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AUTONOMOUS WEAPONS AND INTERNATIONAL LAW: THE FIFTH ANNUAL JUSTICE STEPHEN BREYER LECTURE

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Introduction:

BRUCE JONES
Vice President, Foreign Policy
The Brookings Institution

PAULINE KRIKKE
Mayor
The Hague, The Netherlands

Keynote Remarks:

MARY ELLEN O'CONNELL
Robert and Marion Short Professor of Law and
Research Professor of International Dispute Resolution
Kroc Institute for International Peace Studies
University of Notre Dame

Discussants:

TED PICCONE, Moderator
Senior Fellow and Charles Robinson Chair, Foreign Policy
The Brookings Institution

JEROEN VAN DEN HOVEN
Professor of Ethics and Technology
Delft University of Technology

MAJOR GENERAL CHARLES J. DUNLAP (Ret.)
Professor of Practice of Law and Executive
Director, Center on Law, Ethics and National Security
Duke University School of Law

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P R O C E E D I N G S

MR. JONES: Good morning, everybody. My name is Bruce Jones. I'm the Vice President for Foreign Policy here at the Brookings Institution. And it's my pleasure to welcome you all here today.

I'm going to start with a very unusual announcement. At some point in the next hour, not by our design, our Emergency Management Systems will send off some blare and text, et cetera, please ignore them; and my apologies for that rude interruption.

It is a pleasure to welcome you all to *The Fifth Annual Justice Stephen Breyer Lecture on International Law*. And a warm thank you to Ted Piccone, who has been the architect of this series from the outset, and pulled together today's events.

This is a series of trans-Atlantic dialogues that tackles cutting-edge issues at the intersection of international law and security. We've ranged from chemical weapons to cyber security, and we want to particularly thank the Municipality of The Hague, and the Embassy of Netherlands for their steadfast support to us and to this activity. For this year's lecture we've chosen one of the most compelling and complicated --

Here we go! So they interrupted me, which is very good.

(Discussion off the record)

I suspect if that had happened during an actual emergency, nobody would have noticed, and we would have continued anyway. So, we may have to give some feedback to our Emergency Management folks about the

signaling. That was it, I think. If we get interrupted again, we get interrupted again, but that time you shouldn't ignore it, because I don't know for sure that it's a test.

To return to the theme of today's event, we have picked what I think is one of those compelling and complex topics, not just for lawyers, ethicists, military planners, but for society itself, which is the rapidly increasing role of artificial intelligence, and in this particular context, looking at that with respect to autonomy and the use of force.

We've been spending a lot of time on this here at Brookings of late, more in the security sphere, watching very closely how China is moving very, very rapidly in this space, how Russia is moving, and how the United States is moving as well.

Modern militaries are already very far advanced in how they're automating everything from personnel systems and equipment maintenance, to surveillance drones and to robots, and at the farther end of the spectrum, defense systems like Iron Dome.

But the focus of today's discussion, however, is going to be on the development of weapons systems that could have fully autonomous capability to target and deploy lethal force, in other words, to operate in a dynamic environment without human control. The prospect of developing such weapons is not a matter of science fiction, this is a real-time debate. I think we can already talk about this as the next arms race, the arms race of the 21st Century; it's in front of us now. This is not a future question.

The United States, China, Russia, France among others are investing tens of billions of dollars to determine who will win this race, both Vladimir Putin and Xi Jinping have made it very clear that they intend to win, and I think that claim is more credible in the case of Xi Jinping than Putin, but we are certainly going to see huge investments on both of their parts to outmaneuver the United States on AI.

I was struck, by the way, the other day to read that this year, for the first time, China has more dollars in start-up funds in companies in AI than the United States. And if we think about the role of the private sector and generating AI advances we tend to think of China as lagging the United States technologically. That is really no longer true in the computational sciences.

The question for today's session is whether and how fully-autonomous weapons systems can comply with the rules of international humanitarian law and human rights law, and at the heart of this debate is the notion that's such systems should have quote "meaningful human control" to comply with these legal requirements, distinction, proportionality precautions against attacks on civilians, et cetera.

A number of scientists, and technologists, as well as NGOs are leading a campaign to argue for a binding international treaty banning the development of weapons that don't have meaningful human control. Others are suggesting a more measured incremental approach under existing rules of international law to ensure that humans remain in the decision-making loop.

In our discussions in Beijing it seems clear that the Chinese do not

share our normative starting point on this question, so this will be a fraught debate in international politics.

Just next week governmental experts and officials will meet in Geneva under the auspices of the Convention on Conventional Weapons to continue to try to find consensus on the next steps in regulating these weapons, and we hope that today's debate will provide useful input to their deliberations, as well as raising public attention.

To help us, we have assembled a very distinguished group of people. I will ask Ted to introduce our panelists, but I will first briefly introduce our Keynote Speaker, who is Mary Ellen O'Connell, who is the Robert and Marion Short Professor of Law, and a Research Professor of International Dispute Resolution of the Kroc Institute to the University of Notre Dame. Her research expertise is on international law and the use of force and international legal theory.

She is the author of too numerous books to mention, but they include books like: *The Prohibition of the Use of Force, Unlawful Killing with Combat Drones*, and a number of books that relate directly to the topic. She has a rich intellectual and professorial history, but I also want to highlight that she was a Professional Military Educator for the U.S. Department of Defense at a certain part of her career, and I think that combination of the applied practice of this and the theoretical and ethical debate is exactly where we want today's discussion to go.

So, she'll be our Keynote Speaker. That will be followed by a

panel that Ted will introduce, but will comprise of a Jeroen van den Hoven, and Charles Dunlap, my welcome to both of them. And before turning to that I'm going to ask our special guest, the Mayor of The Hague, Pauline Krikke. Did I get that right?

MS. KRIKKE: Yes.

MR. JONES: To come to the stage. And join me in welcoming the panel. (Applause)

MS. KRIKKE: Excellencies, ladies and gentlemen. Thank you so much for the invitation to attend this Justice Breyer Lecture. I consider it a privilege, at least because the Brookings Institution is the world's foremost think tank. The theme of this meeting is the influence of artificial intelligence on weapons and warfare, and the challenges that these developments bring in these areas of international law, ethics and human rights.

You will appreciate that this is very much a topic of interest of The Hague too. It is certainly not something new, even when The Hague was just starting to evolve into a center for law, the impact of technology and warfare was already a major concern. Conventions were adopted at the first place -- at the first of this conference banning the use of gases and dropping explosives from balloons.

The conference in 1907, an initiative of President Theodore Roosevelt, addressed various technical aspects of warfare. It was at time when industrialization was transforming the world, just as today's digital revolution has enabled countless innovations, creating opportunities to do good, to save

people's lives, as well as new technologies that are used to attack and kill people.

The Hague, the International City of Peace and Justice, is dedicated to pursuing technological innovation for the benefit of humanitarian aid, peace and justice. A deliberate choice also to support the U.N. Sustainable Development Goals, The Hague Humanity Hub is a specific example of such a new initiative in the field of humanitarian aid.

Scholars, professionals, business leaders, and students have joined forces in this organization to find solutions to the problems surrounding humanitarian aid. Evan Archer is now also a part of the Humanity Hub. And during his visit to The Hague last December, the U.N. Secretary-General was very impressed by what was being done in our city in this domain.

