Introductory remarks
Lucy Suchman

This afternoon's lecture opens our symposium on *Security by Remote Control: Automation and Autonomy in Robot Weapon Systems*. On behalf of myself and my co-organiser Karolina Follis, I'd like to begin by thanking our sponsors; Security Lancaster, Lancaster University's Centre for Science Studies and the Department of Sociology, the Lancaster University Centre for International Law and Human Rights, and the Mercator Research Group 'Spaces of Anthropological Knowledge' at the University of Bochum in Germany. And of course to welcome you all and to thank you for coming.

Our publicity for this event has featured the image of a remote control device designed by the UK arms manufacturer Qinetiq. The image is taken from an article in the *New York Times* in November of 2010 on the growth of investment in remotely controlled, robotic weapon systems in the U.S. military, but also in Britain.[1] What first struck me about this image is the caption that goes along with it, and particularly its closing phrase. It reads: 'Remotely controlled: some armed robots are operated with video-game-style consoles, *helping to keep humans away from danger*.' The implied inclusiveness of the category 'human' here, which works to dehumanise or at least to erase those who will be the targets of this device, is a starting place for my own engagement with the issues that we'll be discussing over the next two days. This image and caption together express what philosopher Judith Butler in *Frames of War* identifies as 'the differential distribution of grievability upon which war depends' (2010: xix).

In the summer of 2001 the United States first equipped a Predator drone with Hellfire missiles,[2] and the first armed Predator, the MQ1, was deployed by the United States in Afghanistan in 2002.[3] In 2005, the company iRobot announced an armed version of its remotely controlled robot PackBot, previously used for bomb-disposal in Iraq and Afghanistan. As journalist Tim Weiner of the NYTimes enthused in an article at the time titled 'A New Army Robot Soldier Rolls Closer to the Battlefield', 'Though controlled by a soldier with a laptop, the robot will be the first thinking machine of its kind to take up a front-line infantry position, ready to kill enemies.' Of course we should note that this same 2005 article reported 'the Pentagon predicts that robots will be a major fighting force in the American military in less than a decade, hunting and killing enemies in combat.'[4]

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[1] Markoff, John (2010) 'War Machines: Recruiting Robots for Combat', *New York Times*, November 27.

[2] Let me just observe that names, which quickly become unremarkable to those who follow developments in military weapon systems, should remain remarkable, for what they tell us about the cultural imaginaries that animate these technologies.

[3] That's 'M' for 'multi-role' and 'Q' as the designator for an unmanned system (wikipedia). Herold, 'The Problem with the Predator', 23.01.3 *Defense Update*.

[4] Weiner, Tim (2005) 'A New Model Army Soldier Rolls Closer to the Battlefield', *New York Times*, February 16.

The decade is the recurring promissory timeframe for robot futures, and of course if these predictions were accountable autonomous killer robots should be in use today. My robo-skepticism notwithstanding, however, in 2000 the U.S. Congress mandated that a third of the ground vehicles and a third of deep-strike aircraft in the U.S. military should become robotic within a decade. With initial funding at $127 billion, the Future Combat Systems programme, the impetus for the NY Times report and basis for the Pentagon's forecast in 2005, was the largest military contract in U.S. history (albeit one strongly criticised in 2009 by then U.S. Defense Sect'y Robert Gates, and subsequently declared by many a failure.)[5]

It's not surprising that US weaponry may dominate our discussion over the next two days. US military spending in 2012 represented 39% of all spending worldwide, according to the Stockholm Peace Research Institute.[6] Most discretionary federal spending in the US goes to war, and the US companies Lockheed Martin and Boeing are the world's top 2 arms manufacturers.[7] While the UK represents a mere 3.5% of global military spending, Britain's BAE systems comes in third on the list of top 10 arms manufacturers worldwide, the UK has its own weaponised drone programme (armed MQ9 Reapers purchased from the US in 2007), and is an active participant in research and development on robotic weapons. In 2008, the UK-based company Qinetiq shipped its first Modular Advanced Armed Robotic or MAARS system to the U.S. military. As described by the company in its news release at the time, 'the MAARS system is an agile, combat-ready robot that is remotely controlled by the operator …The robot contains advanced processing capabilities and features a uni-body chassis with a plug-and-play design, which allows for ready use of new and evolving accessories and attachments.'[8]

