*Honourable Mayor of the City of Ieper, Emmily Talpe,*
*Honourable Members of the City Council*
*Dear representatives from the Campaign to Stop Killer Robots,*
*Dear residents of the City of Ieper, the city of peace –*
*Dear friends and colleagues*

*And a warm welcome to those watching on the lifestream*

*On behalf of the Peace Prize Committee of the City of Ieper*

Let me start with a quote:
*Thinking this will prevent war, the US government gives an impenetrable supercomputer total control over launching nuclear missiles. But what the computer does with the power is unimaginable to its creators.*

I recently started a presentation on emerging technologies with this, and asked the participants to guess where and when this came from. There were many guesses from the group — an international group of diplomats – from names of current politicians to books - but no one knew the answer. No one came close to the date either:
1970 – half a century ago
A movie called "The Forbin Project"

In the movie, the Soviet Union also puts a robot in charge, but the surprise for both American and Soviet leaders is that the 2 supercomputers – Colossus and Guardian – get along well and develop a language which humans don't understand, due to speed and the use of complex mathematics.

Fast forward to 2017, when a story surfaced in the media that 2 computer bots started communicating in a language humans couldn't understand. While in that case it was possible to correct the programming, this illustrates the larger question of the relationship between humans and machines, and whether we can lose control.

Another movie, illustrating the potentially disastrous consequences of machines malfunctioning (and machines do malfunction from time to time, as we all know from everyday life):
*The man who saved the world* about Lieutenant Col. Stanislav Petrov: It's 1983, a detection system for nuclear missiles in the SU misinterprets sunlight as incoming missiles and transmits this to the command centre. The officer-on-duty Petrov decides to act against orders and operating procedures (defy what he was trained and expected to do: to communicate this to the leadership to initiate retaliation strikes). This could have been the start of a nuclear war, and the end of the world as we know it, but fortunately it didn't come to this, and we are all still alive today.

Let's take it one step further, and add other technologies to the mix: At the SSC this week we had a session on the *Human Mind as a Battlefield*, and the discussion by a leading expert talked about supersoldiers; linking brains to computer to enable humans to process more

information; and enabling machines to extract information from human brains. All very much reality, not Sci Fi movies.

This leaves everyone, from concerned citizens to scientists and policy-makers, with the question: What is Science, and what is fiction? And there is even research on how SciFi might shape the thinking of engineers and lead to future innovations.

It's difficult for scientists to predict the civilian and military uses of technologies they develop, even more so when you combine certain technologies: cyberhacking of command and control for nuclear weapons (the topic of another session at the SSC this week).
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It is never too early to think about appropriate forms of governance and regulation. This can be in form of research ethics, responsible innovation; codes of conduct in industry; national laws; international law.
The question then is: Where do we need guidance, where do we need laws, and where do we need prohibitions.

In the case of autonomy in weapon systems by applying different aspects of AI such as machine learning and robotics to weapons – this became a concern for a number of NGOs and individuals, which lead to the **Campaign to Stop Killer Robots**, founded in 2012 and publicly launched in 2013.

I had the great honour of being on peace prize committee of the City of Ieper, on behalf of SIPRI in 2019. 48 individuals and organisations were nominated – it was a tough selection process to narrow it down to 5, all representing very worthy causes. As the mayor explained:

Every individual and every organisation that has made an outstanding contribution in one or more of 4 fields is eligible:

- *banishing of war as an instrument of policy in international politics*
- *organised destruction of weapons of war*
- *removal of the causes of war*
- *creation of conditions for peace.*

**The goal of the Campaign to Stop Killer Robots is:**

- to ensure meaningful human control over the use of force by:
- prohibiting and regulating the development, production and use of autonomous weapons, also referred to as LAWS lethal autonomous weapons systems, as AWS autonomous weapons systems or killer robots.

- The campaign demands that the development, production and use of fully autonomous weapons be banned.

A number of countries are developing weapons systems with significant autonomy in critical functions: selecting and attacking targets.

This is considered problematic for a number of reasons:
- **Ethical concern**: should machines be given the power to kill; should decisions about human life be delegated to machines?
- **Military** wants predictability when they use weapons -
- **Legal questions**: From an IHL perspective: the laws that apply in armed conflict, certain principles must be respected, such as the proportionality of an attack; distinguishing civilians from combatant. The difficult question is: Can IHL be applied if weapons have autonomous functions, and if so, how?
  And another issue is the accountability gap: if an individual, or humans representing a state violates IHL, they might later be prosecuted. But obviously you cannot prosecute a machine. So whom do you take to court: **the computer programmer, manufacturer, commander?**

This gets even more complicated with the increased speed and complexity of warfare – hypersonic weapons; and increasing amounts of data which no human can process. As a result, there is less and less time for military decisions, which increases the pressure to rely on machines.
This is why some have used the term 'Meaningless HC' or 'illusion of human control'.

Autonomy – not a question of yes or no, but different degrees of autonomy, in different functions of a weapon, ranging from remote control (such as drones), to attacks you can launch but still cancel or recall, to fully autonomous systems which you cannot stop or recall once it has been launched.

Experts speak about the human in the loop, the human on the loop, or no human intervention.

*The diplomatic negotiations on this topic take place in Geneva at the UN, in the framework of the CCW. What struck me when I gave an expert briefing there a few years ago, that the issue seemed to get to diplomats personally, and with many, from the way they spoke and intervened, it was very clear that it touched them as individuals and humans – they were not just giving statements on behalf of their governments.*

The creation of the Campaign to Stop Killer Robots reflects very much a global concern about these broad issues. By now you have over 180 members in 66 countries – some operate at international level, at regional, some of them are national campaigns, some organisations working on human rights issues (AI and HRW), some on women's rights, religious – e.g. World Council of Churches.

So you brings together a diverse group of people from a broad range of backgrounds with whom this issue resonates, including young people.

This was demonstrated by the students of Ieper having voted for the campaign from 5 candidates. Thousands of teenagers living in Ypres cast their vote, after learning about these 5 candidates at school.

Interestingly, the percentage of votes for the campaign was particularly high at the technical school – which highlights the importance of awareness raising of potential risks and misuses of technologies in the natural sciences. It also shows that this group reflects on ethical issues. Perhaps we should make courses on research ethics and technology risk assessments mandatory for students of natural sciences around the world.

**I asked colleagues from the expert community on LAWS what the campaign has achieved? The responses focused on 4 achievements:**

- The Campaign played a key role in putting LAWS on the international agenda through early, persistent and innovative work
- You have also shaped the debate: notably you have highlighted legal and ethical concerns and the concept of Meaningful Human Control
- You have also promoted diversity of views in the debate at the UN, including the global south and voices from industry
- You have made LAWs a subject of public debate and moved it from a debate among experts into the public domain, and thus mobilised civil society and individuals.

This peace prize ceremony also concludes SSC 2021, organised by SIPRI on the topic of Battlefields of the Future. This peace prize very much creates a link between the future and the past. It is very important to connect back to Battlefields of the Past, and highlight the importance of remembrance and learning from history – something that humanity hasn't been very good at.

***To conclude**: The relationship between humans and machines is a very fundamental question that goes to the core of what humanity is, and I very much hope that humanity will learn. What gives me hope for the future and reason for optimism is the fact that young people have selected the issue of killer robots for the peace prize which means they care about these fundamental questions.*

*So, on behalf of the Peace Prize Committee of the City of Ieper:*

*Warmest congratulations to the Campaign to Stop Killer Robots for being awarded the Ieper Peace Prize.*