All the more reason to continue along our chosen path, a path which, in my view, has also another purpose, which has to do with the other side of the digital revolution and establishing boundaries; rules about what is and what is not acceptable.

It is clear that the digital technology is changing our world in countless ways. Nothing stays as it was. But this also means that measures need to be taken to prevent these technologies from falling into the wrong hands, and are being used in the wrong way. Or, to put it more strongly, it is vital that applications of artificial intelligence, big data and quantum computing are facilitated that will benefit mankind.

The Hague is delighted to offer a platform for that, and this is also

something that we are very capable of doing. First and foremost because the fast knowledge and expertise available in our city, and I am referring not just to The Hague itself, but also to the world-renowned Universities of Leiden and Delft with whom we work closely together, and who are present in our city.

Together with the Netherlands Ministry of Foreign Affairs, The Hague is preparing for the arrival of UNICRI, Centre for Artificial Intelligence and Robotics. Apart from this concentration of knowledge over the past 125 years The Hague has proven itself to be a unique place for confidence-building between nations.

The Hague will do whatever is necessary to ensure that this continues to be an international center of law expertise in a hyper-connected world, also for the next 125 years, a place for international dialogue on peace, justice and security.

And just as binding agreements about warfare were made for the first time at The Hague Peace Conferences more than a hundred years ago, so today we need to establish rules for the digital world.

And given that everyone is affected by this digital world, so everyone has a responsibility to ensure that it is safe digital world. This is also why The Hague has specifically chosen to involve private sector organizations in this process.

Given the breadth and the scope of the digital world it will become some of a Herculean task, but I'm convinced that humanity can do that.

In that respect we could take an example of your countryman,

Andrew Carnegie, who donated the Peace Palace to The Hague. He was an idealist but also a realist. And it is realism which forces us to act, because it is not just about us but it is also about future generations, and we hope that they will benefit from whatever we do today. Thank you very much. (Applause)

MS. O'CONNELL: First, my compliments to Ted Piccone, to the Brookings Institution, to Mayor Krikke, to the City of The Hague, and all of you here gathered today, for recognizing the importance and timeliness of this issue of lethal autonomous weapon systems.

In my view, there is no issue of greater importance on the international law and the use of force agenda today, with the possible exception of the use of force in the nuclear weapons context, and that problem is in some ways an easier one for those of us in international law to deal with because we know what the law, is it's a problem of compliance.

When it comes to lethal autonomous weapons we are not so convinced of what the law is, or perhaps even what it should be, yet, getting to answers to both of those points is essential. We are facing a real challenge as has already been indicated in the first two speakers -- by the first two speakers today.

Just in February the Former Head of NATO, Anders Fogh Rasmussen, said at the Munich Security Conference that he fears swarms of AI-enabled robots attacking cities. Add to that concern what's going to happen when computers go beyond current artificial intelligence to actually learn, or when you combine nanotechnology, or you think about all the hackers in the

world who can't wait to reverse-engineer the inventions of those Department of Defense research labs.

I'm actually beginning to discuss lethal autonomous weapons as entering into the category of weapons of mass destruction. Unlike existing weapons of mass-destruction, nuclear, biological and chemical weapons, the international community has already begun to discuss regulation of autonomous weapon systems, begun to discuss in advance of a truly harrowing use of such weapons, as was the case for nuclear, chemical and biological.

So, in that sense this is a more hopeful talk than it might have been, and there's more ground for hope in that this discussion around lethal autonomous weapons and the regulation already has a basic concept, which Bruce Jones mentioned, meaningful human control, so there is a topic around which various positions are taking place.

And meaningful human control will be the focus next week in The Hague as parties to the Convention on Certain Conventional Weapons begin to move toward their meeting in November.

Before November, as Bruce said, there will be a meeting next week and then another one in August of the Group of Governmental Experts, and they'll be talking about both defining autonomous weapons and what the human machine interface is, so that they can better understand how to come up with some kind of legal instrument devoted to meaningful human control.

So, I actually have a different question than those two. I'm not so worried about defining or even what the topic for discussion in Geneva will be,

meaningful human control, I'm interested in the next question, perhaps a bigger question, and that's whether the international community as a whole will demand compliance with any legal developments in Geneva on autonomous weapons, or compliance with the existing law we already have that's implicated with this new technology.

We have the United Nations Charter and other principles restricting the use of military force, we have principles of international humanitarian law to govern conduct on the battlefield, and we have human rights law. It's all relevant. And I suggest to you that that human rights law, often left out of these discussions of autonomous weapon systems, is more important, because nothing is going to keep this technology within the military sphere. It is going to move out.

So, in these remarks which will be quite brief, let me talk about three points. First, a little more about the emerging understanding of what autonomous weapon systems are; second, the current debate over meaningful human control; and finally, the role of international law in regulation of these weapons as a general matter.

So, as I said, there is a point of helpful consensus, you already heard the definition that people are agreeing to, you might not know that that definition Bruce Jones mentioned of autonomous weapons, actually originated in a document from the U.S. Department of Defense. Weapons systems that once activated can select and engage targets without further intervention by a human operator.

I began my own research on autonomous weapon systems around 2010 as part of the ongoing research and writing I had been doing about drone systems and their role in targeted killing. In that first research I was doing on autonomy, I found a 2005 public document of the U.S. Department of Defense reporting on the possibility of autonomous weapon systems in a report from the Committee on Autonomous Vehicles in Support of Naval Operations.

I think this issue of autonomy came to the wider public's knowledge around 2011 in a *Washington Post* article by Peter Finn titled, "A future for Drones: Automated Killing." That article revealed what the Department of Defense was doing in terms of what we thought then was going to be the next generation of lethal drones.

In 2012 the U.S. DoD followed up with its directive, and then in 2013 a dramatic new development occurred, and that's when the U.N. Special Rapporteur on Extra-Judicial Killing, Christophe Heinz, issued a report on autonomous weapons, and he called for a moratorium on further research on these weapons because he was not convinced they were going to meet international law standards for lawful weapons.

From there, the developments moved to Geneva and to the Convention on Certain Conventional Weapons where the role of States Parties are to review new weapons technologies to ensure that they comply with international law, especially around two particular principles: that new weapons or means and methods of warfare are able to discriminate on the battlefield, discriminate between civilians and combatants, they do not have indiscriminate

effects, and that they do not cause unnecessary suffering to either combatants or civilians.

Lethal autonomous weapons went onto the agenda and they're entering their fifth year of review. So, with these two meetings scheduled of the Group of Governmental Experts, next week and in August. On their agenda is; definitions as well as this human machine interface.

And I believe that they are going to actually come up with something; that the meeting in November of the states party will result in a tangible legal development. It will either be a protocol like the protocols that the CCW has regularly added to their Convention including, for example, a recent one to preempt future technology that doesn't meet international law standards, and that was a prohibition on blinding laser weapons.

Or, they'll pass. The other thing that the CCW does is okay's new weapons technologies. So, they reviewed drone technology and found it was a mere Launch System that it did not -- it was not, per se, unlawful and drones were allowed to fly. But I think in November we are going to see some kind of limitation on autonomous weapons, either in the form of a new protocol like the blinding laser protocol, or at least a declaration that brings meaningful human control into our thinking, our legal thinking about weapons.

