanship. Fresh tarragon and Comte cheese inform his soft gnocchi, gathered with diced squash and feathery maitake mushrooms and finished with more grated cheese, which melts to form a delicious web over the dish. Part of the allure of the roast chicken is its spiced kombu brine, a flavor pump bolstered by a basting of herb butter as the entree cooks. I’m fond of the flaky poached cod, too, sauced with dill oil and horseradish.

Conroy also has a nice way with vegetables. His roasted sweet potato, sliced into fingers and arranged with almonds, blue cheese and dates, is akin to something I like to assemble from remnants in my hand sanitizer on the table (beware, the gel gets cold), and we made sure our masks were on whenever we saw a server approach from outside. A stubborn door was a bit of a relief, in that it didn’t close tight, allowing for better airflow, the chill of which was tempered by a small electric heater.

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### A Georgetown gem is dialing up the finesse

Matt Conroy was just a month into his new job last March, cooking at Lutèce in Georgetown, when the pandemic closed restaurants and he returned to New York, where he previously worked at the Michelin-rated Oxomoco in Brooklyn. Biding his time with his pastry chef wife until Lutèce turned its lights back on, Conroy experimented with sourdough bread. Chefs, they’re just like us, right down to stalking flour at Whole Foods! My point is, his research should be one of the first things you try at the French bistro, which reopened in August. Crisp of crust and tender elsewhere, the $4 sourdough focaccia comes with a little dish of house-churned, sea-salted butter, whose well cups a tiny pool of glistening basil oil.

The best place to dispatch Conroy’s handiwork is in one of nine compact greenhouses lined up outside Lutèce. Like the creperie Cafe Bonaparte before it, the space is owned by Omar Popal, his sister Fatima, and their parents, father Zubair and mother Shamim. You

The steak tartare at Lutèce is composed of chopped raw flank steak and made fiery with capers, green peppercorns, spicy mustard and housemade fermented hot sauce.
might be familiar with their hospitality; the family also owns the charming Afghan retreat Lapis in Adams Morgan and the German beer hall the Berliner near the Georgetown waterfront.

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**Dining with Tom Sietsema**

Lutèce 1522 Wisconsin Ave. NW. 202-333-8830. lutecedc.com. Open for dinner inside and outside, plus takeout, 5 to 9 p.m. Wednesday, Thursday and Sunday; 5 to 10 p.m. Friday and Saturday; for brunch 11 a.m. to 3:30 p.m. Friday through Sunday. Prices: Dinner appetizers $4 to $42; main courses $18 to $34. No delivery. Accessibility: Neither the narrow dining room, fronted by a step, nor the snug greenhouses are wheelchair-accessible.
refrigerator. Critics, they're just like chefs! Brussels sprouts are uncommonly good; blame it on the duck fat with which the little cabbages are roasted. Finer still are the French fries, tossed in garlic confit. Some time in the freezer ensures they stay crisp at the table, not that they stick around long. The pièce de résistance, however, is quartered napa cabbage, singed over Japanese charcoal, spritzed with lime juice, dressed with tahini and showered with toasted sesame seeds. Yes, we'll take home the leftovers.

The novelty on the list is a $42 appetizer. Picture a stack of Lincoln Logs — shredded potato fried in duck fat — drizzled with crème fraîche and outfitted with fresh dill and river caviar (buttery Kaluga, a hybrid). The combination of the twice-fried potatoes, cool dressing and shimmering roe is plenty of decadence for two, one of whom breaks out in a smile when he recognizes the flavor of the golden potatoes.

“McDonald’s hash browns!” my companion cries. Sure enough, they taste like Throwback Thursday. When I share the exchange with Conroy, he sounds unsurprised. “I like food that has a reference point.”

I appreciate food served by thoughtful overseers, another of Lutèce’s strong suits. “Service is included on the bill,” a waiter lets us know as we wrap up a night of easy banter with him. The 22 percent hospitality charge feels right, not just because our server has taken very good care of us, but because the pandemic has revealed inequities in the way restaurant workers are compensated.

