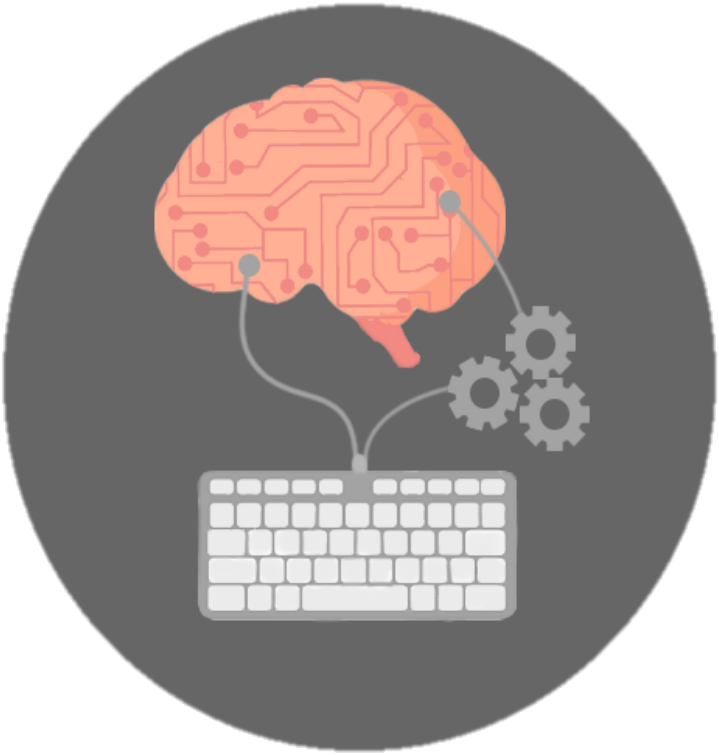
The 42nd Annual

UNIS-UN INTERNATIONAL STUDENT CONFERENCE
WORKING PAPER



UNDER CTRL:

Technology, Innovation, and the Future of Work

SHAPING A BETTER WORLD

A Letter from the Co-Chairs

Dear Participant,

We'd like to take this moment to thank you for coming to this year's conference, and to introduce ourselves and the rest of the UNIS-UN organizing and executive committees. Ms. Sylvia Gordon founded UNIS-UN in 1976 at the United Nations International School. She wanted to create an event in which her students and visiting students could meet to discuss pertinent world issues. Over the years UNIS-UN has evolved into the largest student-run conference held in the United Nations General assembly, with over 500 students attending from 5 continents. Every year we begin planning in April by interviewing and selecting the Executive Committee. This is the core planning body for the conference. We are then divided into 6 commissions: Editing, Finance, Logistics, Visiting Schools, Speakers, and Technology. Together we work with the over 100 UNIS students making up the Organizing Committee to plan all aspects of the conference, from website design and social media presence to speaker and participant invitations and more. We've worked hard to plan a marvelous experience for you, and we are so excited to welcome you to our city.

Here's to a wonderful conference!

Sincerely,

Ayesha Wijesekera and Noëlla Kalasa

Table of Contents

Foreword

Technology, innovation, and the future of work are changing the fundamental nature of how we function. There is an estimated 0.8 to 1.4 percent annual increase in which automation has the potential to raise productivity level globally[1]. Technology has the ability to enhance businesses by reducing errors, improving efficiency and quality. As the tech revolution continues to flourish, 2018 will come to see new innovations that will change our evolution. According to a study by the World Bank, it is estimated that 57% of most current jobs will become automated in 20 years time[2]. This will mean that automation will not only rattle job security, but will also increase unemployment. Even though new innovations can replace jobs, it can also create opportunities that help industries thrive and promote innovation. In the past 25 years, one-third of the new jobs established − that did not exist before − were in areas that included development in technology such as, Information Technology (IT) development and hardware manufacturing. Financial technology startups have reached over $22.3 billion in funding which is a 75% increase from the previous year.