Where different states party to the Convention on Certain Conventional Weapons come out on the shape over the content of either of those possible developments I think can be linked back to how they see the history the development of this new technology. There's really two kind of groups that we

are seeing around the technology, they are either the groups that see it as a mere incremental development in the computerization of weapons.

It's just the next drones. Autonomous weapon systems are going to be a positive addition to arsenals, they will replace soldiers in battlefields, and like drones, they will save soldiers lives, and that of course is a good thing. But the researchers are promising us that they'll do even more, that they've got more advantages, because drones operate with a remote human operator. Somebody who could get fatigued, who can get angry, who can seek revenge, who makes mistakes, those problems are removed when you've got a fully autonomous, select and destroy function that's already been programmed into the weapon.

Researchers are telling us that in fact autonomous technology will be better than human beings at being consistent complying with international law. In a major new article in the *South Carolina Law Review* by U.S. Army Major Christopher Ford, taking really the U.S. position on these questions, he presents that autonomous weapons, light drones, will not be, per se, a violation of any weapons standards because they'll be able to discriminate on the battlefield, and they will not cause unnecessary suffering.

They are not -- they can deliver the kinds of weapons that will comply, and that they will be better able to comply with international humanitarian law targeting rules, with one exception. And this is another place where we are finding consensus among the different parties.

Major Ford understands that you cannot hold a robot weapon accountable for mistakes that could happen on the battlefield that is conceded,

still, he and others taking this incrementalist position are very strongly arguing that research should continue to improve the technology we now have, to bring this potentially very helpful new form of weapon onto the scene.

In fact, I'll go even further and say that with the context of the battlefield today, with the rapid changes in AI, with competitors around the world doing this kind of research, it's imperative that advanced nations also continue this research and develop these weapons.

Now, the other perspective sees autonomous weapons not as a mere continuation of computerized military developments, but as a true paradigm shift.

Jakob Kellenberger, the Former President of the International Committee of the Red Cross, has said that a major qualitative change has taken place, he and others agree that this is a true revolution in military affairs, and that it's a revolution that will result in greater danger, more risk, more loss of life, more militarized solutions to humanity's problems.

Well, these two perspectives have been meeting and debating in Geneva for, as I said, more than four years, and it seems that the incrementalists do concede that there is some need for a human role because of this point about accountability. They understand the need for somebody to be held accountable for mistakes, for the whole law of armed conflict to really function.

Amos Guiora, a long-time JAG Officer with the Israeli Defense Forces has also written a new article in which he comes out in favor of a ban on fully autonomous weapon systems because of this point of accountability. He

says that accountability is in direct contrast to the profession of arms.

In January 2017 it seems that DoD in the U.S. has also taken this position. They issued a statement saying that autonomous and semiautonomous weapon systems shall be designed to allow commanders and operators to exercise appropriate levels of human judgment over the use of armed force.

Major Ford describes how I think DoD is projecting the role for humans in this area within an accountability context, and he says that we'll now start thinking about how we can hold a human a being somewhere in or near the loop, as he says, for joint enterprise liability with the robot.

Obviously, for the revolutionaries this is much too little, quite inappropriate, they want real and meaningful human control.

At the first meeting of the CCW, Monsignor Tomasi of the Holy See's Delegation said, decisions over life and death inherently call for human qualities, such as compassion and insight to be present. While imperfect human beings may not perfectly apply such qualities in the heat of war, these qualities are neither replaceable nor programmable.

The Holy See sees support of a ban on autonomous weapons as the only way forward, and they are joined in that effort by such powerful NGOs as Human Rights Watch, and a number of newly-emerging NGOs devoted just to this topic, including Stop Killer Robots, but also Article 36.

They want a ban on weapons without meaningful human control, or put affirmatively, they want a legal regulation requiring meaningful human control. And as the CCW agenda suggests, what counts as autonomous

weapons and what would be a human control regulation is yet to be decided. It could very well be human control light along the American version, or it could be human control heavy, that groups like Article 36 want.

Article 36 has described what they want as deliberative, moral reasoning by human beings over individual attacks, and the Computer Scientist and Co-Founder of Stop Killer Robots, Noel Sharkey, has described the requirement as a commander or operator having: one, full contextual and situational awareness of a specific attack; two, the ability to perceive unexpected change in circumstances; three, retention of power to suspend or abort the attack; and four, time for deliberation on the significance of the attack.

In 2010 I also argued that there has to be some human ability to abort an attack prior to impact, but I quickly realized that that would actually have implications for existing weapon systems, such as Israel's Iron Dome, a defensive system but one that can result in people being killed.

Amos Guiora would leave Iron Dome out. So, you see there are many questions even around this -- amongst those of us who agree there has to be meaningful human control.

So, meaningful human control light, human control heavy, we'll have to have further discussions in these next months. Despite the hurdles, I still believe something will result in November at least on the points of agreement. There is simply too much popular opposition to unregulated development.

Currently there are 22 States announced in support of a ban, the Non-Aligned Movement which represents many times 22, wants action. Last

August the Founders and CEOs of 126 robotics and AI companies, including Elon Musk, sent an open letter to the CCW imploring States to prevent a laws arms race.

High-profile AI experts, including Stephen Hawking, sent a similar letter in 2015. Just this morning, *National Public Radio* is reporting that a coalition of AI researchers around the world said that they would no longer partner with the South Korean University that had a joint relationship with a weapons manufacturer, unless there was a promise by the University to ensure meaningful human control in any AI developments with a military application.

Talk to your families and friends. Ask them what they think about killer robots, you already know what they'll say, nobody likes it. Opposition is widespread.

So, the debate heavily involves international law as we've heard already, the rules are part of every step of this discussion, but not only specific rules on the use of weapons on the battlefield, the wider context of international law, the very sources of international law are coming into play.

The human rights -- sorry -- the human control heavy group is relying on positive international law, on state consent, and on the rule of affirmative treaty positions, and so far forth, and they are taking the position that the technology can meet these positive requirements of international law. That there's been no showing, it cannot measure up, and that without such a negative showing states are free to continue, unimpeded, in developing AI with this one workaround for accountability.

However, and I think that that is actually -- that that's actually true, that positive law is not necessarily restricting future developments.

The moral philosopher, Rob Sparrow, who has been very active in this field, has recently written that if our main concern is to reduce the noncombatant deaths, it becomes easier to imagine autonomous weapons being ethical, they would simply have to be better than human beings at distinguishing between legitimate and illegitimate targets in some given domain.

But he goes on to say, the deeper issue concerns whether the use of these weapons is compatible with the requirement of respect for the humanity of our enemies which underpins the principles of international humanitarian law. He admits that further questions are beyond his expertise, he just doesn't know whether we can have a positive prohibition in international law, if one could even come into force, or could even be effective in this wide-open area of research.

He's right. I think, about the prospects in positive law, but he may not know of this whole other realm of international law which is deeply influencing the meaningful human control heavy group, and that's natural law.

The proponents of a ban have been relying, principally, in the first instance on the Martens Clause. An agreement of States from the 19th Century that says, "The dictates of public conscience and the principles of humanity have a role in restricting new military developments in terms of weapons and techniques."

