

» the American people that he, like all other US presidents, had the sole authority to launch a nuclear strike, hence proposals to ensure that any such order would require multiple authorisation have been revived. In addition, a new bill has been introduced into the Senate proposing that the USA adopts a 'no first use' policy.<sup>8</sup> From the point of view of those desiring a world without nuclear weapons – to get rid of nuclear weapons before they get rid of us – requiring multiple permissions to destroy the world would represent very limited progress. But it would at least remove the possibility of a sole crazed leader initiating a nuclear strike.

Turning to the UK, PM Boris Johnson shocked opponents and allies alike in March when he unexpectedly announced an increase in the nation's nuclear weapons stockpile for the first time since the end of the Cold War.<sup>9</sup> The stockpile ceiling for 2025 is to be increased from 180 to 260 warheads – a staggering 44% rise.<sup>10</sup> This increase was widely condemned as breaching international law,<sup>11</sup> especially as it was accompanied by a broadening of the UK threat to use nuclear weapons to deter potential attacks by ill-defined non-nuclear "emerging technologies", including via cyber-space.<sup>12</sup> A UN spokesperson said Britain's actions were "contrary to its obligations under article six of the NPT and could have a damaging impact on global stability and efforts to pursue a world free of nuclear weapons".<sup>13</sup>

In contrast, there is a realistic prospect for change in nuclear weapons policy arising from the Scottish National Party (SNP). Not only are they completely opposed to Scotland's 'hosting' of UK nuclear weapons – at the Clyde Naval Base not that far from Glasgow – they currently form Scotland's government. Having been re-elected in May with a larger number of parliamentary seats, and opposition to hosting these weapons fuelling support for a referendum on independence in the near future, things could change significantly in the coming months and years.

The central problem, of course, remains the commitment of the governments of the nine nuclear weapons states to nuclear deterrence – and the consequent huge expenditures that all have recently allocated for nuclear 'modernisation', including new destabilising technologies such as hypersonic missiles, widespread satellite surveillance, and new nuclear 'fuses'. All of these seriously undermine the NPT, let alone the TPNW.

Nevertheless, the entry into force of the TPNW opens a new phase in the history of nuclear weapons, offering a more hopeful path for the future. It came about through concerted

campaigning by civil society – especially the International Campaign for the Abolition of Nuclear Weapons (ICAN), highly deserving of its award of the Nobel Peace Prize – and will continue to focus minds on a more international perspective and away from dominance by the nuclear powers. There are already majorities across both governments and civil society which recoil from the dangerous doctrine of nuclear deterrence – the idea that security can be achieved by endlessly threatening annihilation despite the possibility of human or machine failure – and accept that real security can only be gained through cooperation and compromise. Common, real, human, security.

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- 1 The most important are the Nuclear Non-Proliferation Treaty (NPT), the Comprehensive Test Ban Treaty (CTBT), and the Fissile Material Cut-off Treaty (FMCT).
- 2 The TPNW is comprehensive. Instead of vague intentions to disarm at some unspecified point in the future, such as in the NPT, the TPNW clearly states that all aspects of nuclear weapons are illegal. It bans the development, testing, production, manufacture, possession, transfer, use or threat of use, deployment, installation or stationing of nuclear weapons and other nuclear explosive devices, as well as assistance, encouragement or inducement of any of these prohibited activities. It also sets out pathways for disarmament for signatories. See: ICAN (2017). [https://www.icanw.org/full\\_text\\_of\\_the\\_treaty](https://www.icanw.org/full_text_of_the_treaty)
- 3 SGR has documented this harm in depth in previous articles and reports, see: SGR (2021). <https://www.sgr.org.uk/projects/nuclear-weapons-threat-main-outputs>
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## Are UK universities being drawn into developing autonomous weapons?

The UK government refuses to support a treaty to regulate lethal autonomous weapons systems, preferring instead to expand military R&D, including at universities. But, argues **Leyla Manthorpe Rizatepe**, these same universities could become a further focus of protest.

Since 2012, the Campaign to Stop Killer Robots has advocated the pre-emptive ban on the development, production and use of lethal autonomous weapons systems (LAWS). Persuasive moral, ethical, security, legal, and technological concerns have seen the Campaign gather widespread support, including from Scientists for Global Responsibility. The global coalition comprises over 140 non-governmental organisations. In addition, 30 countries, as well as the Non-Aligned Movement, have declared their support for a legally binding instrument to regulate LAWS, and over 4500 experts in artificial intelligence (AI) and robotics have called for a treaty to prohibit LAWS.<sup>1</sup> Even UN Secretary-General Antonio Guterres has described LAWS as 'morally repugnant and politically unacceptable'.<sup>2</sup>

## The UK's obstruction of an international ban on LAWS

Despite evidence of growing global consensus, action at the international level is underwhelming. The Group of Governmental Experts at the UN Convention on Certain Conventional Weapons (CCW) affirmed 11 guiding principles on LAWS, which led to discussion of the development of a 'normative and operational framework' for LAWS. This may look like progress, but the principles were only intended to guide deliberations and not to carry legal force, while talk of a framework is intentionally vague and falls far short of the concrete legal regulation which is urgently required.

