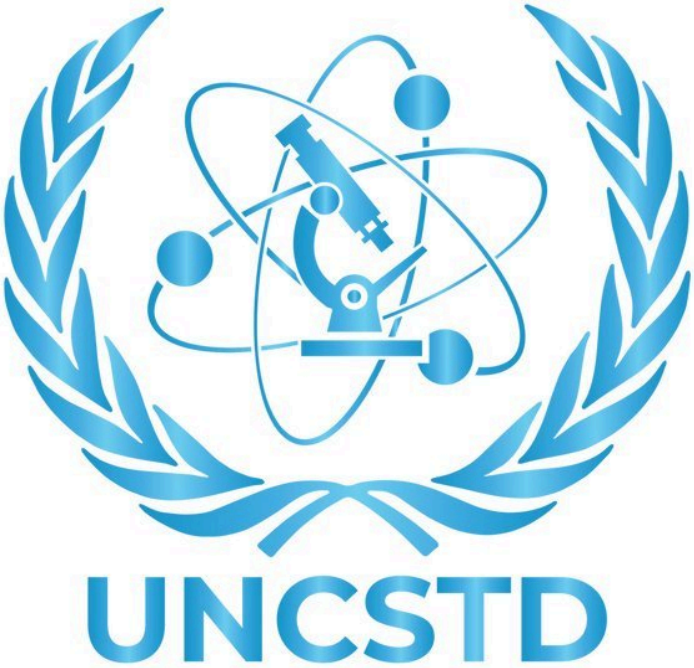
MADMUN XV

The United Nations Commission on Science and Technology for Development



Chairs: Henry Boldt and Michael Pelzer

Sim: Jackson Ida

Letter from the Chair

Dear esteemed delegates,

On behalf of the UNCSTD oversight team, we welcome you to this year's Madison Area Model UN Conference. We are thrilled that you are all in this committee, whether by selection or assignment, and hope your experience in the Commission on Science for Technology and Development will be one that is enjoyable while also sharpening your skills as a delegate.

During the duration of this committee, delegates will collaborate and debate on important issues surrounding the future of science and technology. We expect that all delegates will maintain decorum during both unmoderated and moderated caucuses, and expect delegates to keep their resolution ideas within a reasonable scope to maintain the integrity of this specialized commission. We look forward to articulated speeches, productive compromises, intelligent note passing, and the formation of like-minded blocs. Standard MUN Parliamentary Procedure will be followed.

The UNCSTD will be run as an intermediate committee, with our sim providing updates that will influence debate at various times throughout the day. Note passing is permitted, however; there will be no staff available to facilitate that operation. Please label notes clearly, so your fellow delegates know where to

deliver them to. Like always, pre-written working documents are NOT PERMITTED.

The UNCSTD is a specialized committee, meaning that not all member states are represented. Make sure that if your country has any allies that are not represented with special interests regarding the topics, those interests are expressed through the agenda that your delegation puts forth. This committee is non-historical, so any and all developments regarding either of the topics leading up to or during the conference can be referenced and built upon.

We sincerely hope that the experience we have created for you is thoroughly enjoyable and productive.

Best regards,

Henry Boldt

Michael Pelzer

Jackson Ida

Committee Overview

The UNCSTD was formed in 1992 as an offshoot of the Economic and Social Council as a subsidiary body tasked with discussing advancements, outlining challenges, and ensuring equity regarding science and technology. Now, the CSTD is the premier global forum for collaboration, negotiation, and policy formation for all developments and issues within the science and technology sector.

The main objective of the CSTD is to facilitate discussion that ensures the sustainability and ethicality of both new technologies that have yet to be facilitated, and previously existing technologies so that they are safe, optimized, and available to a widespread group of people. Typically, the CSTD discusses technologies like data analytics, the internet and computers, biotech, and medical technologies, among others.