I agree with Diego Mauri of the Holy See's Delegation to the CCW, that the Martens Clause is part of natural law, and that it requires no consent by

States to be binding. It needs, as Daniela Amoroso has written in an absolutely great new article on this topic, what it needs, what the Martens Clause, what natural law needs to bind is the emergence of a global trend in favor of the principle. And that, I think she's absolutely right, we have.

Just Tuesday of this week the International Committee of the Red Cross released its report on Lethal Autonomous Weapon Systems, and it is basing its conclusions on the Martens Clause. There are other concepts beyond the Martens Clause which are found in natural law, and which I suggest to you, are going to be very important in this debate going forward, very important in Geneva and beyond.

For example, the human right to life as found in the Universal Declaration on Human Rights, is part of natural law. It is durable, it is unchanging, you cannot move away from it through treaties or through consent of States.

Equally, the prohibition on the use of military force found, of course, in the U.N. Charter, but also considered a peremptory norm, a rule of higher law that states cannot walk away from, that they cannot change. It is deeply embedded with principles of morality that have to endure no matter how badly human beings mess them up.

The momentum building on these concepts is moving forward to a regulation, and that kind of a regulation from these sources as opposed to a mere treaty provision, can have an impact on norm formation that we are only just beginning to understand.

Remember, natural law binds regardless of consent, second action at the CCW will have a further impact being based on these kinds of norms in creating a worldwide, all-encompassing, and all-impacting set of principles. Those Chinese researchers that Bruce talked about, they'll know about this norm regardless of what China does, whether it joins the treaty or not, they will be told about it by their fellow AI researchers around the world.

This will follow the technology as it leaves military laboratories, and it will create the sense that developing autonomous technology that can kill or harm human beings or the environment, is anathema, is beyond the pale, is not what civilized people -- what moral people do. There's one other, I think, very tangible impact from such a norm emerging out of this debate, and that's to create the appetite for counter technology.

Where are the antidotes? Where is the AI that reduces the harm of lethal AI? Where is that coming from? With this kind of a moral context around the debate in Geneva, I think we're going to have a rich, new set of incentives for people to be involved in that kind of virtuous research.

I've called for a very similar kind of thing with respect to cyber weapons. And now my last point of what the impact of such a norm could have. Maybe in this country, and in the U.K., and a few other places, will also, in light of this new norm against fully-autonomous robotic weapons, will have a clear-eyed national security debate about what we have gained in the national security realm from drones and targeted killing, from cyber weapons, and what we might gain from lethal autonomous weapons.

Is the record of what computerized militarization has done for us really so great? Are we safer? Is there greater respect for human life around the world? Is there work being done to protect the environment which truly is an existential crisis for us? In my view we have been misdirecting our research dollars and our very thinking about what gives us national security in this direction. So, a new norm could bring about such a new, and I think, extremely necessary discussion, certainly in the United States.

Okay. So, now all eyes will turn to Geneva over the next few months. But long before then, in the next few minutes our eyes in this room will turn to my colleagues, Charlie and Jeroen. Thank you very much for your attention. (Applause)

MR. PICCONE: That was a lot to chew on, and it was deep and powerful. So, thank you very much, Mary Ellen, for setting that kind of encompassing frame. I think it really brings us back to some really fundamental points about the use of weaponry and technology in today's world.

So, I'm Ted Peccone. I'm a Senior Fellow here at the Foreign Policy Program. I work on International Order and Strategy Issues. And I'm here to help moderate this discussion. We won't have enough time. This is going to be frustrating, because I can imagine we wanted to talk about this for a long time.

But with very short introductions to our co-panelists, Jeroen van den Hoven. You should have bios for everyone. He is a Professor of Ethics and Technology at Delft University of Technology in the Netherlands. He has many activities in the fields of ethics science and technology. He's Editor and Chief of

Ethics and Information Technology Journal. He is, among other things, very involved in the deliberations of the European Union on ethically aligned design of technology and autonomous weapons.

Recently a report came out, just last month, in which he was very involved trying to lay out what the main principles are from a European point of view, and European Union is preparing a new policy document, I believe later this month, that you've been involved with as well. And we'll hear more about that in the discussion.

We'll then turn to Major General Charles Dunlap, who is retired from the U.S. Air Force as Deputy Judge Advocate General. A long career in the field of military law, ethics, and national security, he currently runs the center on these topics, Law, Ethics, and National Security at Duke University Law School, and is a Professor of the Practice of Law.

So, we will hear from both of these speakers and engage in a discussion here, and then with all of you.

So, let me first talk to -- turn to Jeroen, and hear a little bit more of the European perspective. We have heard an increasing number of comments from different leaders in Europe including, most recently, an interview that President of France gave, Emmanuel Macron, in *Wired Magazine*, which I encourage you all to read, it was in the context of a French national policy and European policy on AI, in which he called for an outright ban on fully autonomous weapons.

So, let's be clear about the terminology. I think in this debate we

are talking about the future prospect of fully autonomous weapons. We already have a lot of automation in our military technology, and as you pointed out, Mary Ellen, some of it is already in use, and it's proceeding very rapidly.

So, in that context can you tell us a little bit more about the European view on these issues?

MR. VAN DEN HOVEN: I certainly do recommend everyone to read that interview in my *Wired Magazine* with Emmanuel Macron. I think he captures the European kind of point of view, to the extent that there is the kind of integral European view, and I would characterize it as follows. That he, and I have a quote here on this, "If you do not want to block innovation, it is better to frame it by design within ethical and philosophical boundaries."

That's the idea of the European Commission, that ethics is a design issue, right, it is, we are confronted in so many areas by these kind of stalemates, these kind of conflicting values on the one hand, sustainability on the other hand, efficiency, privacy and security, all of these things we keep confronting them over and over again.

But innovation is a way of dealing with those kind of conflicts in values, and we can actually design systems in such a way that they can perhaps -- or help us to overcome those conflicts of interest, by kind of changing the rule in such a way that it becomes more amenable to, you know, what we want to have.

And I think he also, in passing remarks, that there is a lot -- already a lot, as you said, a lot of automation going on in the military domain, and

he leaves a little bit of space for that, but he says clearly, and that is the European perspective, you know: delegating the power and the discretion, the choice to kill and take a human life, to a fully autonomous machine is just beyond the pale.

And that is also the position that we have taken in that European document on behalf of the European Commission that has been published. So that is the statement on artificial intelligence and autonomous systems, and there we take that position as well, and that is almost as strong, and because the Holy See, and kind of the Southern European countries were also represented there, and they take the position that you quoted and referred to. And that is basically our position.

Having said that, I think, and this is the other thing that -- this is also I think a European approach. On the one hand we are -- because we are so interested in design and innovation, we tend to complicate things in such a way that it may in the end help us. So, it's kind of *reculer pour mieux sauter* . First you think, oh, but this is only complicating things. Lichenstein said, "When in doubt complicate." (Laughter)

So, on one hand we have to look at these systems, it's not a rifle, it's not a gun, it is a very complex system of systems. It is socio-technical systems. You have people running around, you have software, they are interacting with infrastructure, communication, protocols, et cetera, incentive structures, manuals, all of these details count. It is that unit that you need to think about how to design it, in order to get out of it what you want out of it.

So, that's one thing. So, you have to look at critical technical functions, all the functionalities, kind of in the loop, on the loop, related to the loop, kind of very remote to the loop, et cetera.