As technology is progressively incorporated into our daily lives, it becomes increasingly important for us to understand and evaluate the political repercussions, the changing employment patterns in different groups, and the societal changes. At this year's UNIS-UN conference, Under CTRL: Technology, Innovation and the Future of Work, we have invited a series of speakers who we hope will further expand your knowledge on how technology will affect our present world and how it will transform our future. The goal of this year's conference is to consider varying perspectives on the impact technology has on the world. In doing so, we will have to evaluate the positive and negative consequences technology has on society and the role we have in the matter.

[1] James Manyika, Michael Chui, Mehdi Miremadi, Jacques Bughin, Katy George, Paul Willmott, and Martin Dewhurst. "Harnessing Automation for a Future That Works." McKinsey & Company, Jan. 2017, www.mckinsey.com/global-themes/digital-disruption/harnessing-automation-for-a-future-that-works.
[2] White, Gillian B. "How Many Robots Does It Take to Replace a Human Job?" *The Atlantic*, 30 Mar. 2017, www.theatlantic.com/business/archive/2017/03/work-automation/521364

Debate Topic I:

Security is more important than privacy.

In debating this topic we encourage students to consider data collection. To what extent do telecommunications companies have the right to store client data? Should governments have access to citizen GPS and communication information all the time? Only in the case of an investigation? Is constant surveillance, even of persons who pose no threat, necessary for our security? These are some of the questions we hope debaters will address when arguing for or against this motion.

Debate Topic II:

Artificial intelligence will have a destructive effect on society.

In debating this topic we encourage students to consider the benefits and disadvantages of developments in artificial intelligence. Should the decisions made my AI have more weight than human decision ? Will artificial intelligence be able to solve humanitarian and ethical issues? Will reliance on artificial intelligence increase inequality as communities who cannot afford it will fall behind? Can artificial intelligence surpass human intelligence? Does AI pose an existential threat to human intelligence? Should a limit be set on the reach of artificial intelligence? These examples are some we hope you will address while preparing their debate.

Speaker Bios

Maha Aziz specialises in political risk & prediction across varied industries and disciplines. She is a part-time professor teaching and researching this topic at New York University's Graduate School of Arts & Sciences, and advising students on their MA theses; she is also teaching her specialty at e-learning education startup Pioneer Academics. She writes on political risk & prediction for the Huffington Post and its political offshoot, The WorldPost. She is also a cartoonist who created The Global Kid, the world's first comic book on global political risk, prediction and strategy for young adult and adult readers; it won the 2016 Wonder Woman Award, 2017 WEF Excellence Award and 2017 INSPAD Peace Award (100% of sales from the Indiegogo-crowdfunded comic book were donated to two global education nonprofits that help youth reach their potential – Developments In Literacy and Global Glimpse). On occasion, she still consults with governments and corporates via Wikistrat, the world's first geopolitical crowdsourced consultancy, Duco's intelligence network and a few others. She was recently appointed Senior Fellow at think tank World Policy Institute.

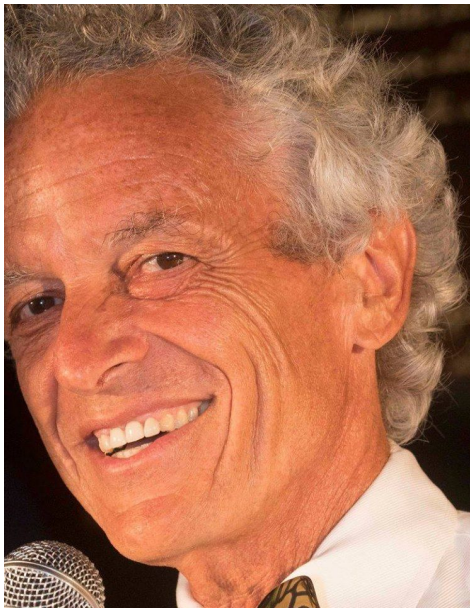
Andrew Brust is a Senior Director, Market Strategy and Intelligence at Datameer. He writes a blog for ZDNet called "Big on Data" . He is a co-author of "Programming Microsoft SQL Server 2012" and an advisor to NYTECH. He also advises the New York Technology Council and has been a co-moderator of Big On Data - New York's Data Intelligence Meetup. Serving as a Microsoft Regional Director and MVP; he writes the Redmond Review column for VisualStudioMagazine.com. Mr. Brust has specialized in Big Data space and is an expert presenter with extensive knowledge on microsoft technologies, development, database and business intelligence products.