The CSTD works closely with ECOSOC, UNCSW, and UNESCO to achieve their initiatives, and often advises these bodies with information from CSTD summits. By providing a platform for discussion on the future of science and technology, the CSTD makes it easier for developing countries to become informed on and gain access to advanced technologies, further developing their status as a nation.

Topic I: Ethics of Bringing Back Extinct Animals

Background

Almost every single living organism that lives on planet Earth goes extinct. In fact, scientists estimate that over 99.9% of all organisms that ever existed on our planet are now extinct. With this discovery, a natural curiosity arose among scientists: What if we brought them back?

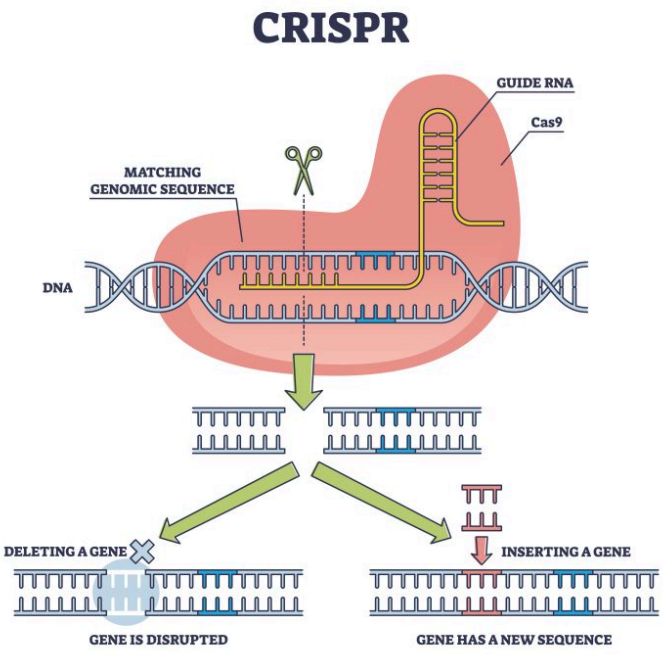
In 2009, a team of researchers in Northern Spain successfully cloned the once-extinct Pyrenean Ibex or bucardo. The scientists used goat eggs, surrogates, and genetically modified goat DNA to achieve this result. While the bucardo died 10 minutes after birth due to a lung defect, this result kickstarted a wider, global campaign to bring back extinct species through genetic engineering.

There are many ways that de-extinction can be carried out, but the most common is cloning. Other methods include selective breeding and genetic modification. Cloning usually begins with a preserved set of the extinct animal's DNA, usually preserved in permafrost or amber. The nuclei containing the preserved DNA are then inserted into an empty egg of the organism's most closely related living ancestor. Rinse and repeat until a birth of the once-extinct animal is successful. Selective breeding is fairly straightforward. Scientists breed closely related animals together over and over again until a "new" (previously extinct) species is created. This method is far less successful and exponentially more

time-consuming than others. Genetic modification is also a possibility for bringing back extinct species, a process that involves manually changing the bases in a closely related animal's genetic code to replicate the extinct animal.

Current Situation

Currently, many teams in various countries are working to bring back a plethora of animals. Teams in Australia are working to bring back the Tasmanian tiger and southern gastric-brooding frog, while researchers at Harvard are working on the de-extinction of the wooly mammoth. In 2016, the Nobel Prize-winning method of genetic modification CRISPR-cas9 was discovered and continues to be the leading method for genetic engineering.



According to the National Institutes of Health, "CRISPR/Cas9 is a gene-editing technology which involves two essential components: a guide RNA to match a desired target gene, and Cas9 (CRISPR-associated protein 9)—an endonuclease which causes a double-stranded DNA break, allowing modifications to the genome (see figure 1)."

Conclusion

While the novelty of cloning and bringing back extinct animals is exciting, the technology is still very new and highly unsuccessful. It will require much more time and energy in order to become commonplace in our society. Currently, only very specialized teams have access to this technology, and it will remain this way until the technology develops further.