So, all of these distinctions you need to bring into play, and then you have to see how you can have your way, how you can design it in such a way that you can have the functionality that you want out of it, in this case military functionality, for all good reasons, without the drawbacks of giving up on accountability and responsibility altogether.

And therefore, second complication, is not only we need a much more fine-grained account of the systems with their critical technical functions and the way there are aligned, but we also need a much more detailed, and fine-grained, and innovative theory of responsibility. Because what we do is we come to these subjects, which are very complex and dynamic, and it is, we bring a theory of 2000 year olds, or a concept that has been with us for quite some time, and we try to apply it to a very new, dynamic and very complex world.

As if you want to repair a Swiss Precision Watch with a sledgehammer. You cannot do that. It won't work. It will never give you the right results. So, what we need is a kind of a fine-grained theory of responsibility. And one thing to bear in mind, is that in other areas we are also working with -- we are shifting towards a new conception of responsibility for a new high technology world, because we are no longer talking about someone punching someone else on the nose and being blamed for that, we are talking about groups people, together, omitting certain things which will later negatively affect

people living in completely different places, remotely, in future times.

So, so how far can you be removed from that paradigm case of harm, where you just, in a very simple, causal set up, in a here and now, you inflict some damage to someone, and now we are talking to a -- but this doesn't mean that we have completely given up on the idea of responsibility. We still hold on to the idea of responsibility although we are talking about groups of people jointly omitting something that will affect people further down the road.

So, I think the same applies here. So, we need a more complex, more adequate view on those military systems of systems, of systems, and we need a more fine-grained account of responsibility, and we have to bring them together to squeeze out of it what meaningful human control could mean, because I was very fascinated by Mary Ellen's kind of, you know, speculations about what would happen in November.

Because if that will happen, or we move closer to that, we will have to know what it means, meaningful human control. We have for the first time now, and we've published a paper on it, on philosophical conceptual analysis of meaningful human control, and we have some people in the audience who can testify that it's been a very hard job to -- kind of to help ourselves to a decent definition of that. Then we have to do some more work in the coming months, basically, if we want to do that.

So, yes, these are all kinds of I think contextual considerations that may make it more complex, but may also open up the opportunity of arriving at more adequate solutions.

MR. PICCONE: I think that's very helpful because I think we are, as you talked about, in a paradigmatic shift, and we're still wrestling with what it all means, so the contextual points are very important.

I want to turn to Charlie to give us a military perspective on some of these issues. Let's talk about grounding this in the reality of how weapon systems actually are developed and deployed, and how law is handled by military units in real time, because these issues, as we've discussed, are not new. We are already seeing the automation raising all kinds of different legal and ethical questions.

So, maybe you can say a few points about that and about compliance, and whether we think, in the international domain, the current standing that the international law is strong enough to constrain the race that is unfolding.

MAJ. GEN. DUNLAP: Well, thank you very much, Ted. And thanks to Brookings for hosting. I can't think of a more important topic, a more-timely topic to have than this one. And I want to say, although I'm a Retired Air Force Officer, I'm not speaking for the U.S. Government or, indeed, all militaries everywhere.

But allow me to say a couple of things. Number one, I do think we have a -- do have law. The law of war has been -- it is well established, and whatever system we have, whether it's an autonomous system, a human-directed system, or whatever, it's going to have to comply with the fundamentals of International Law Armed Conflict, period.

Now, here is the thing. We think that this is a revolutionary matter, but remember in the history of warfare we've had other revolutionary matters. The internal combustion engine, aircraft, radios, there's been lots of things. Remember when submarines first came out they tried to have this specific kind of law limiting it, and they found out during warfare, that's not going to work, and it never was implemented.

I'm also very cautious. I've always been an advocate, strictly comply with the law of war, as opposed to trying to pick out certain technologies and ban them, because inherently you're looking at a snapshot in time.

Mary Ellen used, blinding lasers. Yes, there's a convention against the development and employment of weapons intended to blind. You can have a weapon that intends to incinerate you, but you can't have one intended to blind. Why is that? Because in the 1990s if you go back, I think it's still on the ICR's website, they said that blinding -- if you're blind you have no life, or something like this. That was their argument.

Down at Duke University, right now, they are developing bionic eyes. What I'm saying is, there's a big risk in trying to capture a snapshot of time, of technology, and trying to ban it.

What we are really talking about here, is weapons that don't exist. As has already been said we do have weapons now that select and engage targets, and we've had them for 30 years. The close-in weapon system on all ships, it has a fully autonomous mode. Why? Because a human being cannot react to a swarm of things coming at a ship, so it gives that -- there's human

supervision.

But what we are really talking about now, and correct me, fellow panelists, if I get this wrong, is machine learning autonomous weapons, in other words, neural systems. So, in other words, the machine will continue to learn and adjust in ways that some would say were unpredictable.

And we have to remember that this technology is not limited to the military or even to the use of force, it's going to be in all of our -- aspects of our life, and so we have to keep that in mind. So, we will see a progression in the area completely unrelated to the military, of restricting and controlling these technologies, so that they don't do things we don't want them to do.

I'm an advocate of a robust testing system. In other words we are going to have -- and there's different arguments out there; I'm not as much of a technologist to give you all the answers, but as in neural networks there are certain nodes, you're going to have to engineer into those nodes the law and the other limitations, social or whatever, that you want to have, so that as it builds it will not learn in a way that will do something at the end of the day that you don't want it to do.

And there's always going to be responsibility. I've written a *Law Review* article on personal -- accountability with autonomous weapons. So, you can do it, and in any event international law doesn't require that you be able to criminally prosecute an individual to have a lawful weapon. There is going to be state responsibility, and it may be that we need to tweak the state responsibility doctrine.

My friend at Yale, Rebecca Crootof, is doing some work on that. So, we may have to do that, but what I'm saying is that other nations are going to be developing these weapons, and are developing these weapons.

Mary Ellen posed you a question about: what will your friends and neighbors think of killer robots? Here's the question -- I would phrase that a little differently, ask your friends and relatives, what they would think if their daughter in the Army was killed trying to do something as a human being that a machine could have done just as effectively, just as safely, and just as ethically?

Or ask them what they would think if their daughter was killed by an enemy autonomous system that reacted and operated in such a faster way than she was able to respond to, and that there could have been a weapon that would have defended her?

Absolutely there's a moral issue here. There's a moral issue every time you use force, and those who have been in the military never -- real people who've been in the military never take pleasure even in killing the enemy, other than the fact that it may save other people.

That's why I'd like to bring up the moral hazard of inaction. We should never think that because we don't implement a technology, *ipso facto*, civilians and the innocent will be safe from harm. No. We are living in a world where there are very evil, bad people who are going to get technologies, and they're going to be used doing things to people that unless we stop them, and unfortunately sometimes force is the only way of doing that, we have to be able to meet it.

So, do we need new norms? Yes. In this sense I think we need a norm as to what the test and evaluation protocol ought to be. Does that will have to be an international treaty? No. Because we are never going to get into international treaty; keep in mind China has not yet accepted, in the cyber realm, the Law of Armed Conflict, the Geneva Conventions and the protocols even applies to cyber operations.

General Gerasimov, two weeks ago, was speaking at a conference where he was talking about the Russian technology, and their interest in autonomous weaponry, and as an aside he said: yes, our first targets are going to be the political and economic structure of the enemy, which, by the way, is often much of that is not targetable under the existing Law of Armed Conflict.

