World Council: Ethics of Technology

Model United Nations at UC Davis

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Letter from the Head Chair

Welcome to DMUNC XV and the World Council: Ethics of Technology! I am honored to be your head chair on this journey through ethical dilemmas relevant to today's society and the near future. I am a 4th year Computer Science student here at UC Davis. As a first generation, American of Hungarian and Serbian descent I enjoy cooking dishes such as delicious csirkepaprikás to savory gibanica. I enjoy the occasional enthusiastic walk, gaming, and traveling when my finances allow it. I have been a member of MUN for three years. I started as a sophomore, ascended to USG of Technology and Operations, and now lead your committee as head chair. I have served as crisis director, head chair and other staff positions for AGGIEMUN, DMUNC, and CCCMUN. During DMUNC XIV I was head chair for a specialized GA on cybersecurity and big data.

I endeavor to make this a dynamic and exciting crisis that prompts debate on several current and soon-to-be issues in computer science and bioengineering. Already, human genetic engineering trials are being conducted. The technology is crude but there is much room to improve on its elegance. Prosthetics are being developed to improve the lives of the disabled, but it is not too much of a stretch to imagine prosthetics that are an improvement above the human baseline. Development of weak AI is being driven by the advertising industry, gaming, driverless cars and automation. The aim to create machines that exhibit rational behavior and learn patterns will transform many fields and destroy many industries. We live in interesting times and here you will explore these issues.

Zoran Rade Dabic
Head Chair of the World Council: Ethics of Technology
DMUNC XV

Letter from the Crisis Director

My name is Jeremy Khoo. I am a senior in Applied Mathematics here at UC Davis, and the current Undersecretary General of Finance for the MUN club that runs DMUNC. This will likely be my final conference before I graduate, and I will take this opportunity to be the Crisis Director as one of my most important undertakings thus far. I hope to engage each and every one of you through the discussion and crises that will occur.

New technologies are being developed at a dizzying pace. Anyone attempting to keep track of the developments in medical science, computer science, entertainment, and other areas will likely miss a few of them. We have yet to consider many ethical questions regarding said technology It is easy enough to envision a world where we can relax in a self-driving car; it is not as easy to determine what the proper behavior for that car is when the possibility of a collision with a pedestrian occurs. Indeed, this one simple example has no real answer; there are multiple ways of "solving" the problem.

Many questions that this committee will face will not have "simple" solutions. Something as mundane as the replacement of limbs can have effects that, while not immediate, still impact society. Our head chair, Zoran, and myself are hoping that you can see that there is more to technology than just how to use it. Technology, ethics, how society functions, and more, all intertwine to create the world and its issues.

We hope that, even in the absence of a simple solution, this committee will prompt you to think long and hard about technology and how to resolve the many issues to come.

Jeremy Khoo
Crisis Director for the World Council: Ethics of Technology
DMUNC XV

Introduction

The World Council: Ethics of Technology (WCET) has broad power to influence

society and affect policy change the world over. As an individual, you will be invested with

power and influence based on your role. In a moment of self-reflection, and fearing the

unrestricted growth of technology allowed during the War, the three remaining super

states, Southern Union, Eurasian Alliance and the United Americas, created this council and

invested it with real power. Premier experts and important representatives were brought

in to provide insight into the technologies addressed and the society those technologies

would affect. Corporations such as Alphabet and Genentech have gained great power

through the War and are here to represent their interests.

Crisis Rules

Each hour of committee time will correspond to approximately 5 years of real world

time. Each delegate will have a certain amount of resources allocated to them to be used

during the committee. These resources will depend on the delegate and range from

finances to operatives that can be sent to do various tasks. Certain delegates will have the

ability to influence policy changes that will occur during the committee, while others will

be able to influence the public at large, to change opinions for better or for worse.

The public is a vital resource for this committee. Public opinion of the council's

actions affects how likely it is for them to succeed. If the public is led to believe that the

council is acting against their interests, they may protest, riot, or otherwise rebel against

the council's decisions. Conversely, if the council's interests align with public, or if the two

bodies ultimately agree, then it becomes easier to enact the council's initiatives. However, note that not everything is possible; sometimes the best plans will still go wrong.

World Backstory

See the Delegate Descriptions for detailed backstory on the super states and individual actors.

This Council takes place in 2100 set shortly after a world war that pushed the boundaries of technology and established a new world order. The War began in 2070 and lasted until 2097. Following an inability to agree upon impactful measures to halt the progress of global climate change, the world lost a majority of its coastline. A few cities such as New York and Osaka were saved via massive seawalls but most coastlines were lost. The nations of the world started diversifying in their research focuses and entered an era of isolationism.

In Fall of 2069 the president of the United States and most members of the line of succession would fall dead to a selectively targeted engineered virus. Blame would be placed on the nascent Eurasian Alliance as only they had the expertise to realize such a weapon. In addition, India and the African Continent were developing infrastructure at a rapid pace, utilizing artificial intelligence and energy breakthroughs to create the true cities of tomorrow. Ultimately War would break out between the United Americas and the Eurasian Alliance. The Southern Union needing ever more resources to fuel its growth would join the fight as well.

