

AI and Drone Warfare: Navigating the Ethical Battlefield

Why?	
<p>This lesson tackles the crucial topic of AI in drone warfare, an increasingly relevant issue impacting our present and shaping our future. By exploring the potential benefits and ethical dilemmas associated with this technology, students gain critical thinking skills and develop informed perspectives on its responsible use. This allows them to engage in meaningful discussions about the intersection of technology, ethics, and global security.</p>	
Materials Needed	Time needed
<ul style="list-style-type: none"> ● Projector hooked up to a computer with internet access ● Printed handouts 	<ul style="list-style-type: none"> ● Approximately 45 minutes
Objectives	
<ul style="list-style-type: none"> ● Students will be able to identify the potential benefits and drawbacks of using AI in warfare, considering various perspectives. ● Students will be able to analyze the ethical challenges associated with AI in warfare. ● Students will be able to formulate their own informed opinions on the ethical considerations of AI in warfare. ● Students will be able to collaborate effectively with peers in discussions and activities, actively listening to diverse perspectives and engaging in respectful dialogue. 	
Key Concepts & Vocabulary	
<ul style="list-style-type: none"> ● Artificial Intelligence (AI): Machines that can learn and make decisions on their own. ● Autonomous weapons: AI-powered weapons that operate without human intervention. ● Collateral damage: Unintended casualties or damage caused by military operations. ● Depersonalization of conflict: The loss of human connection and empathy in war due to AI technology. 	
Lesson Components	
<ol style="list-style-type: none"> 1. Before You Watch: Connect lesson to background knowledge of AI drone warfare, and get students' attention 2. Video: Show the pedagogy.cloud video explaining the ethical considerations in the topic of AI drones in military campaigns 	

3. **Case Study:** Detail a real-world scenario that relates to the issue of programming AI drones
4. **Simulation:** Lead students through an interactive activity exploring the possible ethical considerations
5. **Discussion:** Ask whole-class questions to reflect on experience and consider perspectives.
6. **Assessment:** Verify student understanding with an exit ticket

1. Before You Watch

Drone Demonstration: If you have access to a drone, fly it around the classroom. If not, find a brief video of a drone flying with precise skill. Ask students to imagine if there are ways to use drones that could help people, or hurt people. Bring up the idea that drones can be used for good, such as delivering supplies, assisting in search and rescue, monitoring large areas quickly in disaster relief. But they may also be used for bad, such as spying, smuggling contraband, disrupting ecosystems, and in warfare.

While You Watch: Mention these topics and questions for students to look out for as they watch the video:

- What are the main advantages of using AI in warfare?
- Explain the concept of the depersonalization of conflict and its potential consequences.

2. Video Summary

The video explores the use of AI in warfare, highlighting its potential benefits and ethical concerns. While AI offers advantages like precision and reduced human error, it raises questions about accountability and depersonalizes conflict. Balancing these considerations is crucial to ensure responsible and ethical use of AI in the future.

3. Case Study

Distribute or read Case Study handout.

Summary: A fictional country uses AI drones to attack an enemy base, achieving a military victory but also causing unexpected civilian casualties. This incident ignites international debate about the ethical implications of AI in warfare, raising concerns about accountability, civilian harm, and the potential for conflict dehumanization. This case becomes a critical study for the need for international collaboration in regulating AI weapons and ensuring their ethical and responsible use.

4. Simulation

Note: This simulation should be conducted in a respectful and sensitive manner to avoid glorifying or making light of war, or encouraging violent talk. The focus should be on fostering critical thinking and ethical decision-making in the context of emerging technologies.

Ethical AI in Wartime Scenario

A fictional country, struggling for survival against a relentless aggressor, wants to employ advanced AI technology for autonomous defense drones. These drones are capable of identifying and eliminating enemy targets with minimal human intervention. However, concerns arise regarding potential civilian casualties and the ethical implications of delegating life-and-death decisions to AI.