So, the idea of getting a treaty I think is not palatable . I think the better thing is develop, these are the norms that you must go through in the testing process, so that a commander will have a reasonable basis to believe that the application of this particular technology, and it's a whole range of technology, in this particular instance, will do what he or she believes it will do, and that will comply with the law of war.

Is that going to be hard to do? Yes. Because we don't even know what the weapon is yet because we don't have fully autonomous, neural-system-based weapons. But that's, you know, lots of things are hard to do. And if we can't come to that, where we can reliably say that the weapon is going to operate as intended lawfully, then we can't field it, and there may be some iterations of

that kind of weapon that we can't field.

But in the meantime, I think it would be very dangerous not to -- very dangerous for the security of this country and the world not to proceed.

You know, we've heard a lot about the Vatican. I was at a conference -- just and I'll close with this -- I was at a conference mostly about pacifism, you can imagine where I fit in on that, not very well, and there was a discussion -- and I'm Catholic -- but there's a very strong Catholic Pacifist Movement.

MS. O'CONNELL: That's correct. (Laughter)

MAJ. GEN. DUNLAP: We've talked about this before. And I really respect them, but then I told, I said, you know, did you know the Swiss Guards are more than ceremonial, right? And he looked at me, they didn't know, evidently, that the Swiss Guards are trained with modern weapons, and they have MP5s, and they have machine guns, and they have other, you know, the use-of-force technology, and they're very sophisticated, to protect the Pope, as I want them to do; because ISIS has said they want to kill the Pope.

And so we live in a world, unfortunately -- You know Cicero said, "Only the dead have seen the end of war." And so as long as that's the case, I'm kind of a John Stuart Mill sort of person, we have to be prepared to use force. And this is the next range.

MR. PICCONE: So, you've raised a lot of really key points to this debate. No, I really appreciate it. I mean when you think about the Pope example, I think, yeah, their job is to be defending the Pope.

MS. O'CONNELL: Defensive, yeah.

MR. PICCONE: So the defense/offense division I think is very important in this discussion. Are we going to restrain militaries from designing and developing defensive weapons using more autonomous systems, or go further, and go on offense? And where does that end? I mean, artificial intelligence seems to have no limit at this point, and it's happening so fast that I can imagine a world in which it's AI against AI, and it's so far removed from the human control, that it's somewhat meaningless in terms of actually having a military advantage.

So, I'd like to consider that, and also give Mary Ellen a chance, if you want to respond to some of these points. I wanted to raise one other when your deliberation.

MS. O'CONNELL: Okay.

MR. PICCONE: Which is this point that you raised about design, at what point in the chain should responsibility go back? So somewhere -- technology doesn't just happen, it's human beings that are actually writing this code, so at what point in that design phase you bring responsibility back and make sure that the ethics and law are truly baked into the writing of the code?

MS. O'CONNELL: I want to agree with much of what Charlie and Jeroen both said, and hone in and just pick out I think for our further discussion, whether along with the paradigm shift in technology we aren't also seeing an accompanying paradigm shift in the law. Both Jeroen and Charlie talked about what we need that's new in the law, but both also brought forward some old

concepts of law.

And I want to really raise with you whether they are right on that second part. So, one of the things that I think has happened as a result of drone technology is that the United States no longer sees the clear division between war and peace that it used to see, we are carrying out targeted killings in areas that 25 years ago we would have said are zones of peace and you cannot do intentional killing with military force in those areas.

That's gone. But the U.S. then tried to bring along a permissive regime from military sphere to this new idea beyond war and peace distinctions. And I think that's what's got to change. That's what's got to be invested in Jeroen's idea of a new legal paradigm going forward.

We've got to see when there's no longer a limitation on the battlefield that we used to be able to see, what happens, and what's the default, the right default position for law to be building forward. It's not these permissive rights to kill, but rather, that if all the world is a battlefield, then none of the world is a battlefield. It's all zone of peace.

So, we've got to -- I think that the way forward is to actually think about the world the way the Chinese are thinking, in Charlie's example, that they refuse to see the Geneva Conventions applied to cyber, they are absolutely right in my view. Cyber sphere is communications, economic sphere, it's not battle space, we've got plenty of law, and we need more peacetime regulation, that kind of thinking, and to stop thinking about all these zones as free for -- free fire zones where the U.S. can use its snappy new technology to kill without limitation.

We are causing ourselves to increasingly not only be the exception, but to create a dangerous world that is not good for us, for Americans. So, isn't the better way forward to shift that mentality to defensive, peaceful uses, and you can put that same -- you can protect that soldier, and my husband is a combat veteran, I'm all about defense, but if you think about what people like Andy Bacevich have been saying for years: the best way to protect our troops is not to put them in harm's way so often, and in such no-win situations.

If we could begin to shift to what we were supposed to do at the end of the Second World War, and have a Department of Defense, I think you'll see many of these legal issues go away. Yes, we'll always have the need to have a defense, I agree with that, but we certainly don't have to be doing the kind of really non-productive, counterproductive offense that that we've been doing.

And I think that answers your question, Ted. Yeah, let's just shift that money, both for norm development, but also tech development into what we need for protection.

MR. PICCONE: I'm coming back to you, Charlie.

MAJ. GEN. DUNLAP: Yeah, that resonates with me, you know, yeah.

MR. PICCONE: -- particularly on the design statement, at what point meaningful human controls apply, in terms of software?

MR. VAN DEN HOVEN: Now, I mean, we've had the same, we're facing, as I said, these problems in all sectors, big data, you know. So, there's an ecosystem, it's a multiplicity of numerous actors being involved in producing,

using, analyzing and sharing the data. Who is responsible for the outcomes, right? So somehow we have to help ourselves to a more sophisticated and richer notion of responsibility, and an ability to share that.

MS. O'CONNELL: Jeroen, can I, just briefly. We have such notions in regular peacetime law, we have notions of product liability.

MR. VAN DEN HOVEN: Yes.

MS. O'CONNELL: We already know how to hold a bad designer responsible, but it's a whole different thing if you're holding her responsible for an unintended failure of a defensive system, versus actually killing people unlawfully.

MR. VAN DEN HOVEN: Sure.

MS. O'CONNELL: So, you get out of that very difficult second parameter if you start thinking in these more day-to-day, but I don't think the Europeans have made that jump, despite their, you know, we all remember: they are Venus we are Mars. If you get out of that -- You know, I don't see the Europeans truly making the paradigm shift that the Holy See and others have in mind.

And I think you're capable of it, and I invite -- especially what you're doing, Jeroen, is so important. You've got this lagging NATO, we want to be as big as the U.S. in all these wham-bang, new technologies, that is destructive thinking.

MR. VAN DEN HOVEN: Right, and no I --

MS. O'CONNELL: And I think you're the person who can

persuade your colleagues to really make this happen (Laughter).

MR. VAN DEN HOVEN: Excuse me, no pressure, no pressure.

MR. PICCONE: It's all on your shoulders, right.

MR. VAN DEN HOVEN: But I agree definitely, at this moment in time, as also was mentioned in the introduction, this is a kind of geopolitical battle that is going on. And so, we seek kind of rivaling ideologies, rivaling conceptions of man, of society that are being harnessed and supported by this new digital technology, and playing -- being played at each other.