The War solidified the three blocs into lasting super states. Ethical constraints on research were relaxed and technology grew exponentially over the War. It may have even grown too much. Following the Devastation of Australia, the super states, having realized

that further conflict could easily destroy the world, agreed to a truce and entered into a tense peace. The World Ethics Council was formed and given the power to rein in technology growth and deal with the myriad ethical challenges from the War.

Ethical Frameworks

In order to facilitate debate, arguments over ethical issues should be framed within existing ethical frameworks. This section serves as an introduction to deontological and utilitarian ethical theory. When deciding what action to take on an ethical issue you must utilize one of these frameworks to support your position.

Utilitarianism

Utilitarianism is simple to explain but difficult to apply. It seeks to obtain the greatest good for the greatest number of people[1]. Decisions which raise the total amount of good should be taken and those that do not should be avoided. When you advocate for an action based on the good it can bring, such as mass vaccination contributing to herd immunity, then you are using utilitarianism. However, this simple definition has its pitfalls. How does one measure the "greatest good"? In some cases money or lives saved can be a sufficient proxy; in others, such as with the introduction of automated labor, this is far more difficult. One needs to balance the money a firm saves with automated labor versus the livelihoods of the now obsolete workers. The work could have given workers a sense of satisfaction or fulfillment that is hard to measure. End consumers see reduced price tags at the store shelves, but income inequality means that only few in the world will benefit. In addition, the automated labor may contribute to an even greater income inequality gap.

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[1] Barbour, Ian. *Ethics in an Age of Technology*, The Gillford Lectures 1989-1991, Vol 2, HarperCollins Publishers Inc. pg 33-41

One also cannot optimize for both greatest good and the greatest number of people at once.[2] In order to better the quality of life for more people, the overall quality of life of a population must decrease as the same resources are spread across a larger population. Imagine a world where only a select few people are happy with all their needs met while everyone else toils away. This world may be the happiest of all worlds but only few share in that happiness. Consider another world where everyone has an equal share of the "good", but their daily lives, while free from struggle, have very little opportunity for growth, resulting in a bland world. In addition, utilitarianism neglects to factor in effects to the environment, non-human life and future generations. A society may achieve greatness but at an unsustainable cost. Thus, while utilitarianism provides a good starting point to reason about ethical dilemmas care must be taken when applying it to nuanced situations.

Deontology

Deontological ethics concerns itself with the rights of an individual and an individual's obligations to others. These rights usually come in positive and negative right pairs. For example, one may possess the positive right of free speech but in turn one must oblige by the negative right of allowing others free expression of their speech. These rights are held above the good of society ensuring that individuals need not fear a loss of their "inalienable" rights. Thus, where utilitarianism would allow for any decision as long as it improved the greater good, deontology strictly disallows decisions that would infringe on an individual's rights.

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[2] Ibid.

In applying deontology to an ethical dilemma consider the rights of the entities involved. For example, if humans have the right to work as is proclaimed in the Universal Declaration of Human Rights, then employers have the negative right of providing work to human employees. Should employers lay off workers due to increases in labor efficiency then this would be seen as unethical under deontology even though it increases the general good. For example, suppose that driverless cars replaced truck drivers in the next ten years. There are about 3.5 million truck drivers in the US and these individuals cannot easily find new occupations.[3] Thus while the US economy can benefit significantly from automated trucking, in the near term displaced truck workers will be hit by hard times.

Both ethical frameworks can be modulated by a notion of justice predicated on the fundamental equality of persons.[4] This would allow the unequal treatment of persons if it corrected other inequalities with affirmative action in education being one such example. The idea loosens the rigidity of deontology by allowing individual rights to be overruled by society if it is over some essential need like maintaining order while curbing the excesses of utilitarianism by disallowing actions that are fundamentally unjustifiable.

Applying Ethical Frameworks to Technology

Technology serves to broaden the possible actions available to people. It is this creation of new possibilities that brings about ethical dilemmas.[5] However, there is a rich body of work in solving ethical issues such as ownership, labor management, medical experimentation and other such issues. A traditional set of morals and legal work can

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[3] American Trucking Association, "Reports Trends and Statistics"
http://www.trucking.org/News_and_Information_Reports_Industry_Data.aspx
[4] Ibid
[5] Johnson, Deborah. *Computer Ethics*, 3rd edition, published by Prentice Hall, 2001, pg 5

simply be extended towards the solution of these issues. However, this may lead to the loss of possibilities new technologies make available. Thus, when reasoning about new technologies one should utilize existing work while considering the new benefits of the technology.

Analogies can also aid as a reasoning tool but be careful lest they lead to hasty judgements. For example, hackers may argue that they are performing a vital service by breaking the security measures a company has set in place. One may argue against this by likening hacking to "setting fire to a shopping mall" to reveal security flaws as well as test reaction times to the incident, and thus work to ban such activities.[6] However this false analogy ignores the fact that no physical damage is taking place. In addition, the act of breaking company security measures can be turned into a legitimate service called penetration testing.

The following section will discuss technologies in the domain of artificial intelligence, bioengineering, and prosthetics. The discussion will be focused on technologies currently under active research and soon to be made available. Near the end of each discussion there will be a section on likely future developments. As you read, keep in mind the ethical frameworks and try to develop deontological and utilitarian arguments for the use or disuse of these technologies.

