

# Debate: Robots and Robotics

New books on robots and robotics are not uncommon. Elizabeth Quintana and Olivier Grouille debate various issues arising from two of them.

## Unmanned Ground Vehicles

by Elizabeth Quintana and Olivier Grouille

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The last decade has seen widespread adoption of unmanned aerial vehicles by Western military forces. Over the last few years, unmanned ground vehicles (UGVs) have also been developed and in some cases introduced into military service for a variety of roles considered 'dull, dirty or dangerous' for military personnel. This article looks at current applications and drivers for adopting UGVs and will ask how far it might be sensible to automate the battlespace. It will also outline the ethical implications of 'de-personalising' the theatre of operations and options for restraint or arms control. The authors have drawn on the concepts outlined in the books *Wired for War* by P.W. Singer and *Killer Robots: Legality and Ethicality of Autonomous Weapons* by Armin Krishnan.

As Western attitudes to military casualties have shifted since the Second World War, land forces have found themselves more and more in the business of risk management, where commanders on the ground must balance the demands of their immediate tactical situation with the perception amongst domestic audiences that not enough is being done to protect soldiers' lives. Decades of under-investment in armoured vehicles and helicopters have forced NATO militaries to rely on vehicles totally unsuited to the Improvised Explosive Device (IED) threat in Iraq and Afghanistan. Although painful lessons have been learned, they have come at some cost.

Peter Singer's comprehensive book, *Wired for War*, outlines in detail the incredible pace at which US forces have adopted robotic systems in Iraq and Afghanistan to enhance their force protection and deliver a capability edge against canny insurgent opponents. Whilst the vast majority of the robots are currently used for detection and neutralisation of IEDs and for Explosive Ordnance Disposal (EOD), Singer describes how troops are increasingly using their robots for surveillance and indeed targeted assassination in the case of those equipped with automatic weapons. Of particular note is the troops' reaction to the 'death' of their squad's robot; not only is one young US soldier in tears at the prospect of his 'buddy' being reduced to spare parts, but he and his colleagues show every sign of having

anthropomorphised the machine, to the extent of christening it 'Scooby-Doo'. This anecdote from Iraq bodes well for the acceptance of future manned/unmanned force mixes, but also raises the question of whether the young US soldier has grown attached to his robot to the extent that he would be willing to risk his own life to protect it. Such a concept would imply that the robot possesses what Singer refers to as 'being-ness', a term that carries with it a whole host of legal and ethical considerations.

### Robots in Disguise?

In highlighting the huge number of systems already deployed in Iraq and Afghanistan in life-saving roles, Singer has shown just how widespread is the acceptance of robots in the US military environment. What is less obvious, however, is the potential for the exploitation of robots intended for benign roles. How easy would it be, for example, to quietly upgrade existing robotic platforms with weapons and targeting systems? Have the barriers to acceptance on the part of the general public of weapon-wielding robots already been lowered to the point of irrelevance? Arguably, given the distinct lack of legal frameworks for the operation of autonomous robotic systems referred to by Singer, only the sensationalist headline of 'Killer Military Robot Slaughters Wedding Party' is likely to bring this issue to the fore. No one yet seems to have given too much thought to the prospect of terrorists developing their own robotic killing machines, deliberately devoid of any kind of ethical programming, let alone how a fleet of such systems might increase the cruelty and longevity of repressive regimes as they equip their security forces with UGVs.

### Humans: Not Obsolete Just Yet

War is ultimately a human endeavour, so the idea of completely replacing soldiers on the battlefield with remote-controlled or autonomous unmanned agents seems somewhat incongruous.



The 'being-ness' of robots carries a whole host of legal and ethical considerations [US DOD]

The fact that war is often waged ‘among the people’ makes the ethical discussion around the adoption of unmanned ground systems all the more important.

To date, most UGVs remain tele-operated (remote controlled). This is to satisfy the Laws of Armed Conflict, principally those of Discrimination and Proportionality, which state that civilians must not be targeted and that the use of military force should always be proportionate to the military objective in order to protect civilians. Existing pattern recognition software is not capable of making these kinds of distinctions – indeed it is hard enough even for trained personnel to differentiate – and legally it would be hard to attribute blame if an autonomous UGV was to commit a war crime.

Despite this, there is a growing body of people who feel that autonomous, armed UGVs are the future of warfare. The question is therefore whether robots can be programmed to make ethical decisions (i.e. differentiate between a legitimate military target and innocent civilians) and even if they can, is it really ethical to employ robotic systems on the battlefield?

Armin Krishnan points out that standing armies have an ethical responsibility towards the taxpayer to be effective (i.e. capable of winning and fiscally efficient). UGVs are an attractive option in both these cases. Furthermore, there is the ethical responsibility of armies towards their personnel. The growing lethality of war, the psychological costs of combat and the exposure of troops to toxins and other environmental dangers all need to be mitigated as far as possible. In addition, the moral contract that all soldiers sign up to, by which they are ultimately willing to sacrifice their lives for the sake of their families and in defence of the homeland and its values may be put into question when the operations are elective.

**Robotic Warfare: More Humane?**

If the adoption of UGVs was widespread and conflicts could be resolved with robotic armies which fought well away from population centres, then war could become more humane. But the utility of such a conflict is questionable; is it war or is it simply entertainment? Professor Ron Arkin at the Georgia Institute of Technology argues that since UGVs follow orders without question under any circumstance, they are less likely to commit war crimes, provided they are properly programmed. Many have disagreed with him because of the way that software programmes are prone to crash or perform in an



Robots can do ‘dull, dirty or dangerous’ jobs [US DOD]



The vast majority of the robots are currently used for detecting and neutralizing IEDs [US DOD]

unexpected way. Peter Singer jokes that an autonomous killer robot running amok could well suffer a glitch in its Microsoft Windows operating system and freeze at the critical moment. But the prospect of unpredictable behaviour brought on by honest human error in its software coding or manipulation by an enemy suggests that Arkin’s work is laudable; indeed, several defence research establishments are also researching how an ‘ethical unmanned vehicle’ might be programmed.

Remote operation of UGVs may disconnect deeds and morals. It may make operators more prone to attack as they themselves are removed from risk on the front lines and, equally, politicians may be more likely to engage in conflicts if the risk to their personnel is lower and conflict thus becomes an everyday tool of international affairs. However, this is a subject that air forces have grappled with for a long time. They argue that their personnel are able to make less rash decisions when targeting because their lives are not (generally) at risk. In addition, the advent of high-resolution cameras onboard unmanned systems actually bring the operator closer to the action since UGVs can be sent into high-risk areas.

**Impact on Military Professionalism**

Military ethics suppose that military personnel are willing to die so that civilians do not have to. If UGVs are adopted in order to lead to bloodless battles, some analysts are concerned that this will spell the death of the military ethos. In addition, traditional military skills such as leadership will also be at risk since the skills needed to operate one or even several UGVs are more technical than interpersonal. The relative ease with which real-time imagery that UGVs provide can be disseminated could lead to micro-management of the battlefield, which in turn means a diffusion of responsibility in the event of a war crime. This could make it very difficult to prosecute anyone (or any group of people) and could lead to even more unethical behaviour.

In summary, UGVs are not wholly unethical and in some cases may prove to be more ethical than humans, but their impact needs to be carefully considered before they are adopted more widely. We are far from allowing robots to take over the military (let alone the world), but the adoption of even simple systems has far-reaching consequences. But are we in fact, as Singer suggests, just as wired for war as our robots? ■