Michael Scissons is a Canadian Internet entrepreneur based in New York where he is Chairman of Grid Ventures, focused on seed investments and business consulting. Previously, Michael was founder and CEO of Syncapse, a leading social technology company powering social marketing solutions for global enterprises such as Coca-Cola, JP Morgan Chase, AB-inBev, L'Oreal, Reckitt Benckiser, Motorola, Blackberry, Amway, Nationwide, Disney, WWE, and Johnson & Johnson. In total, Syncapse drove solutions for over 500 brands in 60 countries with a worldwide staff of 200 and offices in Canada, USA, Europe and Asia. Earlier, Michael served as the Canadian Director of Facebook media sales within the Interpublic network, leading Facebook's sales efforts from its earliest days. He appears regularly on business television and was awarded Emerging Entrepreneur of the Year in 2010 by Ernst and Young.

Federico Rampini is the US Chief Correspondent of La Repubblica, the leading national daily newspaper in Italy. He has been based in New York since 2009, also covering all international summits: G7 and G20, APEC-ASEAN, NATO, while following US Presidents at those international gatherings. He is a White House correspondent, commuting regularly to Washington DC and covering the international trips of US presidents (Obama, Trump).

His previous assignment had been as the China and Asia bureau chief, based in Beijing, from 2004 to 2009.

Before that he had been based in San Francisco as the West Coast, technology correspondent and global geopolitics columnist for La Repubblica, 2000 to 2004.



As a foreign correspondent he lived also in Paris, Brussels. He was a visiting professor at the University of California, Berkeley (2002 - 2004). Visiting Professor at Shanghai University of Finance and Economics (2004 - 2009). Visiting Professor at the MBA of the Business School SDA-Bocconi in Milano, joint program with the Barcelona ESADE Business School (2011 – current).
A prolific writer, he is the author of more than twenty essays on immigration and globalization, technology, China, India.
He is a member of the Council on Foreign Affairs, in New York and Washington DC.
A frequent panelist on China at the Asia Society,
New York.

Tsvi Gal is CTO at Morgan Stanley, where he is responsible for constructing an industry-leading, evolutionary architecture that is competitively positioned both on the buy side (asset management) and on the sell side (investment banking) for future growth through innovation, processing scale, and efficiency. Before his position at Morgan Stanley, Gal was CTO and Managing Director for Deutsche Bank Capital Markets. Previously, he was CIO at Time Warner Music Group (WMG). Under Gal's leadership, WMG introduced mobile ringtones to the USA and was the first partner of Apple's iTunes/iPod drive. He also led the transformation of WMG's web assets into a full fledged eCommerce site with over 14 million unique users. From 1999 to 2002, Gal was the President and COO of ATT.com. In this position, he was responsible for AT&T's eBusiness and eCommerce activities. Gal also led the global sourcing and vendor management effort for all of AT&T. Starting his IT career in the Israeli army in 1976, Gal served in executive management roles as CIO & CTO at Merrill Lynch (heading global infrastructure), Wells Fargo (heading investment banking, global infrastructure, and the on-line bank), ABN AMRO Bank (CIO of North America), and Bank of America (CTO and Head of Infrastructure and Capital Markets). From 1996 to 2001 Gal served on the USA technology delegation to the G7 conference of leading economy nations. He is credited with developing the first Internet bank while at Wells Fargo Bank and initiating the first major brokerage on-line trading system at Merrill Lynch. As a result of these achievements and others, he was presented with the 2001 Einstein Award for achievements in Science and Technology by the State of Israel President, Moshe Katzav. Gal is a Computer Science graduate of Rutgers University and holds an M.B.A. from Golden Gate University. He is the author of Distributed Computing Management and is on the Board of Directors at Expand, Cardean

University, MobileSec, Dati, and also serves as an advisor to the president of Rutgers University.