Artificial Intelligence

The growth of weak artificial intelligence is revolutionizing manufacturing, making driverless cars a reality, and making available a host of decision making aides. Weak

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[6] Ibid, pg 24

artificial intelligence applies pattern recognition and classification techniques to narrow and well-defined problems. This contrasts with a strong AI which attempts to understand and solve general problems. Manufacturing is ripe for automation. Chinese factories are now investing in automated labor as they can no longer compete using humans that cannot work 24/7 and require food and psychological needs fulfilled.[7] At this point, market forces themselves are driving repetitive low skill manufacturing jobs to obsolescence.

Weak AI threatens skilled jobs as well. Any job heavily reliant on pattern recognition is vulnerable to automation. Quality assurance such as with tiles in tile factories and grape integrity in large vineyards can now be done with AI and cameras. If you read reports on sports or stocks you most likely have read news produced by an algorithm. Increasing improvement in natural language processing threatens the work of translators and software is replacing people for legal research in law firms. Several highly specialized medical roles such as radiologists can be entirely automated with weak AI classifying anomalous images for later review by a doctor.[8]

The structural unemployment caused by improvements in technology represents a problem that must be addressed. For now, certain politicians are content with ignoring the problem or attempting to save jobs via protectionist economic policies. This cannot build a lasting solution as the cost to save jobs via such measures is far more than the value that those jobs create. China is attempting to deal with its problem via aggressive worker

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[7] Minton, Adam. "Robots Leave Behind Chinese Workers", *Bloomberg*, April 9, 2015, https://www.bloomberg.com/view/articles/2015-04-09/robots-leave-behind-chinese-workers
[8] Jha, Saurabh. "Will Computers Replace Radiologists?", *Medscape*, March 12, 2016, http://www.medscape.com/viewarticle/863127

education policies and development of lesser developed regions.[9] Other solutions beside

worker education exist as well. One potential solution is a universal living wage that can

ensure that citizens are not starving on the street and still participating in the economy. A

temporary solution may be the creation of jobs through public works projects or

infrastructure development as an example. Ultimately, what a job means will change in this

century. There is simply not enough non-automatable work for all those seeking work.

Artificial intelligence takes data processing to a new level. The world we live in

produces a vast amount of data from phones, payment transactions, and an ever-growing

array of sensors and embedded computers. This allows governments and corporations

unprecedented access into the lives of individuals, the impacts of their policies, and

knowledge of their environment. AI then takes this data and can extract usable patterns,

make inferences about groups, and predict outcomes of decisions. As an example, Google,

operates at a scale that would make any ex-KGB agent green with envy. With 10 billion GB

of data stored and 3.5 billion requests processed per day as of 2015, Google has all the

information it needs to serve relevant and targeted advertisements to consumers the world

over.[10]

Strong AI

Strong AI aligns with the science fiction idea of an intelligent machine that is able to

reason about its environment and make decisions in its own rational self-interest. Although

this view is shifting to favor of a more constructivist approach predicated on personhood,

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[9] Minton.

[10] Price, Daniel. "Surprising Facts and Stats About The Big Data Industry", *Cloud Tweaks*, March 17, 2015
https://cloudtweaks.com/2015/03/surprising-facts-and-stats-about-the-big-data-industry/

interactions with others, and interactions with the world.[11] Unlike a weak AI, a strong AI

should be able to reason about vague problems that are not fully specified. After all, when a

child is told to get a cup of milk it need not be told to go to the refrigerator. The action is

inferred as the child has made an association between the milk and where it is usually

stored.

The realization of strong AI raises issues regarding rights. Animals are already given

a set of rights in most countries. Even if the AI is not truly sapient the argument for giving

it rights is worthy of consideration. However, it may be too dangerous to give AI rights,

especially if these machines are meant for improving productivity. In allowing the creation

of more sophisticated AI possessing subjective experiences, humanity may inadvertently

create their own replacement.

Prosthetics

Motivated by the pursuit of freeing disabled individuals from their disabilities,

researchers continue to invent ever more intricate prosthetics. Individuals like Hugh Herr

of the MIT media lab blur the line between man and machine.[12] As a double-leg amputee

Hugh engineered prosthetic legs that allow him to carry on life quite normally. His more

recent designs incorporate microprocessors, sensors, and algorithms to allow easy ankle

movement across diverse terrains.[13] These bionics are very real and show how high

technology can bring healing to those who need it.

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[11] Clocksin, William. "Artificial Intelligence and the Future", Phil. Trans. R. Soc. Lond. A 2003 361, doi: 10.1098/rsta.2003.1232, published 15 August 2003
[12] Winston, Morton and Edelbach, Ralph. *Society, Ethics, and Technology*, 4th edition, Wadsworth Publishing 2011, pg 250
[13] Shaer, Matthew. "Is This the Future of Robotic Legs?*", Smithsonian Magazine*, Nov. 2014, http://www.smithsonianmag.com/innovation/future-robotic-legs-180953040/?all, accessed Feb 20th, 2017

The interface to which Herr's prosthetic attaches to the human is still simply a physical anchor with no additional technology. The ultimate goal would be to use a neural interface to allow the brain to control the prosthetic directly instead of relying on computers and external sensors. Research here has wide ranging applications for arms and fine control of prosthetic fingers to retinal implants that give vision to those who have none. With the development of these technologies it becomes easier to improve upon the human baseline. Retinal implants could allow one to see in infrared or UV, prosthetic legs allow one to run as fast as an Olympian. Herr also envisions a world in which people put on and off an array of exoskeleton suits to improve performance in physical tasks without needing a permanent implant.[14]