Beyond its status of novelty is the issue of ethics surrounding this process. Is it okay to intervene with natural processes? Or should we just bring back animals that humans have hunted to extinction? What about the ecological impacts of artificially reintroducing animals abruptly back into ecosystems? Many questions remain, and few common answers have been formed. During this conference, one of the objectives of the UNCSTD will be to outline ethical guidelines for de-extinction and determine how, when, and where these operations can take place.

Questions to consider

- *Does your country deem it appropriate to intervene with the natural process of extinction?*
- *Would bringing back extinct species be helpful or detrimental to the environment of your country?* (Depending on the country and reintroduced species, it could be either.)

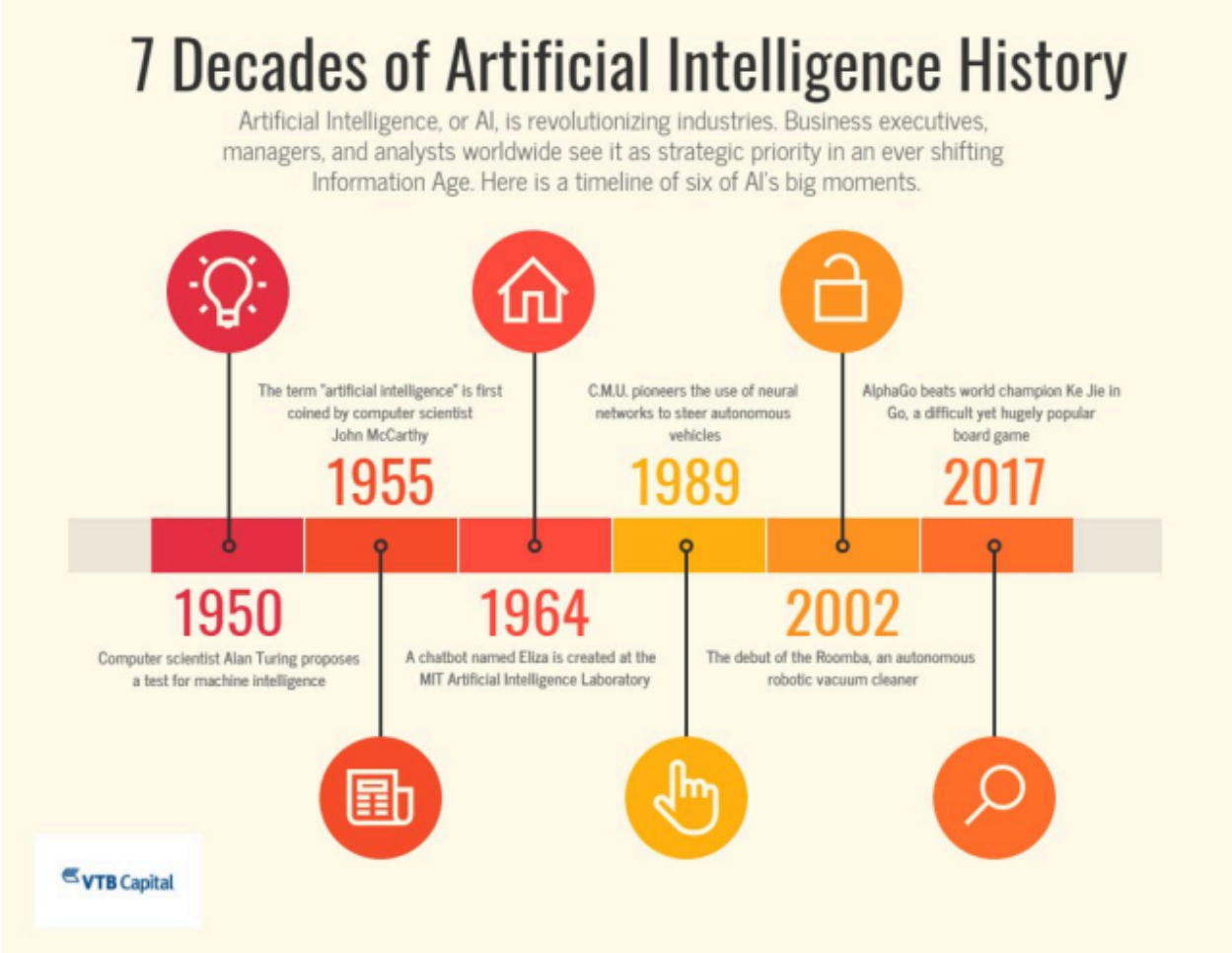
- *Is the current environment of your country fit to host previously extinct animals?* (Oxygen percentage, temperature, food supply)
- *Are there any specific animals that your country would consider high on the priority list for bringing back? How and why?*
- *How far, if any at all, is the development of cloning and genetic engineering in your country?*