And so we have a Chinese model, we have a European model, we have a Russian model, we have a U.S. American model, and I think that Europe is sticking to its -- excuse the pun, but it's sticking to its guns. And I think it is really kind of investing in this, what you're mentioning, so every investment in R&D and technology should be a kind of a responsible innovation, it should be aiming at problems to solve, at positive kind of causes and aims, first and foremost.

And then we have to proceed and work towards that in a responsible and careful way. And that is the official policy in Brussels. And so they are repeating it, and reiterating it. With respect to this new digital dossier, including AI, and read the interview with Macron, and I don't want to kind of, you know, build everything on that on the basis of that interview, but I do think that that is kind of the spirit that is now in Brussels.

The European Commission is going to launch, in two weeks time, a big AI Initiative. It's going to be a huge flagship, and one of the first things that

they have been asked to do is to come up with a normative framework. And the normative framework is going to build upon the EGE Statement, European Group on Ethics Statement, on ethics and artificial intelligence, and also on the systems, that has that, you know, the Euro-desired, I think a kind of vantage point, you know.

MR. PICCONE: Charlie? Particularly on the offense/defense question, if you could --

MAJ. GEN. DUNLAP: Yes. That's a false dichotomy. And that's why, you know, it really struck me.

I think in an Elon Musk letter they talked about, that they're only opposed to offensive. Trust me, they really don't know that much about how militaries operate, because if the --

What's a policeman's pistol? Is that an offensive or defensive weapon? What's the MP5 that the Swiss Guards have that's being used to protect the Pope? That's also used by Special Forces all over the world. If we attack ISIS because they're turning Yazidi women into sex slaves, is that an offensive or defensive use? And so if we use an autonomous weapon for those purposes, is that an offensive or defensive use?

I think, Mary Ellen raises the whole question about, you know, when should we use force? That's a different discussion. What we need to focus here is how we can use, when we do decide through democratic processes, that force needs to be used, how can we do it most efficiently and effectively?

And I would suggest to you that it may be unethical and even illegal at some future point not to use an autonomous weapon system, because if you look at Article 51 of Protocol 1, that's in the Geneva Conventions, it requires commanders to use the method, the means or method which will be most protective of civilians.

And that often may be an autonomous system, because if people think that we have full control, any military on planet earth, since the beginning of time, has full control of what the human beings at the point -- at the pointed end of the stick, that are under extreme stress when people are shooting at them, are exercising all this deliberative compassion, and everything else, they don't know what real war is about.

And I would invite your attention too there's -- I have my students look at this all the time, and it used to be on YouTube, it's called "I'm Hit. It's a camera mounted on the helmet a soldier in Afghanistan where he's trying to draw a fire away, and he just pings -- bolts are coming in and he's firing back in a general area, that's the way things really happen.

And if you have an autonomous system that isn't going to be worried about being hit it will have the opportunity to apply force in a discreet manner. But what we have to do, and I would suggest, in terms of the engineering, it has to start at the very beginning.

And here's the challenge, you have to have legal experts who understand the technology. And right now we have all kinds of super-smart international lawyers, but if you don't understand the technology you're not in the

game. But the good thing is, because there are so many commercial applications of neural network technology there's going -- this is not something unique like a Manhattan Project that's only making nuclear weapons, this is something where there will be people in the community that can understand the law, and also the technology involved.

MR. PICCONE: Great.

MR. VAN DEN HOVEN: Can I just add?

MR. PICCONE: Yes. And then we'll open up to the audience.

MR. VAN DEN HOVEN: Very good points about this being everywhere. I mean you have that stuff on your smart phones and in your cars, right, so that gives rise to huge dual use issues. And the other thing is very important, and I also have to look at my own profession, you know, the ethicists, they were, you know, asleep in the last 20, 30 years, and they are waking up now to a completely new digital world.

And they didn't address like some of the lawyers, not all of them, of course you're the exception, but they didn't address it, and therefore we have, in part, the problems that we have now.

MS. O'CONNELL: I agree, absolutely. But I would say the bigger problem now is that we don't have the international lawyers, our students know all about tech, but we in this country have been moving away from education and from deep commitment to international law, I think that's our bigger deficit.

MR. PICCONE: That's why we are having this event. So, here are some hands. There are microphones coming. Please, tell us your name,

and where you're from if you'd like. And keep your questions short because there are lots of hands in the air. We'll start right here, this woman in the red, and then the gentleman at the end of that.

MS. HALPERIN: Hi. My name is Netra Halperin, with Peace Films. I wanted to add to the discussion between Mary Ellen and Charlie, in what is defensive and what is offensive, and I wanted to add into that, President Eisenhower's discussion on the military industrial, and he originally had congressional complex.

When is a country saying that it's about protection, and it's really about economic, or resource theft, basically, that they are doing the war. And I'm wondering, at The Hague, I know that the crime of aggression, I'm not sure exactly what the status is, but that that was considered a crime. And also about does the ICC -- how can the ICC start having influence over countries such as the U.S. that have not signed on to it? And how can the crime of aggression be stopped worldwide?

MR. PICCONE: Well, that's a whole new -- Again, I'm going to take a couple more questions; right, and this gentleman right here, yes.

MR. WINTERS: Steve winters, Independent Consultant. I direct this to Mary Ellen. This is a point, it didn't really come up, but you mentioned the possible leaking of, you know, AI from Defense Department out, and then you said -- well you asked about, well, what about antidotes to AI, are we looking for those. So I just wanted to ask about this point that Alan Musk brought up when he started his open AI Initiative, which was, it would be dangerous for one great

company, he has somebody in mind, or one, perhaps, Defense Department to have AI abilities way beyond everybody else.

And yet there's a big debate and a lot of resistance to the idea of everybody having AI, because then they say that's the bad guys will have AI, how does the ethics of that come out? And oddly enough, even President Putin said he wanted AI for everybody, in effect, i.e. not for us, the U.S. but for many countries.

MR. PICCONE: And we'll take one more before we come back to the panel. This gentleman right here -- oh, I'm sorry someone already has the microphone. Where's the microphone? We'll come back to you.

MR. McCARTHY: Thanks. My name is Mark McCarthy. I teach a course on AI and Ethical Issues over Georgetown, and my question has to do with the principle of proportionality, which is a rule that says you can't target a particular weapon unless the consequences in terms of civilian casualties are justified in terms of the military gain. What's the role of an AI system in making that kind of judgment? And is this principle of proportionality something that's relevant to the ongoing discussions in Geneva?

MR. PICCONE: Great. All right, Charlie, do you want to start, and then we'll come down?

MAJ. GEN. DUNLAP: Sure.

MR. PICCONE: An AI system is going to have to comply with the principle of proportionality, and the only way you're going -- and there's a good article that just came out by Ian Henderson and Kate Reese , it's at the Stockton

Center, where they talk about the reasonable commander standard, which is the law now for human commanders. And so an AI system is going to have to meet that standard.

How do you know? You're going to -- it's going to be an iterative process where they're going to have to continually test scenario after scenario so that they know that the system is going to be at least as good, if not better, than a human being making that judgment.