Clay Shirky has a joint appointment at New York University (NYU) as a Distinguished Writer in Residence at the Arthur L. Carter Journalism Institute and Assistant Arts Professor in the New Media focused graduate Interactive Telecommunications Program (ITP). His courses address, among other things, the interrelated effects of the topology of social networks and technological networks, how our networks shape culture and vice versa.

He has written and been interviewed about the Internet since 1996. His columns and writings have appeared in Business 2.0, The New York Times, the Wall Street Journal, the Harvard Business Review and Wired. Shirky divides his time between consulting, teaching, and writing on the social and economic effects of Internet technologies. His consulting practice is focused on the rise of decentralized technologies such as peer-to-peer, web services, and wireless networks that provide alternatives to the wired client–server infrastructure that characterizes the World Wide Web. He is a member of the Wikimedia Foundation's Advisory Board. In The Long Tail, Chris Anderson calls Shirky "a prominent thinker on the social and economic effects of Internet technologies.

How has Automation Evolved and Affected Society?

Sora Kanosue

Two hundred years ago, in the midst of the 18th century, the world was revolutionized with the advent of the Industrial Revolution, when new methods of manufacturing transformed the way in which products were manufactured. Now the world is once more being transformed, this time with what is being termed the Third and Fourth Industrial Revolutions. The Third Industrial Revolution, or the Digital Revolution began in the 1980s, when manufacturers around the world began to digitalize the machines they used to make their products. Even as the Digital Revolution continues to influence how products are made, the Fourth Industrial Revolution, or Industry 4.0, promises to completely alter our world, as futuristic technologies such as robotics, autonomous vehicles, and the Internet of Things are integrated into society and everyday life[3].

One of the most significant ways in which the modern Industrial Revolutions are influencing industry is the introduction of automated industrial robots to manufacturing industries. In this regard, South Korea is taking the forefront in automating its industry, as measured by robot density. Robot density is a measure of how integrated robots have become in the manufacturing industry of a particular country as measured by the number of industrial robots there are for every 10,000 workers. In terms of this metric, South Korea is paving the way for the rest of the world, with a robot density of 531. It is followed by Singapore (396), Japan (305), and Germany (301), which are trailed by a number of European countries, Taiwan, and the United States. However, from another perspective, some other countries are also paving the way in sheer volume of industrial robots. In this regard to this statistic, China's manufacturing industry is miles ahead of the next most proliferant country, with 87,000 industrial robots in 2016 set to jump to 210,000 by 2020. The next four countries with the highest number of robots used in industry in 2016 are South Korea (41,373), Japan (38,586), the United States (27,504), and Germany (20,039)[4].

While automation might be transforming the way in which products are manufactured around the world, it is also paving the way for a major transformation of the daily lives of the general population of the world as well. The most significant example of this is the Internet of Things, or IoT, the network of physical appliances around the world which are connected to other networks such as the Internet in order to allow the remote transfer of data. Examples of these are devices like smart fridges,

---

[3] Schwab, Klaus. "The Fourth Industrial Revolution: What It Means, How to Respond." *World Economic Forum*, 14 Jan. 2016, www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/

[4] *Executive Summary World Robotics 2017 Industrial Robots*. *World Economic Forum*, ifr.org/downloads/press/Executive_Summary_WR_2017_Industrial_Robots.pdf.

self-driving cars, and smartphones. In 2017, there were estimated to be about 8.4 billion devices connected to the Internet of Things, more than enough devices to go around for every person on Earth[5]. The most common application of these devices is in the manufacturing and business industries in order to collect data to make industry more efficient. The second most widespread use of IoT implements is in the healthcare industry, where they are used to remotely monitor the conditions of patients and to ensure that they get the medication that they need. The IoT is also used in the field of security, for purposes such as facial and biometric recognition sensors. In all these different sectors and more, spending on the Internet of Things is set to at least triple, and even quintuple for industries like advertising by 2020[6].