Topic II: AI Capabilities

Background

In 1952, a computer scientist named Arthur Samuel created what is believed to be the first example of computational machine learning: a program that could learn to play checkers on its own. In 1955, John McCarthy coined the term "artificial intelligence," and its development began. Throughout the 60s and 70s, AI began to become more commonplace in scientific and technological settings. Things like assembly line machines could learn from mistakes and optimize efficiency, while at the same time, things like chatbots and AI psychotherapists began to emerge. The Standford Cart, invented in 1961, successfully maneuvered a room full of chairs without human interference by just 1979. The early 80s were a promising time for AI, with commercial applications developing for the workforce, such as AI business managers and component configurators for

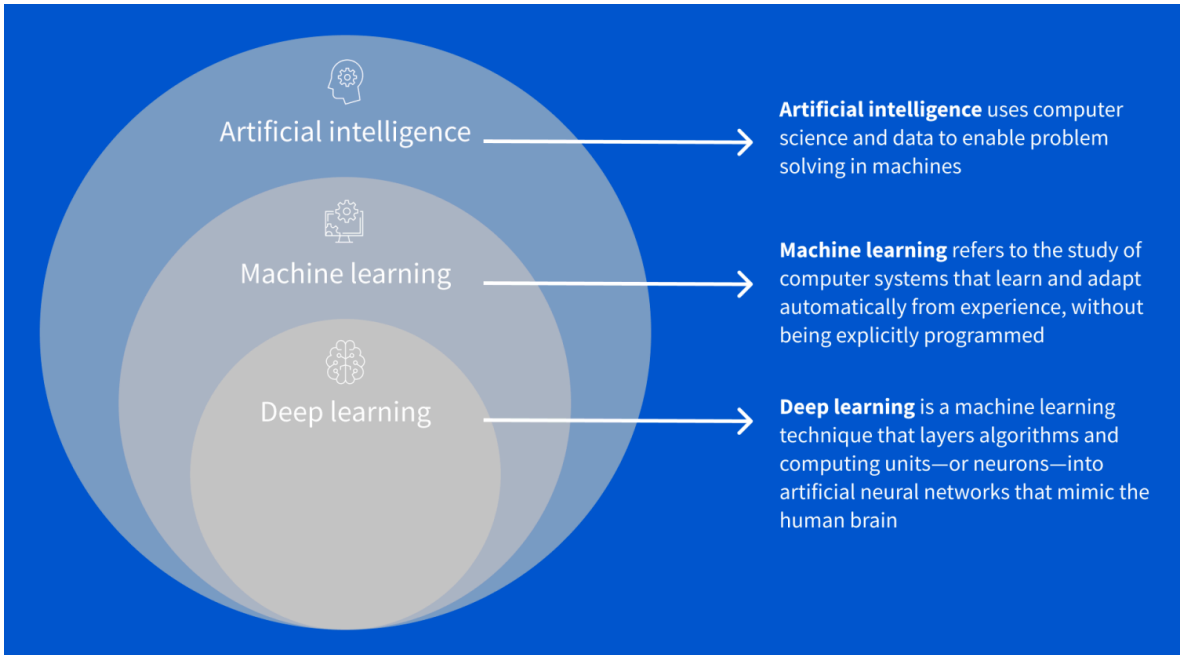
customers. AI then went through a slow period of development from 1987 to 1993, but picked back up where it left off after this period, dubbed the “AI winter.” Contrary to the secluded, privatized research and development period that AI had undertaken up until this point, AI capabilities in the late 90s and 2000s were much more apparent to the public. In 1997, a program developed by IBM beat a grandmaster in a chess match, and in 2000, the KISMET humanoid could replicate human emotions. In 2011 IBM’s Watson and Apple’s Siri were released, kickstarting the popularity of general artificial intelligence for the public.