The problem now in international law is there's no international law, you know, detailed for every possible scenario, because it does come down to a reasonable commander in that circumstance, much as American Tort Law comes down -- you know, you have to, at some point there are factors that are unique to that circumstance where they'll be judged, and the international law is, you judge it from the point of the information that a reasonably well-informed commander would know, versus what may be, happen after the fact.

Because let's face it, we have weapons that go wrong, you know, now. I can tell you. We've had bombs where, you know, the fuse is very sensitive, where it didn't fuse, operate the way we thought, and many other instances, accidents happen. And sometimes terrible things happen in war for which there aren't responsibilities, because accidents happen in real life.

MR. PICCONE: Great. Jeroen, do you want to tackle any of these questions, like the opening the AI?

MR. VAN DEN HOVEN: The opening the AI one? Yes. So, there has been a lot of talk about ethics coming out of the of the big tech companies, a

lot of it actually, if you look at it, is a little bit of ethics washing. In Brussels they say, you know, as long as it's ethics, it's not regulation. So, that's good news.

And yeah, so I think the open AI doesn't preclude that people are still working in their own kind of spaces on the stuff that is really interesting, and that they will -- you know, will be able to squeeze some money out, you know, in the short run. Yes. I'm not impressed by all of the ethics that I've seen. No.

MS. O'CONNELL: Let me just add very quickly. In the history of arms control trying to keep your technology a secret has always failed. The best way, and the way that you can keep your country safe, is to invest in defense. So, that comes to your excellent question, and Charlie and I are just going to have to disagree on this.

We know when you have used major military force offensively, when you have violated the rules against resort to force, when you are responding to such a violation you're using it defensively. We have embedded in our law there's very -- different conceptions of offense and defense, so you can design, and I'm confident, that our colleagues in the AI world can help us create defenses to what they can imagine will be the offensive uses. And that I'm very much in support of as long as it's also being done with this clear-eyed view to the ethics that are involved.

And just very briefly, yes, the world continues to understand the importance of these rules on restricting resort to military force, when they just, last December, agreed to add to the International Criminal Court Statute the Crime of Aggression.

I was, however, somewhat disappointed, bad-news story because the U.S., which is not even party to the International Criminal Court, persuaded the other many members to only add a very diluted version of aggression in order to give continuing space for the U.S., because the U.S. fears, even where we don't have an actual treaty law, or we are not a party to a treaty, these norms escape.

And we, there I think very unproductively for our future, living as moral beings in the world, we took a -- we used our credibility to limit and we persuaded the Europeans for that. I hope it's going to be a new story, a different story for autonomous weapons.

MR. PICCONE: Yes. We are a little over time, but I'd like to go at least five minutes late. We started a little bit late, and this is such a rich conversation, if people don't mind. If you need to leave, please feel free, but there are a few more hands in the air.

But I want to build on it, when you come back the next round, this analogy to arms control, whether there's much more robust measures around transparency and confidence-building measures that we need to adopt and put into place here, so that we can start building a sense of trust among our competitors?

I have a hand here in the third row, yes, and then we'll come to you.

QUESTIONER: Thank you. My name is Liun Cheelo, I'm a doctoral candidate at Georgetown Law. I have two questions.

MR. PICCONE: Short.

QUESTIONER: I'll make them short. So, the first to the Major General; I heard there are two presumptions in what you spoke of; one, these systems are weapons, and the other that the Law of Armed Conflict applies. And my question will be, and we heard that a little bit of it now, you talked about proportionality and distinction and how something needs to apply these norms. But you were talking about these weapons that need to apply as these norms? Then normally speaking weapons are not applied with proportionality and distinctions, commanders do. Isn't that telling as to these things are not really weapons, maybe they are something else?

MR. PICCONE: So, I'm going to pause on that one questions. We'll take two more; just because in the interest of time; this woman in the green scarf, and the gentleman in the blue shirt.

MS. RADIN: Hi. Thanks. I'm Sasha Radin, Managing Editor of the ICRC, Humanitarian, Law and Policy Blog. Thanks to all of you. I just have a quick comment based on my previous job at the U.S. Naval War College, Stockton Center. Lieutenant Colonel Chris Ford did write that article in his personal capacity, as all the articles there are written. And I just want to say that. Thank you.

MR. PICCONE: Okay. The gentleman in the blue shirt with his hand up there, raise your hand.

QUESTIONER: Hi. I'm Matt Hansel, I'm a grad student at the University of Maryland, in International Security and Economic Policy. My

question is, given the chief countries leading in AI, like the U.S., China, Russia, U.K. and Israel, how will the regulatory frameworks need to change in order to accommodate rising powers such as China, given that they see a lot of past international laws as against their interests?

MR. PICCONE: Okay. Charlie, do you want to start, and then we'll go back again.

MAJ. GEN. DUNLAP: Just real quickly. You're absolutely right, commanders have to make the -- you know, are responsible for using means and methods of warfare, you know, in compliance with distinction, proportionality, and so forth. But when you look at the Article 36 Reviews that are required on your Protocol 1, Article 36, I'm not talking about the NGO, I'm talking about Article 36, of Protocol 1. That requires the weapon to be able to be discriminate, and to be able to comply with proportionality.

So, that's why I -- and they are weapons in my view. There are other people who will argue that their means and methods of warfare, you get to the same place but if I'm somebody wants to say that I'm fine with that, so.

MR. PICCONE: And we'll make this a final set of comments. So, if you have anything else.

MR. VAN DEN HOVEN: Yes. Just to your point that I think international law, as we said before and especially in this realm of artificial intelligence, and coming back to The Hague's position and your offer to be a platform in a place were where we can accommodate these kinds of talks and discussions. I think this is very much needed, you know, public, international

law, and all branches of law, human rights law.

I mean they have to really rise to the occasion and step up to the plate, because I haven't seen very much on this. You've mentioned the sources.

MS. O'CONNELL: Right.

MR. VAN DEN HOVEN: I mean, you know, there's going to be a lot of debate. We are together with Oshar Institute in setting up a study that explores, you know, the possibility of running a big conference in The Hague on this topic. So, that's, I think, very much needed.

MR. PICCONE: A lot more work to do.

MS. O'CONNELL: If I could. First, thanks to Sarah, the Lieutenant. And my point was just that I guess his article is quite consistent with what U.S. views were, and not that they are the U.S.'s views, important distinction. Thank you.

But I wanted to say just as the last, this area is challenging all of us, so again compliments to Ted. It's challenging, it's really showing where our failings have come about within my area, international law. We've been very focused on a narrow view of human rights, we are very focused on creating new exceptions to the law of self-defense, we've lost sight of what really makes law law, how we can have law for a global community, and that's where our challenge is.

And so, you know, we are being brought to that challenge through these new technological developments, it's long overdue, and I hope this is going to be one of those positive and constructive discussions on that road.

MR. PICCONE: I was going to make a final point that's rather grim, and that was such a positive note.

MS. O'CONNELL: Yes. Let's end there.

MR. PICCONE: But I do want to keep in mind, this overwhelming concern that I've heard repeatedly about China's advantages in this space, because they are able to use data, big data in a way that frankly our democratic societies are reluctant to use. They're using it for social controls, but it can be easily weaponized in a faster rate, because AI is all about learning based on your data applications.

So, we do have I think a serious geopolitical problem on our hands, we, here at Brookings will continue to try to work on that angle, working with all of you.

And thank you very much for coming. We look forward to the next event. (Applause)

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