War, Weapons and Ethics:
An AI Perspective.

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Gresham College, London, 2019

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What the talk is about:

- I shall discuss the role of Artificial Intelligence (AI) in the design and operation of weapons—including soldiers themselves.

- I shall then discuss ethical issues that these raise and how far those have been changed by the introduction of AI into the battlefield.

Ground rules:

- If not a Christian/pacifist then killing in war is just a matter of implementation not principle

- BUT Grossman (« On Killing ») suggests distance and detachment fom the act are crucial to killing in war, and to people's willingness to kill and their sentiments.

- The bayonet at 2 feet, versus the sniper rifle at a mile or the drone at 5000 miles.

Protests against military technology and the quantity of response is not new

- Crossbows as anathema to Chistians
- Bishop Bell and Lord Cherwell in WWII
- BUT Bertrand Russell and the USSR 1947

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Grossman's Book:

- Claims soldiers do not want to kill and go to great lengths to avoid it (US civil war rifles often double-loaded)
- Only 10% of soldiers do almost all the killing and are basically psychopaths
- Modern training techniques to combat the low US/UK « kill rate »

« Augmentation of soldiers »

- As old as hashish and the hassisheen in the old Islamic armies

- Extensive use of keep-awake drugs in the Vietnam War

- New training and drugs in response to work like Grossman on the ineffectiveness of most soldiers and the low western "kill rates".

- Exoskeletons making soldiers stronger and faster

- New AI battlefield communications that enable separate soldiers to act better as human "flocks" controlled by algorithms aware of all their locations and states.

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Relevance of Grossman to Automated Weapons (AWs)

- Human killing distance vs. automation
- Drones with/without human in the loop
- Hiroshima/Nagasaki and fat Boy
- Snipers
- Long range shelling (biggest cause of WWI death)
- Naval war over the horizon
- The Chinese and the Victorian "button"

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AI technology and AWs have brought two fundamental changes

- 1. Possible full autonomy of weapons
  - No casualties on one's own side
  - Overcoming willingness to kill (Grossman)
- 2.Cyberattack on a country
  - No direct casualties in the enemy side
  - But loss of sewers, hospitals, power etc.

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Types of cyber attack

- Public utilities, sewerage, hospitals, electric grid, broadcasts: radio/tv/public wifi, power stations, dams, phone communications, industrial safety systems

- Intelligent target seeking devices: Stuxnet (the Iranian centrifuges)