Even as it is set to explode, the Internet of Things has already penetrated many facets of our daily life. In 2016, the number of people using smartphones, which are IoT devices, exceeded 2 billion, and continues to grow every year[7]. Many office and apartment buildings use IoT devices as security measures for those entering and exiting. In recent years, IoT devices have become common even in cars, as manufacturers collect performance data in order to improve their products. One of the most large scale applications of the Internet of Things are Smart City projects that have been implemented around the world, including right here in New York City. These IoT devices are used to collect data on different infrastructure systems such as traffic patterns, water usage, and waste management. All this information is analyzed and interpreted in order to identify optimal usage of resources and reduce costs for these cities[8]. With the scale and ubiquity of automation both in industry and in daily life, it is mind boggling to think about how it will grow in the coming years.

---

[5] Gartner Inc. "Gartner Says 8.4 Billion Connected 'Things' Will Be in Use in 2017, up 31 Percent from 2016." *Gartner*, 7 Feb. 2017, www.gartner.com/ newsroom/id/3598917

[6] "A Guide to the Internet of Things." *Intel*, www.intel.com/content/www/us/en/internet-of-things/infographics/guide-to-iot.html

[7] "Number of Smartphone Users Worldwide from 2014 to 2020 (in Billions)."*Statista*, 2018, www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/

[8] Cohen, Boyd. "The 3 Generations of Smart Cities." *Fast Company*, Mansueto Ventures, 10 Aug. 2015, www.fastcompany.com/3047795/the-3-generations-of-smart-cities

AUTOMATION

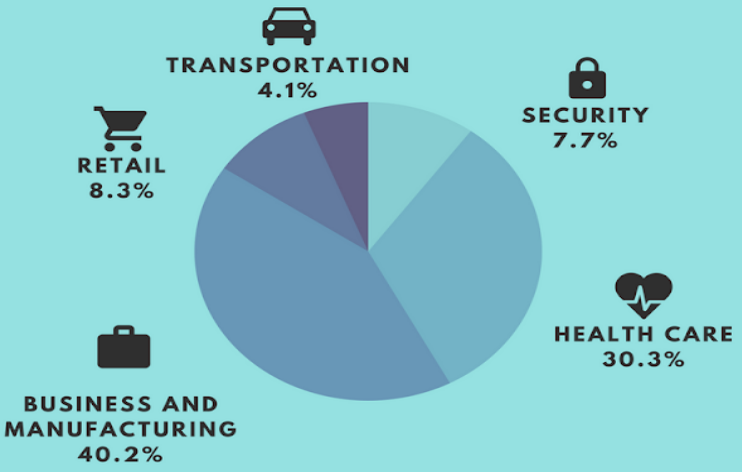
SHIPMENTS OF INDUSTRIAL ROBOTS

2015 AND PREDICTED 2020

	2015	2020
USA	27,504	55,000
CHINA	68,556	210,000
JAPAN	35,023	48000
SOUTH KOREA	38,285	50,000
GERMANY	19,945	25,000

THE INTERNET OF THINGS (IOT)

The interconnection via the Internet of computing device embedded in everyday objects, enabling them to send and receive data



How is Artificial Intelligence Advancing Around the World?

Lea Chambadal

First introduced by computer scientist John McCarthy in 1955, Artificial Intelligence (AI) has since developed immensely into a broad term that involves everything spanning from robotic process automation to physical robots. Artificial Intelligence is generally known as the capability of a computer to perform a series of human related tasks. These tasks can be split into two general categories, weak AI and strong AI. Weak AI involves systems that are developed to replicate or surpass human intelligence, in order to be able to do a specific task in a highly precise manner. On the contrary, strong AI consists of systems that are created to have general human cognitive abilities, and when faced with a problem would be able to find a solution.