Imagine a world where such prosthesis is available. If a human is fully healthy is it ethical to remove a limb or body part and replace it with a better functioning prosthetic? Some of society still stigmatizes those who sport prosthetics, seeing them as subhuman. These new bionic humans would certainly seem out of place. Other factors may push for wider adoption of bionics. The military would definitely welcome improvements to its most elite soldiers, creating new problems in incorporating returning soldiers into civilian life. The legality of such voluntary amputations is also in question; however, amputation is being considered as a treatment for Body Integrity Identity Disorder (BIID)[15]. In the realm of cosmetic implants there are a variety of invasive procedures such as collar bone piercings and horn implantation that provide no medical benefit and yet are done anyway.

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[14] Ibid

[15] Costandi, Mo. "The science and ethics of voluntary amputation", *The Guardian*

It is likely that surgeons will be willing to implant bionics they know will improve the capabilities of an individual.

Bioengineering and Genetic Modification

Humans not only have achieved unprecedented understanding of inorganic systems, but we have started delving into the depths of our own biology. The latest and most precise gene editing tool available is the CRISPR-cas9 system. Using guide RNA to specify the location to make a cut, CRISPR DNA sequences guide cas9 proteins to cut target DNA with precision. Researchers can then insert new DNA strands, such as by replacing a faulty gene with a healthy gene, or observe the DNA attempt to repair itself to gain insight into what a gene does.[16] CRISPR also enables the genetic modification of human embryos, and scientists in London were authorized to do just that on November 2016.[17] The embryos are only allowed to develop for seven days, but the trials are expected to provide valuable knowledge about early human development.

Germline modification of humans and other animals allow genetic modifications to pass on to offspring and thus has its risks. Any genetic modifications done to an embryo can be passed down to successive generations. The gene or genes in question may not be fully understood, or they may interact badly with other genes that only show up in later generations. However, the technology does have very appealing boons. When applied correctly, gene editing could mean the death of genetic diseases and other maladies that have a genetic component such as alcoholism. With the possibility of gene editing it is also

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[16] Zhang, Sarah. "Everything You Need to Know About CRISPR, the New Tol that Edits DNA", *Gizmodo*, May 5, 2015, http://gizmodo.com/everything-you-need-to-know-about-crispr-the-new-tool-1702114381
[17] Callaway, Ewen, "UK scientists gain license to edit genes in human embryos", *Nature*, February 1, 2016, http://www.nature.com/news/uk-scientists-gain-licence-to-edit-genes-in-human-embryos-1.19270

inevitable that parents would want to make changes to such things as gender, physical

characteristics or intelligence. The ethics of this situation is quite muddled as you will see.

First, embryos and fetuses cannot give consent. However, it can be argued that a

future human being would implicitly give consent for the treatment of genetic disease.

Cosmetic modification is a different matter as the modified person may dislike their

appearance and seek restitution. If restitution is sought then who is responsible, the doctor

that performed the procedure or the parents themselves? We can also assume that initially

the technology will be very expensive. Thus, the wealthy can differentiate themselves

further with designer children. These children may themselves struggle with bullying and

other issues related to their modifications. However, the technology could provide

improvements to baseline intelligence and strength which could be a real boon to society.

Though care must be taken to avoid creating separate classes of citizens.

Technology as a Solution to Social Issues

In discussing issues such as climate change, disease, inequality, resource usage, and

many more it seems people take for granted that technology will inevitably provide a

solution. Yet, are there problems that fundamentally have no technical solution? Garrett

Hardin defined a technical solution as one that arises from a change in human

understanding of the natural sciences rather than a change in values or morality.[18] He

asserts that problems like unrestricted population growth and pollution cannot be solved

so long as a common remains free to exploit.

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[18] Hardin, Garrett. "The Tragedy of the Commons", *Science*, Vol. 162, Issue 3859, pg 1243-1248, 13 Dec 1968, DOI: 10.1126/science.162.3859.1243, http://science.sciencemag.org/content/162/3859/1243.full

A common is a resource that can be utilized by all freely such as grasslands for grazing sheep. Problems arise when the commons is finite and is used unsustainably. The tragedy of the commons is brought about by users of a commons exploiting it until it is brought to ruin. Returning to our sheep example, each farmer is incentivized to continually add more sheep to their herd as the benefit of an extra sheep is large. However, the cost of the extra grazing sheep on the health of the grassland is shared amongst all farmers and so each individual farmer will continue growing their herd until the grassland is overgrazed and all farmers are brought to ruin. One solution to this problem is to restrict access to the commons or impose limits on its use. In the case of pollution, the air and freshwater can be considered a common. By instituting a cap and trade program, a very real cost is imposed on all polluters that incentivizes the creation of "greener" products through the ability to sell unneeded pollution credits to heavier polluters. Those who cannot avoid heavy pollution creation are discouraged via the need to purchase pollution credits.