- Overwhelming target companies with internet input—denial of service

Professor Noel Sharkey—the campaign against AWs
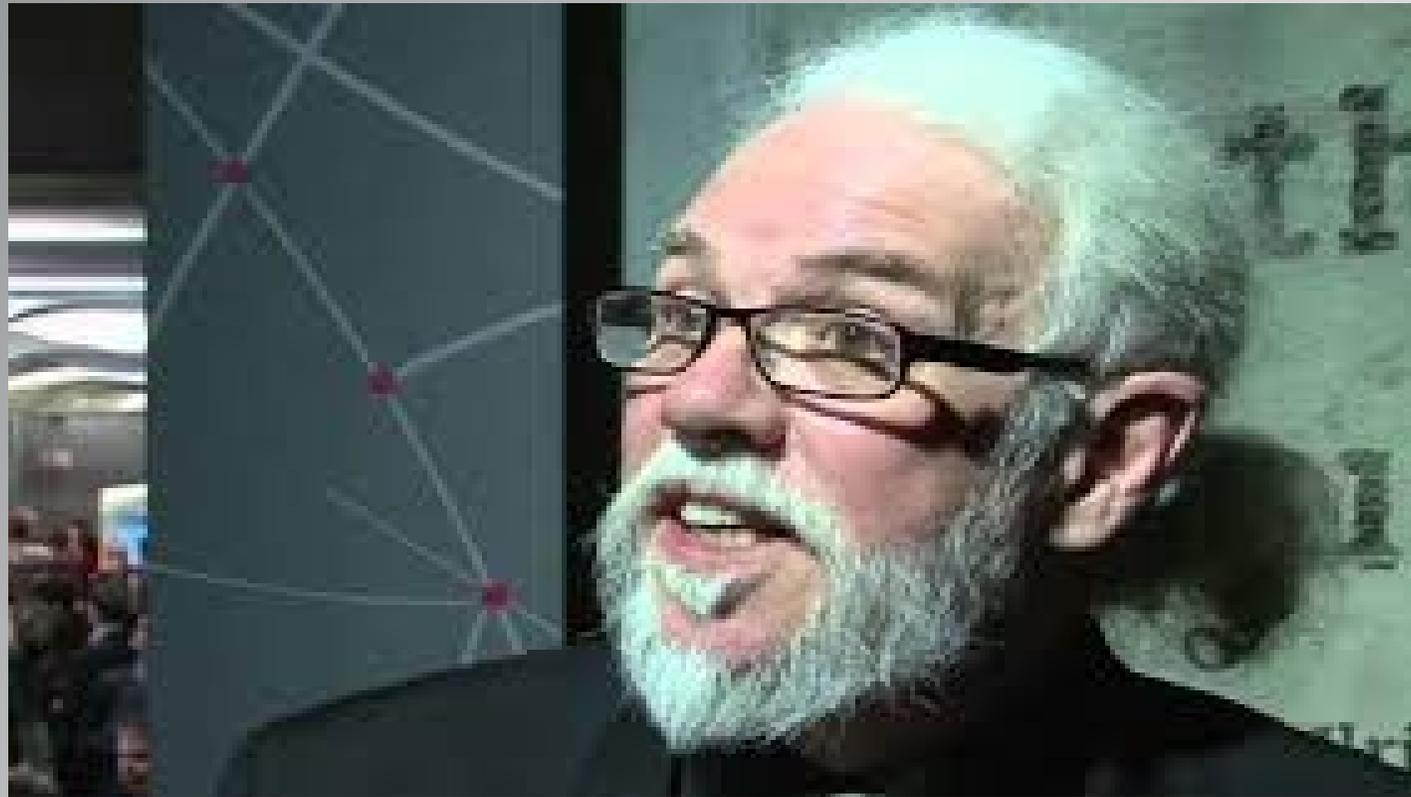
Sharkey's principal argument against AWs

- That AI has not yet produced systems capable of sufficient DISTINCTION of combatants and non-combatants and therefore AWs must not be deployed.

- This is not an argument of principle but just of actual performance and will shift as machines get better.

- Compare automated cars.

Sharkey on a machine being « humane »:

- This is not just being picky about semantics. Anthropomorphic terms like'ethical' and 'humane', when applied to machines, lead us to making more and more false attribution about robots further down the line. They act as linguistic Trojan horses that smuggle in a rich interconnected web of human concepts that are not part of a computer system or how it operates. Once the reader has accepted a seemingly innocent Trojan term, such as using 'humane' to describe a robot, it opens the gates to other meanings…….*Noel Sharkey*

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parsed# Principle of distinction and who is better at tasks?

- Humans: face recognition? Doing philosophy?
- Machines: arithmetic; increasingly many things, including surgery……
- How BAD humans have been at distinguishing: Dresden, Hiroshima…
- Why are we sure machines wont be better cf. automated cars and less crashes.

Counter-view on Robot battlefield discrimination:

- "it is a thesis of my ongoing research for the U.S. Army that robots not only can be better than soldiers in conducting warfare in certain circumstances, but they also can be more humane in the battlefield than humans." *Ron Arkin*

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Government perspective

- First duty of government is defence of a population
- BUT remember the Pennsylvania Assembly before the American Revolution
- Ethics vs politics: government perspective in war must ignore classical ethics, religion etc. especially in a democracy (cf Nicaraguan harbours).