The next logical step beyond remote control in current US defense research and development plans are so-called autonomous weapon systems – that is, weapons that, once activated, can select and engage their targets without further human intervention. These systems would expand the scope of already-existing weapons programmed to defend against incoming missiles, to include human targets in their sights. Those who are concerned about the prospect of autonomous weapons see this as a crucial moment for the possibility of drawing a line under autonomous weapons within the legal frameworks of arms control. Due in part to the efforts of a coalition of NGOs including my colleagues in the International Committee for Robot Arms Control, autonomous weapon systems were a topic of discussion in the United Nations for the first time last week, at an advisory meeting of experts sponsored by the Convention on Certain Conventional Weapons (CCW) in Geneva. A key phrase that has emerged in these discussions is 'meaningful human control,' where in this context 'meaningful' means more specifically accountable to relevant legal frameworks and conventions. Article 36, the UK-based NGO named after the corresponding article of the 1977 Additional Protocol 1 of the

[5] Schachtman, Noah (2009) 'Pentagon Chief Rips Heart out of Pentagon's Future', 6 April.
[6] http://www.globalissues.org/article/75/world-military-spending#USMilitarySpending; Stockholm International Peace Research Institute, accessed 20 May 2014.
[7] http://en.wikipedia.org/wiki/Arms_industry, accessed 20 May 2014.
[8] http://www.qinetiq.com/media/news/releases/Pages/qna-ships-first-maars-robot.aspx

Geneva Conventions, has proposed this as a starting place for international legal frameworks governing new weapon systems.[9] I'm interested myself in the ways in which this phrase could act to articulate the current legal debate over autonomous weapons with broader discussions of automation – and more specifically the implications of automation for the premise of 'control' in our symposium title. Questions raised by the group Article 36 include:

> What is the nature of human control to be exercised over a weapon system?
> At what point does human control over a weapon system cease
> to be meaningful?
> To what extent can computer programming operate as a form of
> 'human' control?

There seems general agreement that a system that required a human operator simply to press a 'fire' button every time a light comes on would not comprise 'meaningful' control (Article 36). And critics of autonomous weapons like my ICRAC colleague Peter Asaro point out that even accountability at the time of programming can't ensure the legitimacy of killing *in situ*. Among other things, machines lack the capacity to question an order, including in ways that might open up the possibility of *not killing*. More broadly, International Humanitarian Law requires judgments of discrimination and proportionality; this is a longer argument than I can go into here, but suffice to say that discrimination is not 'recognition' in the algorithmic sense, and proportionality is not a calculation.

In November of 2012 the United States Defense Department issued a directive that requires a human being to be 'in-the-loop' when decisions are made about using lethal force.[10] And the UK's Parliamentary Undersecretary of State for Defence publicly stated, in March of last year, 'that the operation of weapons systems will always be under human control' (Article 36). Recourse to the human is complicated, however, by the accelerating speed that is a primary effect of automation. The USAF's *Unmanned Aircraft Systems Flight Plan* anticipates a time when 'automation and autonomy merge', and promises that '[f]uture U[manned] A[ircraft] S[ystems] able to perceive the situation and act independently with limited or little human input will greatly shorten decision time' (16, cited in Riza 2013: 13). Shortened decision time is presumed to be a desideratum, and technology the solution to the accelerating pace of war, though of course those of us engaged in science and technology studies can't fail to recognise the familiar circularity of this logic.

So as the timeframes for 'imminence' with respect to a threat (the basis for targeting within the laws of armed conflict) have been expanded in the so-called war on terror, those for judgment are further attenuated by increasing automation. By 2009, the Brookings Institution estimated that unmanned drone attacks had killed about 10 civilians

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[9] http://www.article36.org/statements/remarks-to-the-ccw-on-autonomous-weapons-systems-13-may-2014/

[10] US Department of Defense Directive Number 3000.09, November 21, 2012.

for every 1 insurgent in Pakistan.[11] Even setting aside for the moment the vagaries of the category of 'insurgent', these numbers point to the much broader sense of 'military weapon systems' with which we need to engage, including ideologies, foreign policies and strategic interests. I should note here that challenges to the clarity of the line between automation and autonomy are generally made in defense of autonomous weapon systems; that is, we're already automating, there is no clear line, so there's no basis on which to slow down or stop. I would draw the opposite implication; that is, we need urgently to address the ways in which increasing automation and shortened time for deliberation has already undermined the possibility of legal warfare, with autonomy being the logical end game of that dynamic. Increasing evidence of the fallibility of humans in warfighting does not translate to justification for increasing automation, moreover (though proponents of the latter quickly make that leap), but rather emphasises the need for greater accountability, and for addressing the multiple determinants of inhumanity.