Current Situation

Today, artificial intelligence is extremely present in many people's lives. Many people now turn to programs such as ChatGPT for help with homework or essays, or utilize programs such as the Dall-E image generator to avoid copyright issues or to create custom images. These programs belong to a category of AI called generative AI. This is a type of artificial intelligence that creates new, never before seen material based off of a dataset, or off of the entire internet. In a moment's notice, generative AI can write an entire essay, finish math homework, or even create music, right on devices that most people have like smartphones or laptops. We'll revisit generative AI in a moment, but first it is important to classify a few terms and definitions.

AI vs. Machine Learning vs. Deep Learning



Artificial intelligence is the broad term for all computer programs that solve problems. These programs utilize datasets and computer science to solve problems, and can refer to a wide variety of services. Things such as chess bots and specialized prediction software fall into this category.

The distinction between AI and machine learning comes with the addition of human input. Machine learning programs learn from being fed streams of data. While these programs are capable of learning and adapting, they require input in order to learn. A good example of machine learning is the YouTube algorithm. Over time, it learns the type of videos that users want to watch, but not without seeing them watch those videos first. Spotify's and Apple Music's music recommendation algorithms run on similar bases.

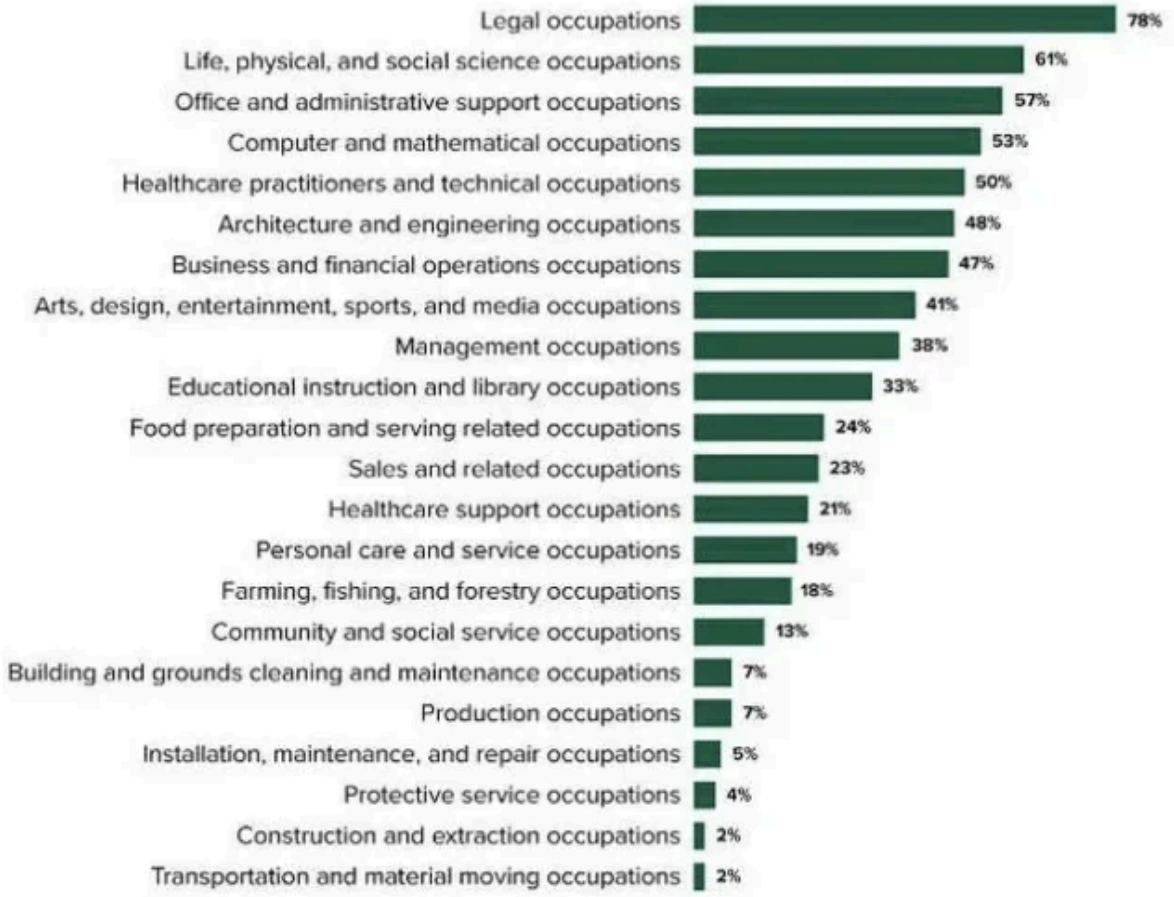
Finally, comes the newest and most concerning form of AI: deep learning. This type of AI learns from its mistakes and corrects itself without human intervention. For example, a deep learning program tasked with passing the bar exam may fail on its first attempt, but pass after 100 attempts with NO human intervention or training. MuZero, a deep learning program, can master games like Atari, chess, and Go without even needing to be told the rules after a certain amount of experience playing the game. This is similar to how human brains function and gain experience as they get more practice at a task. Previous chess bots like DeepBlue worked off of a dataset that contained every possible outcome

