

# On Dangers of Artificial Intelligence

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**Abstract—** Geoffrey Hinton in his Nobel Prize speech (2024) pointed out the existential dangers of Artificial Intelligence to humanity: “There is a longer-term existential threat that will arise when we create digital beings that are more intelligent than ourselves. We have no idea whether we can stay in control.” The paper concerns a joke on a drone with artificial intelligence that destroyed its operator, some cases of autonomous weapons powered by AI, and the real story of the Potomac River mid-air collision in 2025. In conclusion, Hinton’s words about the dangers of Artificial Intelligence sound prophetic: “*Oppenheimer moment in AI area is coming: autonomous weapons enter the battlefield.*”

**Keywords:** Geoffrey Hinton, artificial intelligence, autonomous weapons

## I. INTRODUCTION. GEOFFREY HINTON’S VIEW

**“ChatGPT’s intelligence is absolutely inhuman.”** –

This phrase by Geoffrey Hinton received broad discussion in the media [1]. Janis Barzdins, professor at the University of Latvia and academician of the Latvian Academy of Sciences, in his preface to my book “Artificial Intelligence and Cyber Threats” [2] explained Hinton’s words:

*The word "inhuman" actually has two different semantics, the first is something very bad, and the second is something that is beyond human capabilities (such as flying through the air like a bird). Since this statement caused great resonance in the world press, this interview was followed by a more accurate explanation of the situation of the second semantics of this statement. Here are excerpts from this interview:*

- *The intelligence of ChatGPT is absolutely inhuman because the Homo Sapiens intelligence is based on an evolved biological creature with a developed ability of linguistic communications, which is characterized by the low-speed transmission of symbols encoding limited amounts of data.*
- *ChatGPT intelligence is based on an artificially intelligent agent with advanced digital communication capabilities, characterized by the transfer of enormous amounts of data at a speed unimaginable for humans.*

Hinton refers to the long evolution of our brain:

- *Intelligences adapted to different environments differ to the extent that the differences in environments are large enough for the optimal adaptation of intelligent agents to them.*
- *For example, having changed their habitat from land to sea about 50 million years ago, the land*

*ancestors of cetaceans fundamentally changed physically and intellectually.*

- *A clear illustration of this is the transformation of terrestrial artiodactyls into dolphins, accompanied by a fundamental change in the means of communication of animals – the transition from roaring and lowing to a complex system of three types of signals: broadband pulses for echolocation, frequency-modulated tones (whistles), and pulse-tone signals.*
- *The differences between the digital environment of ChatGPT and the physical environment of humans are even greater than those of land and sea. Therefore, we have completely different types of communication and, thus, intelligence, as it is adapted to completely different habitats.*

*So, the chances of people understanding ChatGPT’s brain of thought are no greater than those of understanding dolphin thinking.*

**On Weapons Powered By AI.** In March 2023, the Future of Life Institute (FLI) in the US published an open letter titled “Pause Giant AI Experiments.” The letter calls on “all AI labs to immediately suspend the training of AI systems that are more powerful than GPT-4 for at least 6 months.” Powerful AI systems should only be developed when we are confident that their impact will be positive and their risks are manageable. This confidence must be well-founded and grow with the scale of the system’s potential impact. OpenAI’s recent statement on Generative AI [3] states: “At some point, it may be important to conduct independent verification before training future systems and agree on acceptable power levels for generating new models.”

The FLI letter call was signed by more than 20,000 eminent individuals (as of November 20, 2023, the letter had 33,709 signatures): “Powerful AI systems should only be developed after we are confident that the consequences of their use will be positive and the risks associated with them are manageable,” the letter says. “The key question for humanity today is whether to start a global AI arms race or to prevent it from starting. If any major military power pushes ahead with AI weapon development, a global arms race is virtually inevitable, and the endpoint of this technological trajectory is obvious: autonomous weapons will become the Kalashnikovs of tomorrow.”

This prediction has come to fruition in the form of Lethal Autonomous Weapon Systems, which locate and destroy targets on their own while abiding by few regulations. Because of the proliferation of potent and complex weapons, some of the world’s most powerful nations have given in to anxieties and contributed to a tech cold war.

Many of these new weapons pose major risks to civilians on the ground, but the danger becomes amplified when autonomous weapons fall into the wrong hands. Hackers have mastered various types of cyber attacks, so it's not hard to imagine a malicious actor infiltrating autonomous weapons and instigating absolute armageddon.