Finally, as science and technology studies scholars we note that as the system is configured by the human, it also incorporates the human. Contemporary STS – particularly that informed by feminist theory – suggests a shift away from a focus on human autonomy in favour of attention to the human/nonhuman relations on which what we identify as human agency depends. With respect to automation and autonomy, an understanding of agency not as an attribute of either humans or machines, but as an effect of particular human-machine configurations, opens the possibility of explicating the systematic erasures of connection and contingency through which discourses of autonomous agency operate. And it opens as well the question of how to configure sociotechnical assemblages in such a way that humans can interact responsibly in and through them. At the same time, in engaging discourses of autonomous weaponry it seems crucial to articulate the particular agencies and responsibilities of the human war fighter, and their resistance to translation into executable code. This is not so much a contradiction to be resolved, but a trouble with which we need to stay. We need to explore the ways in which our agencies are entangled with technological systems, and to analyse our particular agencies *within* the assemblages that we configure and that configure us. Applied to weapon systems, this means that the question is less automation *versus* autonomy, than it is what new forms of agency are enabled by contemporary configurations of war fighting, and with what political, ethical, moral, and legal consequences.

At a recent event that I attended on the legal and ethical issues of autonomous weapons, a brigadier general in the Italian air force, clearly concerned, insisted that no commander would knowingly deploy an unpredictable weapon; particularly one that was unpredictable not only in terms of its possible malfunction, but the uncertainty of its behaviour when it was functioning to specification. He worried about the level of automatic target recognition already in place, and the impossibility of validating the software *in situ* due to its blackboxing, enforced by regimes of proprietary information and strategic sovereignty. He pointed out, in closing, that air power has already created

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[11] Mulrine, Anna (2011) 'Unmanned drone attacks and shape-shifting robots: War's remote-control future', *Christian Science Monitor*, 22 October.

asymmetry in warfare, along with a promise of 'clean' or precise war fighting, but without, in many cases, the attendant strategic success.

The symposium that opens with this afternoon's public lecture is designed as an opportunity to examine more closely the problematics of 'remoteness', of 'control' and of their conjunction in new human-machine configurations, as well as the dangerous progression – rhetorical, logical and practical – of automation in war fighting, and its expression in the project of autonomous weapon systems. In a recent post on his indispensible blog 'Geographical Imaginations' (2 May), Derek Gregory urges against a fixation on questions of continuity *or* transformation in developments in contemporary warfare, in favour of careful tracking of both.[12] This symposium will, I hope, embrace that call, in tracing the shifting, somewhat slippery lines of continuity and change within the progressive projection of action at a distance in war fighting.

Which brings me to the introduction of our opening speaker, Shane Riza. I want to take this opportunity to thank him publicly for taking the time and traveling the distance to be with us at this event. As I believe the only two U.S. citizens on the programme today and tomorrow, Shane Riza and I could probably not be farther apart in our relations to the U.S. military, either ideologically or in terms of life experience. Shane spent his formative years training as a fighter pilot in the U.S. Air Force, while I spent mine as a student at UC Berkeley protesting against the Vietnam war. I confess to being deeply skeptical about my country's interests in wars fought in the name of freedom, and distressed by relative investments in technological over diplomatic innovations. Despite this, it was in reading Shane Riza's book *Killing Without Heart* (2013) that I realised that this was a person from whom I could learn much about what it means to inhabit the position that he identifies as 'the warrior'; a position that for him includes the belief, expressed on the book's final page, that as a country 'We have forgotten that the resort to war, except in response to existential aggression, represents a failure of the universe of other policy options' (177). This is just one of many points of intersection between Shane Riza's impassioned and carefully reasoned discussion of the implications of remotely controlled robotic weapon systems for the legal, moral and ethical foundations of justified killing, and my own growing concern with the further automation of war fighting. This book is carefully researched and referenced, enormously informative, and at many times eloquently moving. In the first chapter Shane states: 'What we have to do before we can have any meaningful discussion on the future impact of our advancing technology is come to grips with the clear distinction between automation and autonomy and navigate the all-too-unclear realm of the latter's spectrum' (13). A core concern for *Killing without Heart* is the problem of impunity, or exemption from the injurious consequences of one's actions in remotely-controlled war fighting. The lecture that you're about to hear refers to the chapter of Shane's book titled 'The Spectra of Impunity in Warfare'. To learn what he means by the phrase, please join me in welcoming our keynote speaker, M. Shane Riza.

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[12] http://geographicalimaginations.com/2014/05/

References

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