in a game of chess, but deep learning programs do not have these resources. Instead, they are provided with an objective. These programs are designed to analyze a situation and provide increasingly better results over time. When ChatGPT and the Dall-E image generation algorithms were first released, text responses were often incomprehensible and lacked human-like tone, while AI-generated images couldn't really get faces, words, or hands to look like anything at all. Today, by learning from their previous mistakes, these programs are exponentially better. ChatGPT's text responses are much more clear and concise, and Dall-E can effectively generate clear words and faces. Shown is a recent image of Pope Francis wearing a Balenciaga coat. While this image looks strikingly realistic, this image was created by generative AI, running off of only a few years of deep learning.

Concerns over generative AI and deep learning

While there are many amazing applications for AI in fields like data analysis and medicine, generative AI raises plenty of ethical concerns. To begin, deep learning programs have often been found to develop blind prejudice against certain groups of people. Amazon abandoned its AI hiring program because it was biased against women, and when asked masked questions about race issues, generative AI often responds

with unjust responses. While they are not engineered to be biased, generative AI programs are not human, and therefore are frequently biased. Overcoming biased AI programs is a major hurdle for implementing otherwise helpful programs into the workforce. Secondly, AI has the potential to stage major labor disruption. For example, in 2023, actors in the SAG-AFTRA union staged a strike over the rise of AI and the potential it has to replace acting jobs. This strike continued for many months until protections against AI were included in their contract. Generative AI can create art, music, video, literature, and much more at the press of a button, damaging the integrity of a respected field. Legitimate artists who are competing with AI "artists" find it hard to keep up with the rate which AI can produce art, while up-and-coming musicians have to compete for their audiences against AI music. Additionally, AI deepfakes are becoming mainstream and can be used to easily spread misinformation. Aside from the arts, AI has the potential to replace many monotonous jobs that can be done with existing methodologies, such as accounting, data entry, factory work, chauffeuring, and engineering, and in a few years, when AI is more developed, it could replace just about any job there is. In order to protect human jobs, protections for easily replaceable positions must be implemented. The graph below shows jobs that are likely to be replaced by AI.