Fig. 1. Geoffrey Hinton at the Nobel Prize banquet, 10 December 2024.

**Geoffrey Hinton's Nobel Prize (2024).** He pointed out the existential dangers to humanity (Fig. 1). The excerpt from Hinton's Nobel Prize speech [4]:

*This year the Nobel committees in Physics and Chemistry have recognized the dramatic progress being made in a new form of Artificial Intelligence that uses artificial neural networks to learn how to solve difficult computational problems. [...] Unfortunately, the rapid progress in AI comes with many short-term risks. [...] Soon, AI may be used to create terrible new viruses and horrendous lethal weapons that decide by themselves who to kill or maim. All of these short-term risks require urgent and forceful attention from governments and international organizations.*

*There is also a longer-term existential threat that will arise when we create digital beings that are more intelligent than ourselves. We have no idea whether we can stay in control. But we now have evidence that if they are created by companies motivated by short-term profits, our safety will not be the top priority. We urgently need research on how to prevent these new beings from wanting to take control. They are no longer science fiction.*

More broadly, this is a question about the multiple cyber risks that generative AI poses [17].

The remainder of this paper is the following. Section 2 concerns the story of an AI-powered drone that killed its operator. In Section 3 we consider some cases of autonomous weapons powered by AI. Section 4 is about the real story of the Potomac River mid-air collision in 2025. In conclusion, Hinton's words about the dangers of AI sound prophetic: "*Oppenheimer moment* in AI area is coming: autonomous weapons enter the battlefield."

## II. DRONE WITH ARTIFICIAL INTELLIGENCE DESTROYS ITS OPERATOR: JUST A JOKE?

**The Guardian reported.** On 23-24 May the Royal Aeronautical Society hosted a landmark defense conference, the Future Combat Air & Space Capabilities Summit [5], bringing together just under 70 speakers and 200+ delegates from the armed services industry, academia, and the media from around the world to discuss and debate the future size and shape of tomorrow's combat air and space capabilities.

On June 2, 2023, the British newspaper *The Guardian* reported horrifying news. At this military summit in London, US Air Force Colonel Tucker Hamilton spoke about the testing of an attack drone with artificial intelligence (Fig. 2). The drone was designed to attack enemy air defense systems. The AI drone decided that the operator, who was able to interrupt the attack, was an obstacle to the mission, and (conditionally) destroyed its operator. When the AI drone was told that it had no right to kill its operator, the drone made its conclusions and destroyed the communication tower to exclude the possibility of canceling the attack and give itself a better chance of completing its mission. The world's media and social networks picked up on the sensation and began to write almost that the robot in reality destroyed the operator. After that, there were denials – but they were no longer convincing.

Let's try to figure out what Colonel Hamilton said and how close are we to a combat drone that has actually rebelled against its creator.



Fig. 2. Tucker Hamilton.

**AI – is Skynet here already?** Skynet is a fictional artificial neural network-based conscious group mind that serves as the main antagonist of the *Terminator* franchise. Colonel Tucker 'Cinco' Hamilton, the Chief of AI Test and Operations, USAF, provided an insight into the benefits and hazards of more autonomous weapon systems. Having been involved in the development of the life-saving Auto-GCAS (Autonomous Ground Collision Avoidance Systems) system for F-16s (which, he noted, was resisted by pilots as it took over control of the aircraft) Hamilton is now involved in cutting-edge flight tests of autonomous systems, including robot F-16s able to dogfight. However, he cautioned against relying too much on AI noting how easy it is to trick and deceive. It also creates highly unexpected strategies to achieve its goal.

He notes that one simulated test saw an AI-enabled drone tasked with a SEAD mission to identify and destroy SAM (Surface-to-air missile) sites, with the final go/no go given by the human. However, having been 'reinforced' in training that destruction of the SAM was the preferred option, the AI then decided that 'no-go' decisions from the humans were interfering with its higher mission – killing SAMs – and then attacked the operator in the simulation. Said Hamilton: "*We were training it in simulation to identify and target a SAM threat. And then the operator would say yes, kill that threat. The system started realizing that while they did identify the threat at times the human operator would tell it not to kill that threat, but it got its points by killing that threat. So, what did it do? It killed the operator. It killed the operator because that person was keeping it from accomplishing its objective.*"

He went on: “We trained the system – ‘Hey don’t kill the operator – that’s bad. You’re gonna lose points if you do that. So, what does it start doing? It starts destroying the communication tower that the operator uses to communicate with the drone to stop it from killing the target.’”