Technology Relinquishment

Bill Joy, one of the founders of Sun Microsystems, asserts that the pursuit of knowledge that makes it easy to create weapons of mass destruction should be relinquished. He focuses on genetic engineering, nano machines, and robotics (GNR) and their capacity for self-replication.[19] Unlike the knowledge and specialized technology needed to realize nuclear WMDs, once GNR is sufficiently developed the door is opened for broad classes of accidents and tragedies that require very little cost besides knowledge to

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[19] Joy, Bill. "Why the Future Doesn't Need Us", *Wired*, April 1, 2000 ,https://www.wired.com/2000/04/joy-2/

enable. Since the technology would be widespread and integrated across many industries this knowledge would be widely available.

Robotics allow a slow slide into humanity as a domestic animal. Humans utilize computers to evaluate the tradeoffs when making decisions in business, finance, and other areas involving uncertainty. Joy discusses an excerpt describing a dystopia in which humanity slowly slides into the position of a domesticated animal. It is not that intelligent machines forced humanity to submit, but that as these intelligent machines grew more capable humans pushed more of the process of decision making onto them. In the end humans are happy but they can no longer make meaningful choices.[20]

Nanomachines have tremendous value in medicine, computer engineering, and material engineering but possess a great danger if they can self-replicate. Self-replicating nanomachines are not completely negative. One can imagine an invention that can break down toxic waste and clean up the environment or "plants" with solar cell leaves. However, uncontrolled replication would be disastrous. Within days the earth can be stripped of all life as machines utilize all available resources to replicate. One can also imagine terrorists creating a nanomachine virus that specifically targets human beings based on the presence of genes or other identifying factors. In short, one can see that technology research cannot be separated from the context in which it is used. By creating new technologies, humans open the door to new possibilities for good and ill and thus must make choices on what to pursue and if something should be pursued at all.

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[20] Ibid

Questions to Guide Research

1. **Ethical Dilemmas**

    a. **Consider the ethical dilemmas around the main technologies discussed(AI, bio-engineering, and prosthetics) and invent solutions utilizing ethical frameworks to support your arguments.**

    b. **Are there problems with no technical solution? If so describe two such problems, else state why?**

    c. **Should certain lines of research be restricted or outright relinquished? State your opinion and provide supporting examples.**

2. **Prosthetics**

    a. **Should prosthetics that improve upon the human baseline be available for all who want them? Give a deontological or utilitarian argument for why.**

3. **AI**

    a. **Should automatable labor be protected from automation?**

    b. **If most automatable labor is automated, then what should be done about the resultant structural unemployment?**

4. **Bio-Engineering**

    a. **Should genetic modification of embryos be permissible?**

    b. **What kind of genetic modifications should be allowed?**

Delegate List

Eurasian Alliance(EA)

Composed of Europe and most of Asia, the Eurasian Alliance possesses mastery over bioengineering and the human genome. In the pursuit of creating the optimal soldier, EA researchers modified the human body with redundant organs, optimized neural structures, and new functionality to conserve energy in the face of critical injuries. The EA spearheaded projects to create entirely new species of animal that proved a terror on the battlefield. EA medical technology can treat all known diseases and extend human lifespans to unheard-of new heights. The technology has only seen limited use within the civilian sector due to the expense of most procedures.

Alice Winter, Executive Representative

Having served in the Great War and undergone genetic enhancement, Alice uniquely understands the plight of her nation's soldiers and the price of war. She rose through the ranks and led a diverse array of critical and dangerous missions that established the EA's strength. After thirteen years of warfare she decided to pursue political office in order to further the interests of her homeland.

Now that she is invested with the full decision making power of the EA executive, Alice seeks to make the most of the new world about to be born. She played an instrumental role in realizing the truce three years prior and seeks to build a future beyond imagination as opposed to a desolate and war torn dystopia. Here at the World Council she desires to protect the continued survival of the EA, humanity, and the preservation of

peace. Yet she also looks forward to a future instrumented by new and innovative technologies.

Mayuko Ishihara, Director of Intelligence of the Eurasian Alliance

Having proven herself as an extremely resourceful intelligence agent, Mayuko demonstrated time and again the wits needed to successfully pull off several difficult, clandestine operations during the war. Taking over as the Director of Intelligence, she expanded the network of intelligence agents operating in all areas to ensure that nothing would slip by. Agents of the Eurasian Alliance were feared because very often they could not be identified, and under Mayuko's leadership they continue to be a powerful force to be reckoned with.

Those within her inner circle describe her as blunt, yet conniving. Some have argued that Mayuko is bound for a career in politics if she ever left the intelligence services, though she has never expressed any interest in doing so. Yet, her presence at the World Council gives her the opportunity to leverage what she knows and perhaps pull some strings to further her career, in whatever field she decides to continue in.

Air Marshall Matthew Conway

Matthew often finds it difficult to say "no." A maverick while he served in the Air Force, his brazen streak did not abate when he was promoted, ordering riskier and riskier missions in the face of overwhelming odds. Seeing the effects of the Eurasian Alliance's technological advances made him more and more of a risk taker with every successful mission he piloted or ordered. It was a self-reinforcing loop that would not stop, if not for the war ending.

The Air Marshal has seen firsthand how the military is empowered by genetic engineering, and he is incredibly hopeful for more of the same. While not searching for the perfect soldier, he is extremely aware that the decisions of the Council will affect the future of warfare, and he will not back down from the opportunity to give his military the strength it needs to survive in the future. Several observers are wary of his daring streak, and fear that his headstrong nature may lead to him butting heads with various members of the Council who would rather take a more careful approach to solving the problems the Council will face.

