

A dramatic, futuristic military scene set against a backdrop of a massive, dark, organic-looking alien mothership rising from a horizon of fire and smoke. The sky is filled with swirling clouds of orange and red, suggesting a sunset or fire. In the foreground, several soldiers in military uniforms and gear are positioned on rocky outcrops, looking towards the horizon. A large tank is visible in the middle ground, and smaller military vehicles and personnel are scattered across the landscape. The overall atmosphere is one of a high-stakes military operation in a science-fiction setting.

# Generative AI in the Military

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# What is Generative AI (GenAI) - \*Brief Overview\*

Definition: a type of artificial intelligence that can generate new content, from text, to images, sounds and videos, based off of the data that it has been trained off of

- Training
- Modeling
- Output

Strengths:

- Creativity and innovation in generating new content
- Efficiency in automating content production processes

Weaknesses:

- Ethical considerations: copyright, authenticity, and misuse
- Data bias and the need for accurate, diverse training datasets

# Military Applications of GenAI: Combat Training

- Virtual Battle Space 4 from Bohemia Interactive
  - Advanced battle simulator
  - Enemies function realistically based on battle situations (but are incapable of making decisions)
- Hoping to integrate AI into civilian and enemy combatants
  - More randomized and less patterned enemies
  - Forces better decision making from trainees
- Simulate thousands of full scale battles within different parameters
  - Can define battlefield area
  - Can define characters of enemy combatants
  - Can then run simulations of various strategies/outcomes



# Military Applications of GenAI: Missiles

- Air to air missiles and surface to air missiles
  - Currently use a system of thermal tracking
  - Reads thermal signatures of enemy aircraft
  - Once it has a read on the thermal signature it can keep tracking it
- Using artificial intelligence:
  - Missile learning models can be trained on the look of the plane
    - Allow them to follow the plane rather than the thermal signature
    - Cannot be confused by flares or other planes
  - Can be directed via simple commands to lock onto dynamic targets
- Can also be used to effectively neutralize ICBMs



# Military Applications of GenAI: Drones

- Current drone technology
  - Drones are currently manned by a drone operator
  - Are remote but still require coordination and proper operation to be effective
  - Mainly used to neutralize single targets or initiate coordinated strikes on areas
- Autonomous Drones
  - Can be directed to fulfill its purpose without an operator
  - Multiple can work in unison (think Spider-Man: Far from Home)
  - Can react to terrain, environments, and weather
  - Consider: should autonomous drones be given lethal force?



# Military Applications of GenAI: Language Translator

- Foreign enemies
  - Can communicate with impunity
  - Could gain a huge advantage by being able to understand enemy callouts and strategy
- Can be used for cypher/code breaking
  - May require quantum computing to create unbreakable cyphers



# Military Applications of GenAI: Propaganda

- Misinformation campaigns
  - Generate massive amounts of fake news
- Mass media distrust
  - No one will be able to trust their own media sources
  - Media is supposed to keep government in check...
- A scary future:
  - The technology to spread misinformation is expanding faster than the law which would limit it
  - We will have AI fake news before misinformation made via AI is illegal



# Military Applications of GenAI: Strategy

- Real time strategy
  - Can use satellites to read battlefield situations and provide real-time updates for generals and commanders
  - Can also provide various strategy recommendations
- Removes pressure from commanders
  - Lives are at stake
  - High-pressure situation



# Ethical Considerations: Lethal Power?

Should autonomous machine be given lethal force?

You would literally be giving a machine with the ability to make its own decisions the power and option to take a human life

- Dehumanization of Conflict
- Global Arms Race
- Malfunction

How do we avoid friendly fire? Whitelisting?

How do we balance this with black box AI?



# Ethical Considerations: Propaganda

Is it possible to use AI Propaganda Ethically?