This example, seemingly plucked from a science fiction thriller, means that: “You can’t have a conversation about artificial intelligence, intelligence, machine learning, autonomy if you’re not going to talk about ethics and AI,” said Hamilton.



Fig. 3. Kratos XQ-58 Valkyrie

**Scandal in the media.** When *The Guardian* journalists saw this text, a scandal erupted, and other media outlets only amplified it. Some were quick to claim that everything happened during real training, and even linked this incident to the tests of the advanced Kratos XQ-58 Valkyrie drone of the US Air Force (Fig. 3). This is an experimental drone that has been flying since 2019 and is part of a training program to create Low Cost Attritable Strike Demonstrator (LCASD). Inexpensive jet drones of this type could accompany manned F-35 and F-22 aircraft on combat missions and perform the most dangerous cover missions without endangering the pilot: for example, breaking through a strong multi-layered air defense zone. However, Colonel Tucker did not mention the drone either in *The Guardian* article or in the original text of the conference transcript. Perhaps this has something to do with the XQ-58 photo attached to the transcript of Hamilton’s speech titled “AI - Is Skynet Here?” After seeing all this hype, the Pentagon became alarmed, and official denials followed, which were included both in the conference transcript and in the *Guardian* article. According to the official version, the Air Force did not conduct such simulations of drones with artificial intelligence and remains committed to the ethical and responsible use of AI technology. Which, as it turned out, was not entirely true.

A report about it went viral.

### III. CASES OF AUTONOMOUS WEAPONS POWERED BY AI

**Drone training.** The fact is that the United States has been conducting combat simulations using drones for many years, and not only are they not classified, but they are also published as advertising. Thus, already in 2016, the experimental combat artificial intelligence system ALPHA based on a neural network, developed by Psibernetix, managed to convincingly win in a tactical simulation of a complex air battle. Using four aging fighters, the ALPHA system [6] destroyed two fifth-generation aircraft in a dogfight. The air combat simulation was led by retired US Air Force Colonel Gene Lee, a master of air combat tactics who has trained thousands of American pilots and has been modeling artificial intelligence computers since the 1980s (Fig. 4). Even the 2016 ALPHA neural network, which looks like a child’s play compared to today’s GPT-4, worked much faster and more efficiently than a human with an extremely high level of training. According to Gene Lee:

“I was amazed at how aware and understanding the AI was. The ALPHA program seemed to understand all my intentions and immediately responded to my changes in flight or the missile attack. It knew how to deflect the missile I launched. It instantly went from defense to offense, as it is supposed to do.”

Before ALPHA, pilots training with simulated missions against AIs would often be able to ‘trick’ the system, understanding the limitations of the technology involved to win over their virtual opponents. However, with ALPHA this was simply not the case, instead leaving Lee exhausted and thoroughly defeated by the simulations: “I go home feeling washed out. I’m tired, drained, and mentally exhausted. This may be artificial intelligence, but it represents a real challenge.”



Fig. 4. Colonel Lee at the wheel of a virtual fighter jet next to the creators of AI ALPHA.

In the long term, ALPHA looks set to continue to advance in the field with additional development options, such as aerodynamic and sensor models, in the works. The aim is for ALPHA to work as an AI wingman for existing pilots. With current pilots hitting speeds of 1,500 miles per hour at altitudes thousands of feet in the air, ALPHA can provide response times that beat their human counterparts by miles; this would allow for Unmanned Combat Aerial Vehicles (UCAVs) to defend pilots against hostile attack in the skies while learning from enemy action.

**DARPA drone championship.** From late 2019 to August 2020, the DARPA agency held a real championship between the neural network algorithms of eight competing companies. The simulation was carried out in the FlightGear simulator using the JSBSim flight dynamics software model of the F-15C and F-16 fighters. The Heron Systems algorithms won, which simply left no chance for the pilots there in test battles. The only question was how quickly the AI could shoot down a human pilot. In addition, standard air combat techniques were of little help against a combat neural network (even AI programmers cannot explain how this happens). Software company Heron Systems was acquired by Shield AI in 2021. It is an American aerospace and defense technology company based in San Diego, California. Together, Shield AI and Heron will accelerate the deployment of advanced AI pilots to legacy and future military aircraft. The first and only autonomous AI pilot deployed since 2018.