Next, AI is still extremely prone to making mistakes. If someone is turned down for a car loan by an AI program with no reasonable explanation, subsequent lawsuits and distrust in companies may follow. Or, an AI teacher may teach students blatantly false information. If AI is to become commonplace in commercial and educational settings, it must be fully developed and mistake-free. Currently, the development of AI is moving far too fast for the workforce, for researchers, and for the companies creating the AI themselves. Rushing AI into society could result in many unintended consequences. Another ethical concern

with generative AI that delegates of the UNCSTD may be familiar with exists in the classroom. Generative AI and deep learning models can complete both summative homework and some formative work like essays at the click of a button. While AI detection services exist, it takes much less effort to generate an AI essay and then mask it from the detection service than to actually write an essay.

Although most schools currently have basic policies regarding AI, they won't be able to run from it with entry-level policies with little clarification or research for much longer. The UNCSTD needs to look ahead and provide future outlooks and guidelines for generative AI in the classroom. Lastly, while it may seem silly, AI could become smarter than the human race. This ties into the previous concern about the rapid development of AI. If we create a solid, self-correcting, deep-learning AI system that continues to get more and more intelligent, at what point does it become more computationally advanced than the human brain? Many may think, "So what? We have a smart computer at our disposal." If humans control AI and limit its resources and the things it can tap into, sure. The thing is, AI is designed to take the most efficient means possible to complete a goal. Say one tasks an advanced AI model with ending climate change. The moment that an AI model has access to

real-world things like military supplies or humanoid robots, and they realize that removing humans is the most efficient route to ending climate change, it will attempt to do so. While this scenario seems far-fetched, militaries around the world are already using artificial intelligence, and it is essential that those programs do not become compromised. The UNCSTD needs to discuss how to protect the use of AI in militaries from exploitation.

Conclusion

While generative AI and deep learning are in their early stages of development, there are many ethical concerns regarding their development and implementation in society. The UNCSTD needs to take into consideration these concerns and implement policy that ensures the sustainable development of AI, while not limiting the positive good that AI can also bring in the medical and research fields. Not all countries harbor companies that develop AI, but virtually all countries have access to AI and feel its effects. Member states must set sustainable development goals for the development of AI going forward.

Questions to consider

- *Is your country a major developer of AI?*
- *Which industries are hit the hardest by the effects of AI in your country? Why?*
- *Does your country have any existing legislation or regulations regarding AI? If so, have these laws been successful thus far?*
- *What international policies does your country recommend implementing regarding the development of AI, if any?*
- *Have there been any labor strikes in your country regarding AI? If not, has your country felt the effects of any labor strikes regarding AI that took place in other countries?*
- *What is your country's stance on AI in the classroom?*

Position Papers/Awards

After the UNCSTD's committee time has expired, awards will be decided upon by the dais staff. The awards are as follows: Best Delegate, Outstanding Delegate, Best Position Paper, and Honorable Mention. In order to be considered for an award, delegates must turn in a position paper by Saturday, October 26th at 11:59 PM that meets the following requirements:

- Size 12 font
- Times New Roman
- Double-spaced
- MAXIMUM two (2) pages (one page per topic)
- Delegate's name, school, committee, and the country they are representing
- Addresses the topics and most of the questions to consider
- Accurately reflects the standpoints of the delegation being represented
- Emailed to BOTH 27boldthe@waunakeecsd.org and 25pelzermi@waunakeecsd.org (make sure to check permissions, so the chairs can view it)
- Officially submitted via the Google form linked to the UNCSTD's homepage at madmun.us

Delegates who elect not to submit one will be deemed ineligible for awards consideration. More information regarding position papers and awards can be found in the 2024 MADMUN Delegate Guide.