Essentially, systems of strong AI are aimed to be able to replicate any human related task, while systems of weak AI are aimed to to be able to replicate a certain human related task[9]. Researchers for both of these categories of Artificial Intelligence are continuously working on improving systems by increasing scale, speed, and the degree of autonomy of their products. Today, the market for Artificial Intelligence is dominated by two major sub-categories. The first is autonomous robots (31% of the market), a form of strong AI, which includes products like self-driving cars and hospital robots. The other main sub-category dominating the AI market is digital assistants (30% of the market), a form of weak AI, which includes automated systems such as Apple's Siri or Amazon's Alexa[10]. Many countries are involved in the development of Artificial Intelligence, however some are more ahead than others.

Countries can be classified as more important in the development of Artificial Intelligence based on certain factors: how many patents they have obtained, the funding available, and how many major companies they have that are developing Artificial Intelligence. Looking at the amount of patents that were given out between 2014 and 2015, we can see that the United States is in the lead with 1550 published patents[11]. China has the next highest amount with only 306 published patents between 2014 and 2015. However, to see what countries will most likely take front in the next couple years for Artificial Intelligence the amount of money given by venture capitals and the government can give us an accurate sense on what countries are most invested. The United States currently has the highest venture capital at 10 billion dollars given to

[9] "What Is AI (Artificial Intelligence)? - Definition from WhatIs.com." *SearchCIO*, searchcio.techtarget.com
[10] Faggella, Daniel. "Artificial Intelligence Industry – An Overview by Segment." *TechEmergence*, 1 Sept. 2017, www.techemergence.com/artificial-intelligence-industry-an-overview-by-segment/
[11] Shifts in Artificial Intelligence Technology Invention: A Global Patent Analysis." *RIETI - Trends and Priority Shifts in Artificial Intelligence Technology Invention: A Global Patent Analysis*, www.rieti.go.jp/en/publications/summary/17050002.html.

Artificial Intelligence research[12]. However, China has also recently published their plans for the next 12 years in which the funds given for Artificial Intelligence have been raised by 190%. They are aiming on building a Artificial Intelligence industry that would be worth 150 billion dollars[13]. Other notable countries that are competing in the AI industry are Russia, Japan, Estonia, Canada and Israel. The competing countries in AI are all first world countries that have strong research facilities and powerful companies, which are both dedicated to developing new AI systems. Additionally to this, Artificial Intelligence will be increasingly used in companies for example for cyber security.

The value of the worldwide Artificial Intelligence value is predicted to increase from $643 million in 2016 to $36.8 billion in 2025[14]. This is directly correlated to how Artificial Intelligence will be more present in our daily lives as well as how new developments will be increasingly used by companies. One notable example important to our daily lives, is the increasing number of self-driving cars being developed and the current semi-autonomous cars being sold. Semi-autonomous cars are already being produced by companies like Tesla, BMW, Infiniti, and Mercedes-Benz. This will possibly decrease the need for public transportation as self-driving taxis would be approximately seven times cheaper. Additionally to this, Artificial Intelligence is being used by companies and banks as a form of cyber security as it effectively is able to identify threats and respond to them. Many companies use Big Data which is the ability to collect and analyze large amounts of data and is often stored on online databases. However, by using these online databases the data is subject to hackers.