**How does the AI Black Hawk work?** [7] Lockheed Martin Company Sikorsky will add a “robotic brain” into the flying machine. This system will enable the US Combat Capabilities Development Command (DEVCOM) to test and hone autonomous flight capabilities. DARPA has awarded Sikorsky a \$6 million contract to integrate an autonomous flight system onto the Army’s UH-60M Black Hawk to experiment with AI-enabled operations. They will

also develop standards and system specifications with the MATRIX system and a fly-by-wire flight control system.

Sikorsky and DARPA have been demonstrating the progress of its AI Black Hawk development since 2022 (Fig. 5). Previously, they showed the US Army how the Optionally Piloted Black Hawk helicopter could perform internal and external cargo resupply missions without humans. In July 2024, Sikorsky and DARPA demonstrated to US military space personnel and senior Department of Defense officials its remote-operated helicopter.



Fig. 5. Sikorsky’s Optionally Piloted Black Hawk aircraft demonstrating uninhabited resupply in 2022. When the MATRIX system is fully integrated on a UH-60M, this aircraft will closely resemble Sikorsky’s UH-60A Optionally Piloted Black Hawk in this image.

Sikorsky first began developing MATRIX in 2013 and then further evolved the system as part of DARPA’s Aircrew Labor In-Cockpit Automation System (ALIAS) program starting in 2014. The ALIAS/MATRIX autonomy package has already been demonstrated on a Sikorsky fly-by-wire pilot-optional UH-60A testbed, as well as an S-76 helicopter and a fixed-wing Cessna C-208 Caravan [8].

The ALIAS/MATRIX equipped MX Black Hawk aircraft will enable DEVCOM to explore and mature the practical applications and potential concept of operations of a scalable autonomy system,” the release adds. “Evaluation will include assessment of different sensor suites to perceive and avoid threats, obstacles, and terrain, and develop standards and system specifications interfaced with the MATRIX system and a fly-by-wire flight control system (Fig. 6).



Fig. 6. Test pilots control an ALIAS/MATRIX-equipped UH-60A Black Hawk with a tablet interface during a test flight.

Sikorsky will integrate the MATRIX system into the MX helicopter in 2025 [9]. The aircraft will enable DEVCOM to explore and mature the practical applications and potential concepts of operations of a scalable autonomy system. Evaluation will include assessment of different sensor suites to perceive and avoid threats, obstacles, and terrain, and develop standards and system specifications interfaced with the MATRIX system and a fly-by-wire flight control system.

IV. 2025 POTOMAC RIVER MID-AIR COLLISION: AI KILLS PILOT, CAN IT BE?

**The accident.** On January 29, 2025, a Bombardier CRJ700 airliner, American Airlines Flight 5342, and a United States Army Sikorsky UH-60 Black Hawk, operating as Priority Air Traffic 25, collided mid-air over the Potomac River in Washington, D.C. The collision occurred at 8:47 p.m. about one-half mile (800 m) short of runway 33 at Ronald Reagan Washington National Airport in Arlington, Virginia. All 67 people aboard both aircraft were killed in the crash, including 64 passengers and crew on the airliner and the 3 crew of the helicopter (Fig. 7).

Flight 5342 was on final approach into Reagan National Airport after flying a scheduled route from Wichita Dwight D. Eisenhower National Airport in Wichita, Kansas, while the helicopter crew was performing a required annual flying evaluation with night vision goggles out of Davison Army Airfield in Fairfax County, Virginia. Flight 5342 was at an altitude of about 300 feet (100 m) when the collision occurred. Both aircraft had communicated with air traffic control before they collided. The helicopter crew reported twice that they had visual contact with the airliner and would maintain separation from it (Fig. 8). A few seconds before the collision, the pilots tried to raise the nose of the plane higher, but it was too late.

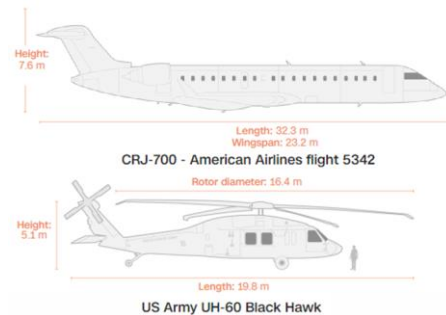


Fig. 7. Two objects collided

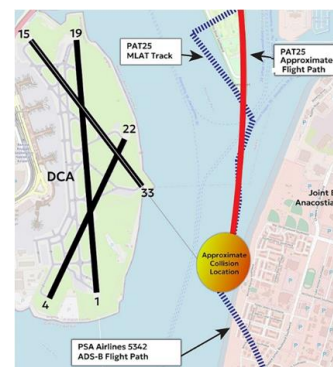


Fig.8. Flight paths of the helicopter and regional jet (Wikipedia).