Positions (30)

North America (2)

United States of America

Canada

Central America/Caribbean (2)

Cuba

Belize

South America (4)

Peru

Colombia

Ecuador

Brazil

Europe (8)

France

United Kingdom

Switzerland

Finland

Austria

Hungary

Latvia

Portugal

Africa (5)

South Africa

Botswana

Algeria

Cameroon

Egypt

Middle East (3)

Turkey

Saudi Arabia

Israel

Asia (6)

China

Russian Federation

India

Uzbekistan

Japan

Philippines

Works Cited

"5 AI Ethics Concerns the Experts Are Debating | Ivan Allen College of Liberal Arts." *Iac.gatech.edu*, iac.gatech.edu/featured-news/2023/08/ai-ethics#:~:text=AI%20and%20human%20freedom%20and%20autonomy&text=AI%20systems%20can%20be%20used.

"About the CSTD." *UNCTAD*, 2023, unctad.org/topic/commission-on-science-and-technology-for-development/about#:~:text=In%201992%20the%20General%20Assembly. Accessed 21 July 2024.

Biswal, Avijeet. "7 Types of Artificial Intelligence That You Should Know in 2020." *Simplilearn.com*, 11 Feb. 2022, www.simplilearn.com/tutorials/artificial-intelligence-tutorial/types-of-artificial-intelligence.

Coursera. “AI vs. Deep Learning vs. Machine Learning: Beginner’s Guide.” *Coursera*, 11 Aug. 2022, www.coursera.org/articles/ai-vs-deep-learning-vs-machine-learning-beginners-guide.

Fox-Skelly, Jasmin. “How Extinct Animals Could Be Brought Back from the Dead.” *BBC*, 15 Jan. 2023, www.bbc.com/future/article/20230113-how-extinct-animals-could-be-brought-back-from-the-dead.

“Gen AI vs. Traditional AI: Understanding the Differences.” *Www.ourcrowd.com*, www.ourcrowd.com/learn/generative-ai-vs-traditional-ai#:~:text=Key%20Highlights. Accessed 28 July 2024.

“How Mammoths Could Be Our Surprising Climate Saviours.” *BBC Reel*, www.bbc.com/reel/video/p09cdh9z/how-mammoths-could-be-our-surprising-climate-saviours.

Lowe, Lindsay, and Candice Williams. “What Is the SAG-AFTRA Strike and How Will It Affect TV Shows and Movies?” *TODAY.com*, 13 July 2023, www.today.com/popculture/hollywood-actors-sag-strike-2023-explained-rcna94122.

“Mass Extinction: What Happened 65 Million Years Ago? | AMNH.” *American Museum of Natural History*,

www.amnh.org/exhibitions/dinosaurs-ancient-fossils/extinction/mass-extinction#:~:text=A%20wide%20range%20of%20animals.

McKenna, John. “This Animal Went Extinct Twice.” *World Economic Forum*, 11 Dec. 2017, www.weforum.org/agenda/2017/12/bucardo-goat-went-extinct-twice/#:~:text=Cloning%20the%20bucardo. Accessed 21 July 2024.

Redman, Melody, et al. “What Is CRISPR/Cas9?” *Archives of Disease in Childhood - Education & Practice Edition*, vol. 101, no. 4, 8 Apr. 2016, pp. 213–215, www.ncbi.nlm.nih.gov/pmc/articles/PMC4975809/, https://doi.org/10.1136/archdischild-2016-310459.

Strauss, Bob. “Meet the Auroch, the Giant Prehistoric Version of an Ox.” *ThoughtCo*, 20 Jan. 2020, www.thoughtco.com/auroch-1093172.

tableau. “What Is the History of Artificial Intelligence (AI)?” *Tableau*, 2024, www.tableau.com/data-insights/ai/history#:~:text=Birth%20of%20AI%3A%201950%2D1956&text=The%20term%20%E2%80%9Cartificial%20intelligence%E2%80%9D%20was.

University of Utah. “The History of Cloning.” *Utah.edu*, 2009, learn.genetics.utah.edu/content/cloning/clonezone/.