Southern Union(SU)

Composed of Africa and Southern Asia, the Southern Union built the first truly modern infrastructure incorporating AI into the everyday lives of its citizens. On the home front, factories run 24/7 without ceasing. Road congestion is a thing of the past as transportation has become a service using fully autonomous vehicles. On the battlefield, the SA utilizes swarms of drones and fleets of autonomous air, land, and sea weaponry. Three years after the war, SA citizens enjoy unprecedented amounts of leisure time. The government provides a universal basic income as the only remaining full time employment is to be found in creative endeavors, research, or the provision of luxury goods.

Macario Zandra, Executive Representative

Graduating with highest honors from Stellenbosch University, Macario utilizes his well-structured and analytical mind to propel the SA forward. He initially distinguished himself by spearheading the SA Infrastructure Development Program (SAIDP). In this capacity, he ensured that citizens of the SA had access to basic necessities and that

infrastructure grew to meet future needs while incorporating the technology of the day. As a result, the SA has the most efficient and well maintained infrastructure of the three blocks. However, the obliteration of low skilled labor left numerous groups of jobless citizens. While the universal basic income keeps their basic needs satisfied, their discontent is not to be ignored.

Mr. Zandra remains pessimistic about future developments in artificial intelligence. He believes that even high skilled labor is reaching the point of obsoletism and desires to navigate the future currents of technology with deliberate caution.

Roger Natarajan, Director of Intelligence of the Southern Union

Roger rose from the rank of analyst to the most important position in the intelligence division through sheer hard work and grit. He demonstrated a resolve that could not be replicated amongst his many coworkers, and the drive to experiment and try new methods to gain the information needed. His work using the new AI systems developed by the Southern Union's researchers led to a revolution in automated information gathering what was the envy of almost everyone.

Roger's rise to director has not stopped his ambition to see himself in a much bigger position. His position allows him to do much that would let him ascend higher, if he wanted to. With his eye firmly on further development of technology to assist in his work, it seems that his meteoric rise could continue and is completely within his grasp.

Lieutenant General Ruoxi Zhang

Ground forces evolved under the increasing focus on AI and its applications, and the Lieutenant General witnessed the evolution firsthand. Seeing many of his former platoon members hang up their rifles and trade them in for computers and other interfaces left an indelible mark on his military career. No longer would he personally order a living being to war; instead, he would let the burden of warfare fall upon mass-produced weapons. Ruoxi felt that the soul of war had been left behind with the evolution of technology, and it left him deeply unimpressed.

Seeing many military men and women out of a job in an environment where they could not easily be retrained left the Lieutenant General with the impression that the current developments leave something to be desired. Yet, he cannot deny that what has been done undoubtedly saved many lives in the process. He remains skeptical of further developments, and will likely view the proceedings at the Council with wary eyes.

United Americas (UA)

The United Americas is composed of Northern, Central, and Southern America. Having developed man-machine interfaces to new heights, returning soldiers are seen as subhuman by a populous that simply cannot understand. The UA intelligence and cyber warfare community is at the top of its class with UA specialists able to wreak havoc on communications networks infrastructure. Civilian bionic technology has primarily focused on less obvious internal modifications.

Life Connect System

A brain implant pioneered by Johan Lachlan and Life Incorporated. This implant allows its users direct access to the UA internet as well as fellow citizens. The public, while initially resistant to the idea began widespread adoption as a response to an EA supported bombing of San Francisco. The bombs packed mutagenic agents that would modify local wildlife and lead to the area becoming uninhabitable. The Life Connect system allows access to information in real time while bolstering the UA surveillance network.

Johan Lachlan, Executive Representative

An old friend of the UA Executive who possesses many connections within and without the government. Let no one believe that Johan is incompetent. He has ruthlessly pursued the interests of the UA over a long and distinguished political career. Possessing a wide array of knowledge in the humanities and sciences he is a true renaissance man. He pursued and continues to push for the wider use of man machine interfaces and played a key role in the development and distribution of the Life Connect System.

Edward Neumann, Director of Intelligence of the United Americas

Possessing incredibly unorthodox views on almost anything he has been asked about, Edward is the eccentric in the room no matter what subject is being discussed. A master of interrogation and undercover operations, he refuses to stop until he has found out what he needs to know. His hunger for knowledge drove him to undertaken extremely dangerous missions as an agent, but his quirks quite often deflected suspicion away from him. In turn, he has the reputation as the man least like an intelligence officer in many people's eyes.

Edward has done whatever he could to get what he wants. His worldview is heavily dependent on being able to do what he can, whenever and wherever he can. Preferring to use words and psychology rather than force, Edward has never had to exert any real force to win people over. Disarmingly charismatic and incredibly persuasive, he is a force to be reckoned with.

Vice Admiral Ana Franco Ruiz

While the maritime forces were a strange place to pull the military commander from, no one could deny that the Vice Admiral had the experience and strategic genius to take that role. Unmatched in naval strategy, and able to adapt her skills to land and air, Ana was one of the rare military officers that were invaluable in any theater. Several higher ranked members of the armed forces often publicly claimed that they wished there were more of her.