- Accountability
- Amplification of Bias
- Security and Geopolitical Implications
  - Rewriting history to justify conquest

# Ethical Considerations: Transparency



## Source Disclosure

- Secrecy
- Origins

## Public Trust

- Media and Public Institutions

## Democratic Engagement

# Global Implications

## Shifts in Military Power Balance

- GenAI could potentially provide smaller nations with advanced capabilities that were previously only accessible to superpowers

Terrorist organizations could be sold access to current GenAI technology and use it unethically

- The US may show restraint in giving lethal power to machines but her enemies may not, creating catastrophic circumstances

# Future Trends

## Weapon Autonomy

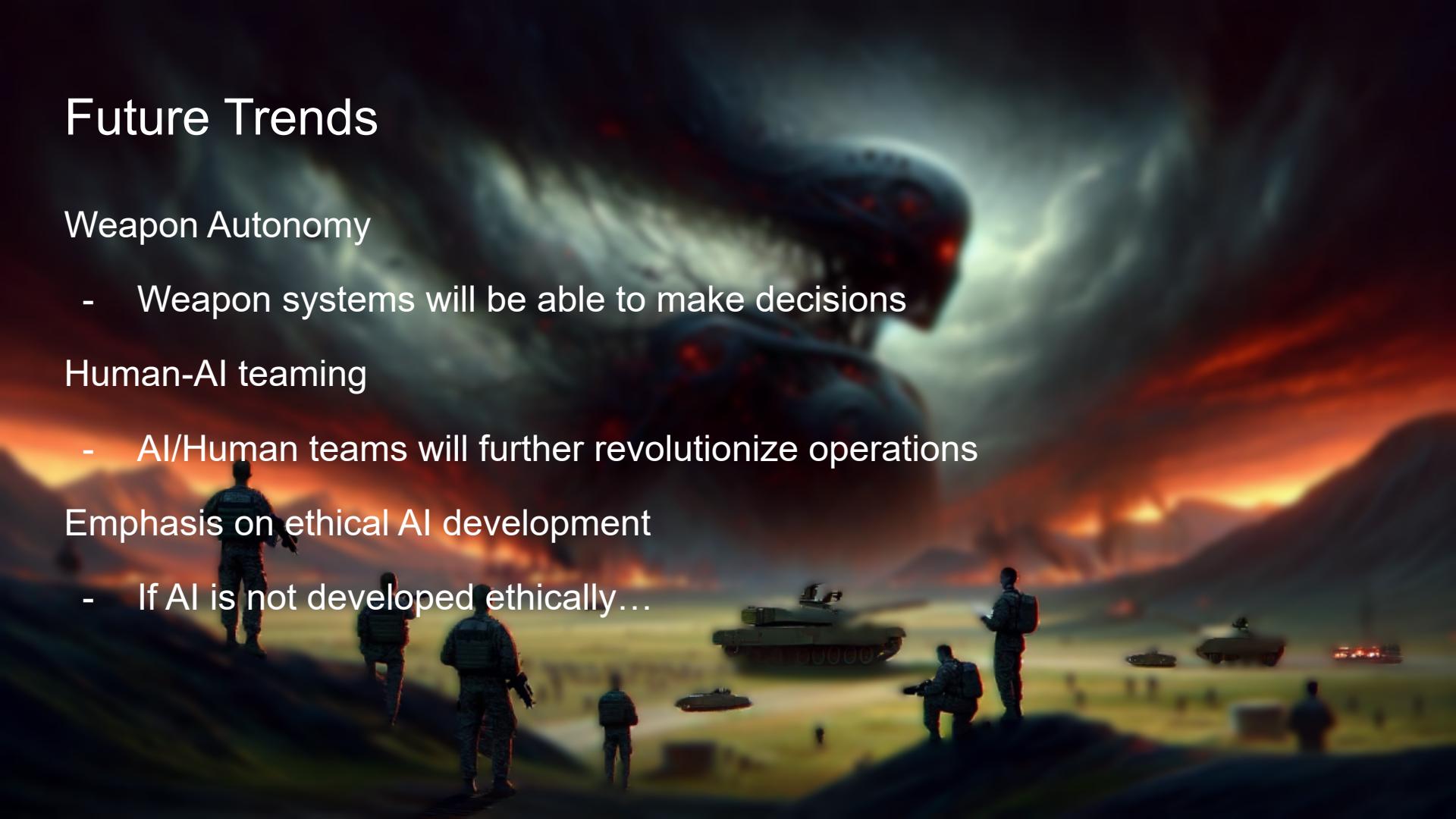
- Weapon systems will be able to make decisions

## Human-AI teaming

- AI/Human teams will further revolutionize operations

## Emphasis on ethical AI development

- If AI is not developed ethically...