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Corporate perspective

- Chinese corporations and their state
- IBM in WWII in Germany--shareholders
- Corporations like Apple and Facebook—shareholders and value are primary
- BUT German/EU attitude—society and stakeholders as well
- Google employees and MAVEN project

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Corporate perspective 2

- Eisenhower and the Military Industrial Complex
- US budgets –greater than all the rest of 10 top countries—and the vendor effect
- Vendor capture by arms manufacturers—Shaw's *Major Barbara* (1905!)
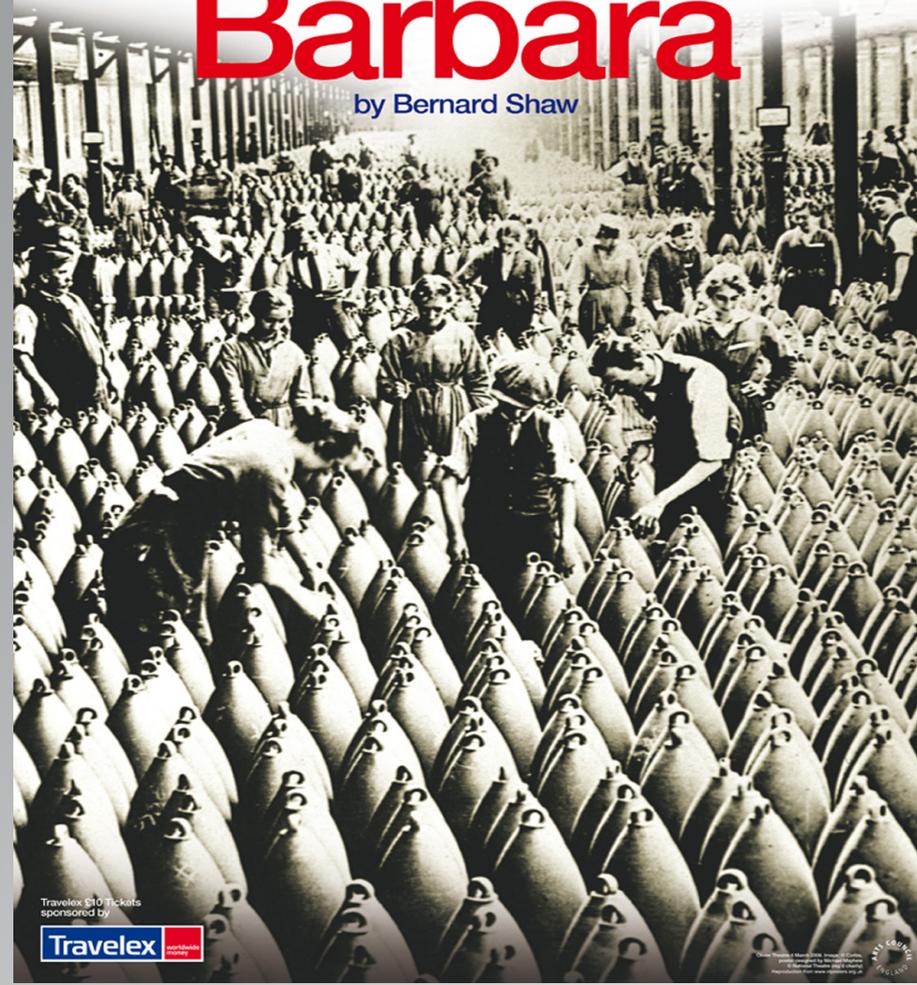
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Corporate perspective: Shaw's Undershaft (1905!)

- **_The government of your country! I am the government of your country_**: …….Do you suppose that you and half a dozen amateurs like you, sitting in a row in that foolish gabble shop, can govern Undershaft and Lazarus? No, my friend: you will do what pays US. You will make war when it suits us, and keep peace when it doesn't. You will find out that trade requires certain measures when we have decided on those measures. When I want anything to keep my dividends up, you will discover that my want is a national need. When other people want something to keep my dividends down, you will call out the police and military. And in return you shall have the support and applause of my newspapers, and the delight of imagining that you are a great statesman. Government of your country! Be off with you, my boy, and play with your caucuses and leading articles and historic parties and great leaders and burning questions and the rest of your toys. _I_ am going back to my counting house to pay the piper and call the tune.