Roles (see specifics on Simulation Handout)

- AI Developers
- Military Leaders
- Ethical Advisors

Tasks

1. Explain the scenario and create three small groups of students who will take on the roles shown above. (In larger classes, there could be multiple groups of each type)
2. Give students the Simulation Handout and go over the roles.
3. Group Planning – In role groups, students discuss their task and write down their plans.
 - a. Each role has its own goals in discussion. These are listed on the Simulation Handout.
 - b. Provide time for groups to discuss and create their desired list of rules, plans, and/or solutions.
4. Each group should present their proposals to the other groups, explaining their logic and rationale.
 - a. Have groups identify the similarities among groups – for example, write topics on the board as each group speaks, and then compare the lists.
 - b. Direct questions back to the groups for discussion, such as discussing the potential consequences of different approaches. If one group suggests a solution or rule that is different from another group, have them discuss how to deal with that difference.
 - c. Encourage the groups to use material from other groups to propose alternative solutions and compromises.
 - d. Optionally, have one student from each role get together in a group of three to discuss differences of opinion and attempt to come to some sort of agreement on rules and plans.
5. Bring the entire class back together for group discussion.

5. Discussion

These questions are designed to be used in whole-class discussion. Ask questions that relate most effectively to the lesson.

1. What were the most challenging aspects of creating rules for the AI to identify legitimate targets and minimize civilian casualties?
2. How did you weigh the potential military benefits against the risks of civilian casualties?
3. What are the potential long-term consequences of using AI in warfare? How might this technology impact the future of warfare and international relations?

4. Imagine you are in the shoes of a soldier on the ground, facing an imminent attack. How would you feel about relying on AI-powered drones for defense?
5. What role does public opinion play in the decisions of how to program the drones? If the people of the country and around the world are in favor of the technology, would you do things differently than if they were opposed?

6. Assessment

Exit Ticket: Provide a prompt for students to reflect on their learning, such as:

- What were the key factors considered when developing the strategic deployment plan for the AI drones?
- What were the most significant ethical dilemmas identified by the class?
- What message would you communicate to world leaders and policymakers regarding the use of AI in warfare?

Sources to Learn More

- Article on the Ukrainian military strategy of employing drones against targets - <https://www.cnn.com/2023/12/12/europe/ukraine-kherson-explosive-drones-int/index.html>
- Article about the decision to let AI-directed weapons make battlefield decisions - <https://www.businessinsider.com/us-closer-ai-drones-autonomously-decide-kill-humans-artificial-intelligence-2023-11?op=1>
- Article about the possible near future of warfare using autonomous technology - <https://www.wired.com/story/ai-powered-totally-autonomous-future-of-war-is-here/>

Case Study: The Karkin Conflict

The fictional country of Eastlandia, facing a prolonged conflict with its neighbor Westlandia, decided to deploy AI drones with advanced target identification capabilities in an operation named “Operation Karkin.” The primary objective was to eliminate a key military base in Westlandia, which was believed to be the hub for orchestrating attacks against Eastlandia. The drones successfully destroyed the military base with minimal collateral damage. However, the operation also inadvertently led to the destruction of a nearby shelter, resulting in significant civilian casualties.

Outcome: The operation was a military success, significantly reducing Westlandia's capabilities and leading to a swift end to the conflict. The civilian deaths sparked international outrage and a heated debate on the ethical use of AI in warfare. Investigations revealed that a glitch in the AI's programming failed to identify the civilian shelter as a non-combat zone. Public opinion on the outcome was split.

Support for AI Drones: Proponents argued that the AI drones played a crucial role in ending the conflict quickly, potentially saving thousands of lives in a prolonged war. Many in Eastlandia praised the technology for keeping their soldiers safe from direct combat.

Opposition to AI Drones: Critics raised ethical and moral concerns about the implications of allowing AI to make life-and-death decisions, emphasizing the tragedy of civilian casualties. There was a strong push for international laws to regulate the use of AI in warfare, citing the need for accountability and transparency.

Additional Repercussions: The glitch that led to civilian deaths fueled skepticism about the reliability and readiness of AI technology in high-stakes scenarios. Some feared that reliance on AI in warfare would lead to a depersonalization of conflict, making the decision to go to war easier and potentially more frequent. The incident also strained diplomatic relations between Eastlandia, Westlandia, and other nations, with calls for reparations and justice for the civilian victims.