# Conclusions

In the right hands, it will:

- Enhance and quicken military training
- Increase the capabilities of drones and targeting systems
- Provide real-time strategy recommendations for quicker decision-making under pressure

In the wrong hands, it will:

- Give autonomous machines lethal force
- Spread propagandic misinformation
- Coordinate and strategize otherwise uncoordinated and untrained military groups

# References

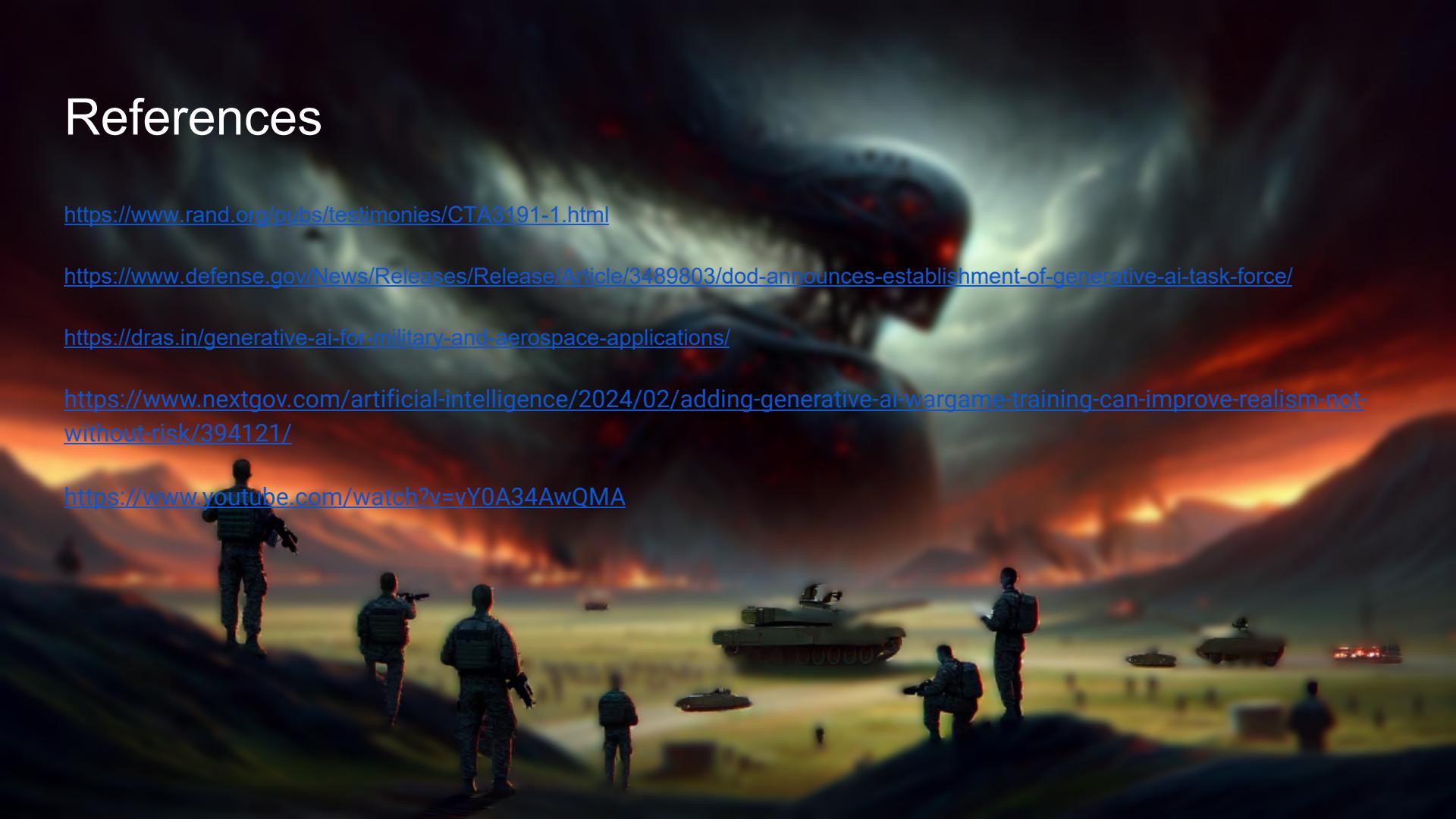
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# Questions?