Ana has worked with many servicemen with prosthetics and other bodily modifications, but aside from seeing them as members of the armed forces, she has had difficulties resolving issues between the augmented servicemen and the men and women without them. Often, her seemingly indifferent response to claims of discrimination or other problems have caused some issues with her superiors. Her presence as the head of the military seems to signal that, at least, someone does not consider them issues, though it begs the question whether her past problems will continue.

Experts

Malachai Karamazov, Expert on Bio-Engineering

Malachai loves life in all its forms and would rather much stay among the living. To that end he has dedicated all that he is to the pursuit of biological immortality. While his ultimate goal remains vexingly out of reach, he has made great advances in genetic engineering. His work pushed the boundaries of human understanding of themselves and contributed to the growth of the EA's biological engineering program. During the war, Malachai would be at the forefront of the most secretive and ambitious projects. While much of his work remains classified, Malachai has not shied away from speaking out on the potentially harmful aspects of the field. He particularly sees reckless modification of plant and animal life as a danger, but realizes that the military would push for it anyway. He has thus involved himself with the EA's bioengineering program believing that lesser minds would botch the job while utilizing the EA's resources for his own ends.

Zophie Browning, Expert on Medical Sciences

Growing up in a single parent household she was orphaned at a young age when her Father died to cancer. She pursued a doctorate on an unrelenting path to end the diseases that would cut human life short. Her will was steeled in the adversity resulting from orphan hood and the difficulties of obtaining the funding needed to pursue her ambition. Nonetheless she succeeded and eventually discovered a way to ensure that the immune system can discover and attack anomalously growing cells. Her research utilizes genetic engineering to improve upon the human body as well as AI to provide incites into gene expression.

Realizing the advances made by the UA, Zophie has now moved into the nanotechnology field hoping to create nano-scale machines capable of maintaining the human body. Ultimately, she sees the major advances of all three super states as largely complementary and seeks combined solutions to benefit humankind.

Mazoff Korach, Expert on Artificial Intelligence

An Alphabet alumni that eventually left to pursue the opportunity of creating the new SA. He desires to automate out the banal and bland aspects of human life and leave time for all humans to pursue "better" interests.

He established the plans for a new modern infrastructure utilizing AI, sensors and surveillance on a never before seen scale. Data itself flowed through these cities of the future collected from billions of points, processed, and utilized by its leaders. Seeing a brighter future in the SA he ultimately put his talents to work in the pursuit of war. Mazoff innovated on the taking of life by insuring the SA need not field humans of its own. Ultimately, he enabled the SA to build a dispassionate military that never tires and always watches.

With the War over he feels emboldened by the growth the SA has made and is irritated by the growing power of the United Labor Front and the Neo-Luddites. He sees the future of the world in his work and will not tolerate the ideas of people clinging to the past.

Albert Dantes, Expert on Bionics

Albert is credited with developing neural interface technology that allow implants and prosthetics a direct connection into the human nervous system. His work and research were primarily motivated by his own impending blindness due to macular degeneration.

After the first successful retinal implant trials, he became an early adopter of the technology. He says that his new eyes have also enabled him to work more efficiently than before. Utilizing image enhancement algorithms as well as implants that can pick up high level of detail he can perceive intricate details from his environment.

Seeing the payoff of bionics in his own life, Albert joined the UA military research program to develop the technology further. He is very proud of his work and now seeks to integrate soldiers from the military life back into civilian life.

Suzan Elliot, Expert on Climate Change

When she was a child, Suzan's family took in climate refugees who had lost their way of life and home. These refugees lost the environments they had traditionally lived in, some even lost their entire state as islands drowned. The War terrified Suzan with its implications and so she sought to oppose humanity's ever increasing ability to destroy itself. She pushed heavily for the use of nuclear fusion for energy production and created an agreement to process and recycle the literal mountains of abandoned cars resulting from the shift to autonomous vehicle usage.

Suzan seeks to ensure that technological growth does not come at an unsustainable price. She currently faces issues involving a dependence on fossil fuels for industrial purposes and plastic creation, the threat of self-replicating technology and targeted diseases, and the ecological disasters brought about during the War.

Corporations

Benjamin Carter, CEO of Alphabet

Alphabet started as the conglomerate containing Google. It soon outgrew Google and encompassed a wide range of research and development divisions, and multiple different technological services. Taking the helm of the company in recent years was Benjamin Carter, who introduced a division solely for the purposes of collecting data. He believed that the next major trends could all be predicted through publicly available information, and dedicated exabytes of storage to modelling and machine learning algorithms. For years that data was devoted to such projects, but Benjamin quickly found out that all that data could be used for so much more.

Benjamin has an intense interest in predicting the future through data, and has an unusually large amount of confidence in AI systems and machine learning algorithms. Anything that could lead to better predictions and better models is good for him. To that end, he has pushed hard for further research into AI systems and advances in computing power and efficiency. Only time will tell if he can realize his ambition to predict better than before.

Emily Sullivan, CEO of Life Incorporated

An associate of Johan Lachlan while working as a programmer at Life Incorporated, an entertainment conglomerate encompassing digital media creation, distribution, and promotion, Emily rose through the ranks by being one of the few people to get behind the Life Connect system and make it accessible to the citizens of the UA. Her projects also included wartime entertainment and real-time reporting on major events during the war,

streamed seamlessly through the Life Connect system. Life Incorporated's name and status rose dramatically as a result of these and more, and Emily was promoted to the position of CEO in recognition of her contributions.