Conclusion: The Karkin Conflict became a pivotal case study in military strategy, international law, and ethical discussions surrounding AI in warfare. It highlighted the need for balancing technological advancement with ethical considerations and the importance of international cooperation in regulating emerging technologies in warfare.

Questions

- Do you think the use of AI drones saved more lives than it cost? Why or why not?
- Do you think existing international laws are sufficient to address the use of AI in warfare?

Simulation Activity: Developing AI Drone Technology

Roles

- **AI Developers:** You are responsible for designing and optimizing the AI algorithms that control the drones. You must balance efficiency and accuracy with ethical considerations.
- **Military Leaders:** You face the pressure of protecting your citizens from imminent attacks. You must decide how to utilize the AI drones effectively while minimizing civilian harm.
- **Ethical Advisors:** You are experts in the field of AI ethics and international law. You must guide the decision-making process with sound moral principles and legal considerations.

Role Goals

- **AI Developers:** Develop a set of rules for the AI to identify legitimate targets and minimize civilian casualties. Discuss and refine your proposed rules within your group.
- **Military Leaders:** Create a strategic plan for deploying the drones, considering potential risks and benefits. Debate and finalize your plan within your group. Craft your own military-influenced rules for the drones.
- **Ethical Advisors:** Analyze potential ethical dilemmas and legal challenges associated with deploying AI drones in warfare. Brainstorm and discuss solutions to address these challenges. Craft your own ethical rules for the AI drones.

At the conclusion of group discussion and planning, you will be sharing your rules, plans, and/or solutions with the other groups.

Video Script for Animator

Welcome Young Innovators! Today we're discussing the ethics of AI warfare

Title screen

Imagine a world where robots fight wars. Powerful machines, equipped with artificial intelligence, decide who lives and who dies. This might sound like science fiction, but it's closer to reality than you think. Today, we'll explore the fascinating and complex world of AI in warfare.

[Socrat narrating throughout, facing the viewer.

Visual: A stereotypical battle field with soldiers wearing different colors on opposite sides of a wide field. Each side sends up drones into the air to fly over to the other side. Basic example: <https://i.imgur.com/EWRF5ME.png> although the armies should be farther apart]

Artificial intelligence, or AI, is a rapidly developing technology that allows machines to learn and make decisions on their own. This technology is being explored for many purposes, and its use in war presents significant ethical challenges..

[Visual: Zoom in on a drone. Its "robotic eyes" look around, it computes shown by gears turning in its "head," and then it has an exclamation point appear above its head, and it flies off quickly. Example Image - <https://i.postimg.cc/Kv0sKyp8/Drone.jpg>]

Proponents of AI in warfare argue that it can offer several advantages. These machines can operate with precision and speed that even the most skilled human soldiers can't match.

[Visual: A drone flies over a bullseye-type target, and drops a bomb, which destroys the target in a small explosion. Example – <https://i.imgur.com/H71cfJh.png> but the drone and target should be smaller, making it look like they are farther back from Socrat.]

They can also process vast amounts of data and identify targets with greater accuracy, potentially reducing civilian casualties.

[Visual: A battlefield scene where there are people, a cannon, and a hospital building. The drone points its "eyes" at each of the objects, and that object glows when the drone "sees" it. It turns toward the cannon, and flies over that only, causing the cannon to explode but not hurting the soldiers or hospital. Example image - <https://i.imgur.com/cd7jOrY.png> the soldier can watch the drone, but be unaffected by the explosion]

However, the use of AI in warfare also raises significant ethical concerns. Delegating life-and-death decisions to machines raises questions about accountability. Who is responsible for the actions of autonomous weapons? What happens when AI misinterprets information and makes a fatal mistake?

[Visual: A robotic drone flies over a person and “looks” at it. At first, it “identifies” this person as a person, shown by having a little icon of a person pop above the drone, with a question mark. Then, it looks again and the identification changes, with an icon of a target popping up above the drone, again with a question mark. Example image - something like <https://i.imgur.com/jbh7fxp.png> but with a soldier instead of a businessman]

The fictional countries of Eastlandia and Westlandia have a military conflict. Eastlandia uses AI drones in a military operation against Westlandia. While the operation achieves its military goals, it also tragically results in civilian casualties. This incident sparks international outrage and highlights the need for careful consideration of the ethical implications of AI in warfare.