The UK is one of a handful of states standing staunchly in the path of an effective treaty ban on LAWS.<sup>3</sup> The UK Campaign has been especially disappointed with the UK government's half-hearted support for any kind of regulation of automated weapons. In 2019, Boris Johnson pledged at the UN General Assembly that the UK would be a 'global leader' in setting standards to guide the development of emerging military technologies. But, as with so many of our PM's grand public statements, the reality of the UK's position is far less impressive. During that year's discussions at the CCW, UK representatives denied the need for concrete legal regulation, and repeatedly asserted that a new legal framework is neither necessary nor desirable. Existing regulations in international law, however, were drafted many years ago by officials who could not have envisaged weapons systems with full autonomy. This makes these provisions ill-suited to govern LAWS. The Campaign maintains that a treaty is necessary to stipulate certain obligations (such as setting minimum standards for equipment reliability) in addition to a prohibition on development, production, acquisition and use, in order to maintain meaningful human control over the deployment of lethal force. Furthermore, once an international agreement is presented in the form of a treaty, significant stigma attaches to parties who breach its terms, providing another reason why this new legal framework is desirable.

In response to a letter written by the UK Campaign in late 2020, the Ministry of Defence suggested that autonomous weapons systems should be embraced in order to 'support compliance with International Humanitarian Law', and claimed that it would be 'counterproductive' to introduce a 'legally binding instrument which hampers the legitimate development and use of such technologies'. Such arguments present a false dichotomy between

the virtues of compliance with IHL and scientific advancement on one hand, and against a legally binding instrument on the other. The MOD apparently fails to recognise that it is possible to have a well-drafted treaty which would prohibit unacceptable uses of AI and autonomous robotics, while permitting those technological developments which are permissible under IHL (such as the use of autonomous systems to perform dangerous tasks like disposing of explosives). Arguments such as these suggest that the UK government is making excuses for its continued investment in autonomous technologies. Most likely, the real reason for the UK's continued opposition to binding legal regulation of LAWS is that they fear falling behind in an arms race for these weapons. Few states currently have the resources to conduct the research necessary to develop the component code and robotics that would ultimately be used in LAWS, and states like the UK must fear giving up that advantage.

### A robot army for the UK?

The UK's pursuit of autonomous weapons was evidenced in November 2020 in the Chief of Defence Staff's comments that the UK will 'absolutely' avail itself of autonomous systems, and that in the near future 'we could have an army of 120,000, of which 30,000 might be robots'.<sup>4</sup> Autonomy is indeed a priority for the MOD, and their pursuit of AI and machine-learning technology to facilitate autonomous weapons is extensive. The MOD runs an Autonomy programme which seeks to enable 'next generation autonomous military systems'.<sup>5</sup> As part of this, its research arm, the Defence Science and Technology Laboratory (DSTL) often uses its Defence and Security Accelerator (DASA) programme to hold competitions for awards of contracts for certain projects to private arms companies. In March 2020, HORIBA MIRA and QinetiQ were awarded contracts to develop a fleet of autonomous ground vehicles.<sup>6</sup> These awards were described as 'a demonstration of the continued commitment to progressing autonomous systems as innovative approaches for developing future Land force logistic capability' by the DSTL's Autonomy lead, illustrating the DSTL's earnest attitude to developing autonomous weapons. In January 2021, the DSTL unveiled its latest progressions towards autonomous systems: managing a swarm of 20 unmanned drones of different sizes and operations capabilities,<sup>7</sup> and its award of a contract to Northern Ireland's Spirit AeroSystems to design and manufacture a prototype of the UK's first uncrewed fighter aircraft.<sup>8</sup> Then, in March, the government launched its 'Integrated Review of Security, Defence, Development and Foreign Policy', confirming



» the central role it sees for robotics and artificial intelligence in UK military policy (see Stuart Parkinson's article on [p.27](#)).