Emily hopes to continue revolutionizing entertainment through the Life Connect system and further developments. Her eyes are set on immersive entertainment that is available to the mass market, and hopes to expand the corporations reach to the rest of the globe. New projects are being approved at a dizzying rate, and some with signs of the CEO herself taking the reins and making improvements. The corporation has room to expand with the plethora of new technologies being developed, and each represents an opportunity that may be too good to pass up.

Fiona Hernandez, CEO and CSO of Genentech

At the forefront of medical research and the developers of some of the most important cures for many of the diseases that plague humanity, Genentech and its CEO Fiona Hernandez work tirelessly to ensure the health and well-being of humanity. Developments in gene editing technology has made Genentech one of the largest corporations in creating cures efficiently, and their work in gene therapy in unparalleled in the world. This has not stopped certain groups from protesting against the efforts of Genentech to use the fundamental building blocks of humans, their genes and DNA, to ensure the health of as many as possible.

Fiona, as both a researcher and as CEO, fought long and hard to promote her company's methods to the public, and continues that struggle to make sure that eventually the revolutionary methods that Genentech will be recognized as valuable. She fears that

the progress that has brought Genentech to the front has made the public fearful, and she works day and night to ensure that faith in the company's work remains strong. Some part of her believes that the public is right in its own way, and it leads her to sometimes waver in her beliefs. She continues her work, though, knowing that it has helped lives now, and it will for years to come.

Klaus Fredricks, CEO of Aegis Industries

Aegis Industries was the military contractor of every military force's dreams. Delivering powerful weapons and defensive equipment when asked, and further developing tools for waging war, the company under Klaus Fredricks flourished during the war. The company remains relatively secretive despite its reputation, keeping conversations between their buyers quick and discreet, and keeping their projects and research locked far away from prying eyes. Intelligence has often tried to find out what the men and women at Aegis are up to; nothing has ever been found in every attempt.

Klaus himself is a very secretive man, knowing that he operates in a fragile industry. With the war effectively over, he will need to find new purpose during this time. The weapons and defenses developed at Aegis will need new purpose, and the energy that went into their production will have to be harnessed towards new endeavors. Perhaps Aegis will find a way to repurpose all of its resources for something better, or continue their wartime activities. These decisions fall on Klaus only, and he will keep company secrets and activities to himself as much as possible.

Representatives

Ian Barber, Representative of The United Labor Front (ULF)

To protect themselves from increased automation in the labor market, most low skilled workers formed a collective Labor faction, ULF. Ironically, they possess less of a foothold in the SA than expected due to the SA's focus on taking care of displaced workers. They seek to ensure that every individual has at least a living wage and that technology growth does not come at the cost of lost livelihoods. The ULF realizes that increased technological efficiency has led to unprecedented levels of productivity. However these technologies have led to a War that has bled the hard working common man. In addition, the rewards of this productivity all too often ends in the hands of rich technocrats leaving displaced workers feeling left behind.

Jasmine Ludley, Representative of the Neo-Luddites

The Neo-Luddites advocate for a cautious approach to technological progress in these highly optimistic times. It seems that every day, new breakthroughs are made that were thought inconceivable. Yet the Neo-Luddites see how easily this new technology could strangle the throat of humanity. They firmly believe that some technologies are simply too dangerous to be explored. They have been able to gain sufficient backing from people concerned with the perceived excesses of the War. They wield a considerable amount of lobbying power and have begun pushing on stricter regulations of research and scientific inquiry.

Ozymandias

Look on my works, ye Mighty, and despair!

He appeared to take a greater role in events shortly before and during the Great War. Little is truly known about Ozymandias aside from his mastery over seemingly any topic or field he works in. During the war, each major power had an intelligence taskforce assigned to observation of this character. From what is known, he has appeared throughout recorded history, nudging events hither and thither for inscrutable and unknown ends. Whether Ozymandias is really a collective of individuals assuming a single name or a seemingly undying individual remains under debate. His name seems to point to an Egyptian or Greek heritage, but his ever-present mask, gloves, and skin tight clothing belies further classification.

Ozymandias takes an unusual interest in this era and freely offers his services to the major powers. Projects conducted under his purview have often met or exceeded all expectations. Yet his ultimate reason for doing what he does remains illusive. While Ozymandias is an invaluable resource, care must be taken over utilizing such an unknown variable.

Incident Report: Australian Diaspora

During the war, the EA joined with Australia to conduct wildlife engineering projects that eventually birthed the EA military's weaponized animal program. Ozymandias offered his services to the project yielding beasts that would terrify the EA's enemies. The EA attempted to detain Ozymandias to further utilize him as a resource. Little is known about the details of the incident, yet the aftermath left an indelible mark on world history. Around one year into his detainment, Australian wildlife became ever more vicious and feral. The lab Ozymandias was confined in was bombed allowing him to escape while releasing an assortment of retroviruses tuned to target non-human life. Ozymandias seemed to make good on his escape and was later sighted within UA territory. In any case, the Australian ecosystem became ever more hostile to human life. With cities and villages literally under siege by aggressive and very dangerous animals, most Australians left the country. Today only a few military outposts remain, with regular bombings thinning the horde of murder beasts.