[Visual: Socrat is a newscaster narrating the story. Example - <https://i.imgur.com/ljEZNLo.png> but with Socrat as the robot. Above him is a video screen showing images of the Karkin Conflict – an image of AI drones flying back and forth across the screen, and perhaps an explosion. News chyron ([example](#)) features text that says something like “Karkin Conflict: Drones employed in warfare.”]

There are many opinions on how AI should be used in war. Some believe it's a necessary evil that can save lives and prevent human error. Others fear that it could lead to a depersonalization of conflict, making people forget that real human lives are in danger.

[Visual: Socrat standing between two drones that are flying on either side of him. He gestures to one of them, and a Thumbs-Up emoji appears under it. That drone tilts upward and shakes back and forth a little to show “pride.” He gestures to the other one, and a Thumbs-Down emoji appears under it. That drone appears sad, tilts downward and its rotors “sag” to show dejection. Example - <https://i.imgur.com/AiADXc9.png>]

Balancing the potential benefits of AI in warfare with the ethical concerns is a complex challenge. We need to find ways to ensure accountability, transparency, and human oversight while also meeting the needs of national security.

[Visual: Perhaps Socrat can start walking to one side, and beckons to the two drones to follow him?]

The future of AI in warfare is uncertain. While the technology has the potential to revolutionize combat, it also presents significant ethical challenges. We must engage in

open dialogue and critical thinking to ensure that AI is used responsibly and ethically in the pursuit of a safer, more peaceful world.

[Visual: Socrat arrives at a meeting with military officer types (a room of people sitting at a meeting table wearing military uniforms). He brings the two drones following him and encourages them to land on a table. Example - <https://i.imgur.com/xbXOWNi.png> - although I would encourage a greater variety of ages and skin tones in the meeting. All look older than 40, maybe 1 or 2 women, and 2 or 3 with darker skin shades.]

Let's discuss: Do you think the potential benefits of using AI drones in warfare outweigh the ethical concerns?

[Discussion Question: Do you think the potential benefits of using AI drones in warfare outweigh the ethical concerns?]

Question text appears on screen

Video Script for Narrations

Welcome Young Innovators! Today we're discussing the ethics of AI warfare

Imagine a world where robots fight wars. Powerful machines, equipped with artificial intelligence, decide who lives and who dies. This might sound like science fiction, but it's closer to reality than you think. Today, we'll explore the fascinating and complex world of AI in warfare.

Artificial intelligence, or AI, is a rapidly developing technology that allows machines to learn and make decisions on their own. This technology is being explored for many purposes, including one that raises serious ethical concerns: warfare.

Proponents of AI in warfare argue that it can offer several advantages. These machines can operate with precision and speed that even the most skilled human soldiers can't match.

They can also process vast amounts of data and identify targets with greater accuracy, potentially reducing civilian casualties.

However, the use of AI in warfare also raises significant ethical concerns. Delegating life-and-death decisions to machines raises questions about accountability. Who is responsible for the actions of autonomous weapons? What happens when AI misinterprets information and makes a fatal mistake?

The fictional countries of Eastlandia and Westlandia have a military conflict. Eastlandia uses AI drones in a military operation against Westlandia. While the operation achieves its military goals, it also tragically results in civilian casualties. This incident sparks international outrage and highlights the need for careful consideration of the ethical implications of AI in warfare.

There are many opinions on how AI should be used in war. Some believe it's a necessary evil that can save lives and prevent human error. Others fear that it could lead to a depersonalization of conflict, making people forget that real human lives are in danger.

Balancing the potential benefits of AI in warfare with the ethical concerns is a complex challenge. We need to find ways to ensure accountability, transparency, and human oversight while also meeting the needs of national security.

The future of AI in warfare is uncertain. While the technology has the potential to revolutionize combat, it also presents significant ethical challenges. We must engage in open dialogue and critical thinking to ensure that AI is used responsibly and ethically in the pursuit of a safer, more peaceful world.

Let's discuss: Do you think the potential benefits of using AI drones in warfare outweigh the ethical concerns?