Washington’s Lutèce is no relation to New York’s bastion of French refinement, which closed 17 years ago but made subsequent cameos on AMC’s “Mad Men.” Omar Popal says he likes the name’s backstory (“Any French speaker will know Lutèce is the old name for Paris”) and used it to set the place apart from the masculine-sounding Bonaparte. Lutèce, a mere 33 seats, has been remodeled to include an open kitchen and custom-made mirrors. From the outside, the inside looks cozy.

In safer times, I hope to linger in the dining room over dessert. Every one I’ve tried is something I’d be happy to order again. Scoops of dark chocolate ganache sprinkled with a crumble of baked sweetened crepe? Mais oui. Rice pudding strays from the nursery recipe with accents of quince and almond, and poundcake draped in a creamy lemon sauce goes architectural with poppy-seeded meringue tiles.

Lutèce offers a little something for everyone. And a lot to like, wherever you happen to eat it.
Masks in the window

BY RANDY MAYS

Find the 12 differences in the photo of masks at World Cleaners in Northwest Washington in August.

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Gene gets a shot in the arm

There are very few advantages to being old. You are more experienced, but not necessarily any wiser than you were at 30, and you have no short-term memory. For example, I will not remember the beginning of this sentence without going back to read it. You are cranky. If you are male your prostate gland is the size of a weather balloon, and if you are female you are very disconcertingly aware of gravity. My point is, getting old sucks, except for one thing.

I just got the coronavirus vaccine because of some weird national system that seems to give preference to people who are already half-dead. I don’t mean to be morbid or ungrateful, but at 69, statistically speaking, the vaccine will probably allow me to exist only through the first Kamala Harris administration. If they gave it to an infant, we are talking about 80 years. How does this make sense? It’s like one of those nonsensical ethical conundrums popular in thumb-sucking liberal-arts college philosophy classes: If given a choice, do you save the mother of 12 children, or the single, gay doctor who is on the verge of curing cancer? YOU SAVE THE DOCTOR, MORON. The mom is an irresponsible idiot, anyway. Who has 12 children?

However. I am glad I got the shot. It was not easy. My girlfriend and I were doing a crossword puzzle online when I got an email alert that 1,500 shots were instantly available in the District of Columbia. Without any regard for my self-respect, she elbowed me off the computer — she is younger than I am and way faster at the keyboard — and completed the questionnaire requesting a shot without once consulting me, as though she were filling out a veterinary form for a dog. Exactly 40 seconds after hitting “Enter,” and learning I had an appointment, I got another email saying all spots were filled.

This is not a sane system, obviously. It filled me with joy, but also guilt. I was jonesing for the shot — like a lot of people, I had vaccine envy. It is not admirable. The Germans probably have a word for it. Call it shottennfreude.

A friend of mine, a pharmacist in a hospital, got the vaccine just four days after it became available, because she was, in essence, a first responder, a heroic person, a good person and extremely deserving of front-of-the-line placement, and I hated her, which filled me with self-loathing.

As a Jewish guy, I feel guilt all the time, even for things no sane person would feel guilty about, such as having nipples that I selfishly do not use for infant nutritional sustenance. Bogarting one of the scarce doses of the vaccine in a store filled with young people, who had to go about their business as yet unprotected, made me uneasy. The only guy older than me was getting the shot too. He was in his mid-70s, frail-looking and suicidal. I know that because he was talking quite openly about it with the guy who drove him there, who was the pastor of his church. I know this is not funny, but I am telling you this for two reasons: The first is, it was an act of extraordinary pastoral grace that brought tears to my eyes. As we sat together in the waiting room I was moved enough to interject. “Hang in there,” I said. “We only get one shot at life.”

The second was that as the guy left, and right before I was to get vaccinated, he and I shared a moment. Just a meeting of the eyes. The eyes said, SCORE. I’m pretty sure he learned something about the sanctity of life. I did.

The shot made me a little sick for a couple of days, and I still have to go back for a follow-up later in the month, and that fills me with a particular dread, because my job now is to stay healthy for another six weeks until full immunity kicks in. Huge pressure. Anxiety. I am afraid of choking, like a basketball player who’s made the first of two free throws but still needs to sink the second for the win.

Email Gene Weingarten at gene.weingarten@washpost.com. Find chats and updates at wapo.st/magazine.
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