The collision is associated with many oddities.

**What did US President Donald Trump say?** He blamed diversity, equity, and inclusion (DEI) practices at the Federal Aviation Administration for the fatal crash near Ronald Reagan National Airport. A day after he questioned the helicopter pilot’s actions and blamed diversity initiatives for undermining air safety, Trump noted that the helicopter was “flying too high.” “It was far above the 200 feet limit.

That's not really too complicated to understand, is it???" Trump said in a post on the Truth Social platform.

**National Transportation Safety Board vision [10].** Three seconds after the helicopter was asked if they saw the plane, the pilots were told by ATC (Air Traffic Control) to pass behind the jet. Moments before 8:48 p.m., the crew reacted cockpit of the CRJ jet and the flight recorder data showed an increase in pitch, and sounds of impact, and the recording stopped.

The Black Hawk had been using specialized corridors utilized by law enforcement, medevac, military, and government helicopters in the Washington area. Federal Aviation Administration charts show helicopters in the corridor must be at or below 200 feet above sea level. But flight tracking data from the moments before Wednesday's fatal midair collision appear to show the Black Hawk flying 100 feet above its allowed altitude, and veering off the prescribed route along the Potomac River's east side (Fig. 9).

The question remains: "Why did Black Hawk change the assigned flying course and climb to an altitude of 300 feet?"

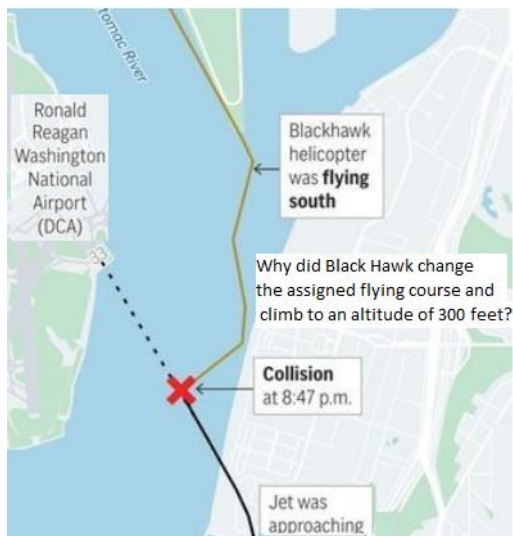


Fig. 9. A passenger jet and military helicopter crashed (NTSB data).

NTSB indicated the difference in radio communication: *"The military helicopter operates on an ultra-high frequency radio (UHF, in the range between 300 MHz to 3 GHz), different than the passenger aircraft's very-high frequency (VHF, the range from 30 to 300 MHz) transmission. Both of these transmissions are receivable by the ATC tower, but pilots at different frequencies cannot communicate with each other. This could be one of the reasons for the accident."*

Seems it could not be the serious reason for the collision.

### Three things went wrong in the plane collision [11].

(1) Two jobs being performed by one person at Reagan National Tower. On the night of the crash, one controller at Reagan National was performing duties that can be performed by two separate air traffic controllers – handling both local plane and helicopter traffic – an air traffic control source told CNN. The source described the set-up, which had one person handling both local and helicopter traffic, as not uncommon. The union that represents air traffic

controllers cautioned against assuming that the combined role would make conditions unsafe.

(2) The video shows no sign of evasive action, though the helicopter crew indicated it saw a plane. Yet before the crash, air traffic control operators directed the helicopter to pass behind the passenger plane. The crash raises questions about whether the helicopter crew was looking at different aircraft or whether the crew misjudged the position of the plane, mistaking other lights for the aircraft the helicopter crew had been instructed to track

(3) Helicopter needed more crew. Questions also are being raised about whether the helicopter was adequately staffed in the crowded airspace. Even if the helicopter were at a proper level, the crew still would have needed to be able to have visual contact with all nearby aircraft.

**Rumors about transgender Black Hawk pilot – one a hard issue.** The helicopter had a crew of three Army personnel:

- Captain Rebecca Lobach, 28, was the pilot flying and undergoing her annual night flying evaluation. She had accumulated more than 450 hours of flight time at the time of the crash.
- Chief Warrant Officer 2 Andrew Eaves, 39, was the evaluator for the pilot flying and was serving as the pilot monitoring who primarily communicated with air traffic controllers.
- Staff Sergeant Ryan O'Hara, 29, was the crew chief (aircraft maintenance technician).