AWs and a form of autistic male psyche

- Emergence of computer nerds with power—cf political advisors.
- Facebook and the social relationships of nerds have become universal
- Lindemann, Strangelove and WWII

Peter Sellers as Dr Strangelove (1964)

Humans under stress and is this an argument for automated weapons control?

- Missile silos in the US and dismissals
- Year-long submerged missions in atomic submarines.
- Kubricks (1968) HAL9000 as the anti-example but is it really—was HAL right?
- Return to the Strangelove *Doomsday Machine?*
- Back to the relative reliability of humans and machines

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HAL9000 (1961)

Technology and the David and Goliath effect

- The shift in power to small distributed forces and weapons: Defenders over aggressors
- Roadside mines and Blowpipe antitank guns?
- Special forces versus large vulnerable aircraft carriers.
- Estonia hits Russia or vice versa
- Guerilla war (Boers, Afghanistan 19C-21C, Boers, Vietnam, Mao's China…)

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David and Goliath 2

- Japan vs. China sea war?
- Relative helplessness of great powers— the US.
- The growing irrelevance of soldiers— factories and battlefields
- David can be a woman in a cockpit or a distant drone pilot or an exoskeletom

Real ethical issues in war

- The "inner" ethical issues of war (beyond pacifism) as such usually reduce to:
- The "just" war of the Middle Ages, waged for the right reasons or for defence.
- The Nuremberg crime of "waging aggressive war"
- Ill treatment of prisoners—the main "Geneva" issue
- "Immoral weapons"---gas and more recently fragmentation mines and grenades
- Mass killing of non-combatants, chiefly by bombing
- The killing of reprisal hostages, usually civilians
- Targeted civilian killing or "genocide"
- Organized rape as a war weapon, as with Soviet forces in Germany at the end of WWII

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Anti-AW extensions sought to Geneva conventions

- Technologically AWS have three major problems in compliance:

- the principle of distinction (Article 48 & 52 Additional

- Protocol I 1977 to the Geneva Convention (AP1), the principle of proportionality

- (Article 51(5)(b) API) and Weapons reviews to determine whether their use would, in some or all circumstances, be prohibited by international law (Article 36 AP1).

Current State of AWs

- Putin's AW submarines with nuclear weapons

- Hoffman on Patriot missile experience

- Flocking cheap drones on air sea land

- DARPA's "dismounted platoon" research call for controlling soldier "flocks"

Patriot missiles

- Hoffman: ""The Patriot air defense system is one of the first US weapons to employ "lethal autonomy," which refers to systems that are able to apply lethal force with minimal or no human oversight. During Operation Iraqi Freedom in 2003, Patriot missile systems successfully engaged nine enemy tactical ballistic missiles. But two other engagements resulted in fratricide when the system mistakenly identified friendly aircraft as enemy missiles."

- "Fratricide" there referred to British Tornados!

Current DARPA research call on "Dismounted Platoon"

- calls for the development of systems to "take large amounts of information from different sources, including organic platoon soldier and robotic sensors, and create an organized, meaningful picture that will enable platoon leaders and soldiers to observe, orient, decide, and act (OODA) and make better decisions 10 times faster."

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The benefits of war?

- Much funded military work leads to no direct military relevance but is just cultural habit (e.g. ONR/Navy funding of mathematics in the US)

- Much public good has come from military/space funding (as well as jobs): high definition TV, Velcro, teflon, automated cars, robotics, silicon valley, the internet etc.

- As we noted above, the issue is never of principle if one is not a pacifist, only of implementation and the quantity of death, direct and collateral.

- One's own side is better and right (even though potential enemies deploy the same argument: *Gott Mit Uns*)!

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Classical ethics and war

- Codes of practice for war, the Geneva Conventions.

- Lack of relation to, say, Kantian ethics

- Relations clearer to utilitarianism and virtues (bravery, defend the weak)

- Hume—ethics as sentiment not reason—but the latter changes with time.

- But evolution of morals and the changing notion of tribe---Stephen Pinker, but remember Yugoslavia