The rapid, determined development of technologies with autonomous capabilities beckons an era of fully autonomous weapons. While fully autonomous lethal weapons do not yet exist, clear regulation is needed now to ensure that humans retain meaningful control of decisions to deploy lethal force. Convincing the UK government to change its position, and support the introduction of a Treaty, will require considerable pressure from influential actors. One source of such pressure could be UK universities.

### UK university involvement in military AI and robotics research

Universities play a key role in the government's and MOD's pursuit of autonomous systems. Academics and university research departments often team up with private arms companies to work on DSTL projects. The DSTL funds an Autonomous Systems Underpinning Research (ASUR) programme, led by BAE Systems with support from universities including Cranfield and Loughborough, while the industry team for the swarming project referred to above included Durham University. Imperial College London provides a hub for DASA, to promote 'collaborative working between the Government, academia and the private sector'.<sup>9</sup> More evidence of collaboration between academia, government and industry in this field is GCHQ's strategic partnership with the Alan Turing Institute, the UK's institute for data science and AI, which was established by five UK universities (Oxford, Cambridge, Edinburgh, Warwick and University College London). The Institute's activities include a 'defence and security' programme, with one project pursuing large-scale coordination of autonomous swarm robotics.

Furthermore, individual universities often receive substantial funding for research projects from private arms companies. While it can sometimes be hard to deduce the full contribution to autonomous systems that a project may have from its title alone, a freedom of information (FOI) request submitted to Oxford University in late 2020 did reveal that its Engineering Department had received £129,000 from Rolls-Royce for Project TEMPEST. This is being conducted in conjunction with the RAF, BAE Systems, Leonardo and MBDA and which is designed to support 'scalable autonomy'.<sup>10</sup> Looking at the bigger picture, further FOI data revealed that Oxford has received over £6 million from Rolls-Royce since 2016, and over £6 million from the DSTL in the three financial years from 2016. Over the past decade the university has received well over £100 million in total from the DSTL and private companies with a prominent arms-focus, including Rolls-Royce, Lockheed Martin, Airbus, QinetiQ, BAE Systems, and Thales. Even if only a tiny proportion of these sums were used for projects relevant to autonomy or LAWS, the figures demonstrate that the military and private companies rely heavily on academic institutions to conduct research.

### University campaigning

The importance of universities in pursuing the MOD's autonomy agenda was the impetus for the launch of the University Stream of the UK Campaign to Stop Killer Robots in September 2020. Initially, Amnesty International and Pugwash student groups at 13 UK universities with identifiable links to the MOD and private arms companies took part, and in January 2021 the campaign was extended to all UK universities where there are active student groups. Students seek to challenge their universities on their funding sources and research projects, with the aim of establishing university-wide policies demanding transparency and ethical consideration of permissible research outputs.

UK universities could take inspiration from 'Civil Clauses' signed by 20 German universities since 1986 in which they promise to conduct only civilian research, or similar no-military-research policies adopted by some Japanese universities. A more targeted approach would be to seek contractual guarantees from those funding certain projects specifying that the research conducted by the university must not be used for LAWS. This would likely be easier to achieve than a complete ban on the receipt of funding from military interests, but would nevertheless be an important step – and could be used as a stepping stone to broader ethical goals.

Representatives of the UK universities campaign also form part of the Global Campaign's Youth Network – an important and powerful voice alongside the diplomats, NGOs and scientists who have already featured prominently in the campaign.

Universities have long been sites of activism and protest, and their unique position in this campaign gives them potential to send a strong message to the UK government to reconsider its support for a legally binding treaty.

### ACTION

If you're studying or working at a university and want to help with the Campaign:

- Ask your department to sign the Future of Life Institute's Lethal Autonomous Weapons Pledge<sup>11</sup> or Open Letter.<sup>12</sup>
- Get in touch with the Amnesty International Society on your campus, if there is one, to see if they are already campaigning on this issue. You can explore Amnesty UK's Stop Killer Robots Activism Toolkit at: [https://www.amnesty.org.uk/files/2020-08/Stop%20Killer%20Robots%20Activism%20Toolkit.pdf?xPcBuAZX\\_UoV\\_XSsYKQQ\\_gkj\\_huRDep=](https://www.amnesty.org.uk/files/2020-08/Stop%20Killer%20Robots%20Activism%20Toolkit.pdf?xPcBuAZX_UoV_XSsYKQQ_gkj_huRDep=)
- Contact Maiara Folly, the UK Coordinator for the Campaign to Stop Killer Robots, at [robotsuk@una.org.uk](mailto:robotsuk@una.org.uk)
- Visit <https://www.stopkillerrobots.org/> for more information.

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- 2 <https://news.un.org/en/story/2019/03/1035381>
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