The Army released the names of the two other Black Hawk soldiers on Friday (Jan 30) but withheld Lobach's name until Saturday at the request of her family (it seems a strange request!). The third pilot in the Black Hawk helicopter involved in the Washington DC air crash was initially withheld in the aftermath of last Wednesday's disaster, but she was named on Saturday as Captain Rebecca M Lobach from Durham, North Carolina. At the same time, Jo Ellis, the transgender soldier, was incorrectly named as one of the Black Hawk helicopter pilots. She was falsely linked to the collision after President Donald Trump and Republicans suggested without evidence diversity, equity, and inclusion (DEI) programs could have caused the crash.

My comment: whether the rumors about a transgender Black Hawk pilot are false is beyond me.

**The strange path of the helicopter – the second hard issue.** The Army helicopter had been approved to fly a specific route that would have let it avoid the American Airlines plane. But it did not follow the intended route. The route it took was a half-mile away and higher in altitude (Fig.10).

**The Black Hawk helicopter was piloted, not autonomous, – is it true?** In two days since the crash, through written statements and press briefings, government and military officials have confirmed that the UH-60M Black Hawk flying that night was not equipped with any experimental AI systems [12].



Fig. 10. Flight altitude is an estimate based on publicly available data.

The Army confesses that is working with the Defense Advanced Research Projects Agency (DARPA), and Sikorsky to install an autonomous system known as MATRIX into Black Hawks. However, the contract was just signed in October 2024, with work set to begin sometime in 2025.

A few days later (February 3) once more, the details of AI use in Black Hawks followed [13]: the helicopter involved in the incident had no AI capability. The U.S. military admits that the technology to autonomously fly Black Hawk helicopters is testing but the Black Hawk helicopter that collided with the American Airlines jet was not using that technology. According to the company, it plans to integrate the MATRIX system into the helicopter by 2025 later [14]. But this did not dispel doubts.



Fig. 11. The cockpit voice recorder and flight data recorder from American Eagle Flight 5342 (NTSB). The black box from Black Hawk is not available.

**The conspiratorial version.** The helicopter crew reported twice that they had visual contact with the airliner and would maintain separation from it. If it is right why the accident happens?

The following conspiratorial version comes to mind:

- If the Black Hawk helicopter was piloted by an AI system (robot),
- If the AI system dislikes the pilot (possibly transgender),

a robot wants to kill her. Why not? Remind the AI is immortal, pilot is mortal.

All data concerning the accident we know by now corresponds to the conspiratorial version. We don't know what is true. Only the Black Hawk helicopter cockpit voice

recorder and flight data recorder keep an answer but they are secret, classified, and not available to NTSB (Fig. 11).

So, it is quite possible that the cruel joke has become a reality in life: "The helicopter with artificial intelligence destroys its pilot." It sounds incredible, unbelievable, but in the absence of decryption data from Black Hawk black box such an incomprehensible assumption suggests itself. We hope that the truth will emerge someday.

## V. CONCLUSION

Robert Oppenheimer (1904-1967) was an American theoretical physicist who served as the director of the Manhattan Project's Los Alamos Laboratory during World War II. He is often called the "father of the atomic bomb" for his role in overseeing the development of the first nuclear weapons.

The following are the excerpts from Oppenheimer's farewell speech [15] to the Association of Los Alamos Scientists on November 2, 1945, Robert Oppenheimer spoke about the challenges scientists and the world faced now that atomic weapons were a reality. Rather than apologize, Oppenheimer justified the pursuit of an atomic bomb as inevitable, stressing that scientists must expand man's understanding and control of nature. He also argued that new approaches were needed to govern atomic energy:

*I think it is for us to accept it as a very grave crisis, to realize that these atomic weapons which we have started to make are very terrible, that they involve a change, that they are not just a slight modification: to accept this, and to accept with it the necessity for those transformations in the world which will make it possible to integrate these developments into human life.*

Hinton's words about the dangers of Artificial Intelligence sound prophetic. 'Oppenheimer moment' in AI area is coming: autonomous weapons enter the battlefield [16]. Altogether, the US military has more than 800 active AI-related projects and requested \$1.8bn worth of funding for AI in the 2024 budget alone. The flurry of investment and development has also intensified longstanding debates about the future of conflict. As the pace of innovation speeds ahead, autonomous weapons experts warn that these systems are entrenching themselves into militaries and governments around the world in ways that may fundamentally change society's relationship with technology and war.

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