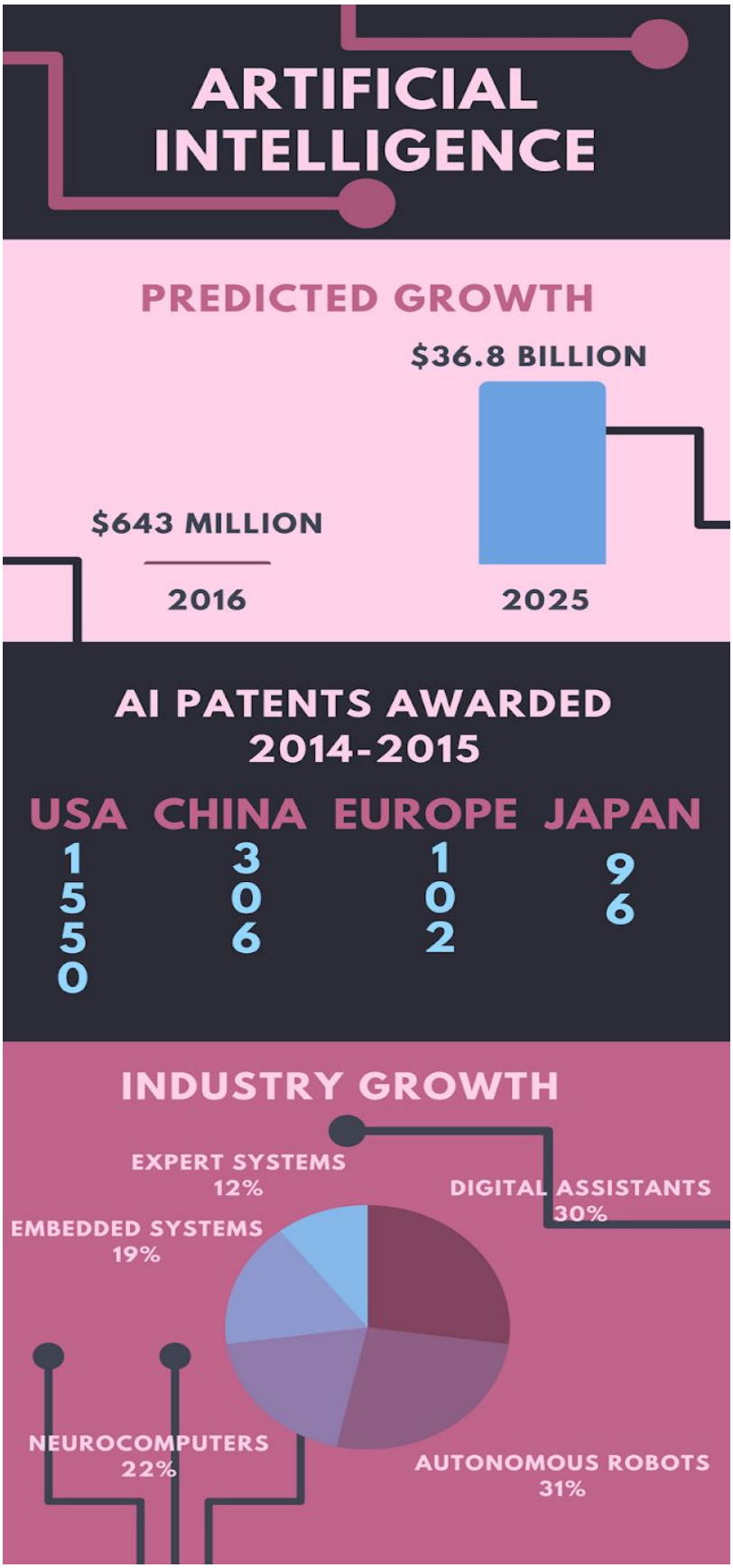
It is clear to see that Artificial Intelligence will be increasingly present in our daily lives and that the precision at which AI systems will work at and the variety of AI available are going to increase immensely in the coming years.

---

[12] Minevich, Mark. “These Seven Countries Are In A Race To Rule The World With AI.” *Forbes*, Forbes Magazine, 5 Dec. 2017, www.forbes.com/forbestechcouncil/these-seven-countries-are-in-a-race-to-rule-the-world-with-ai

[13] Mozur, Paul. “Beijing Wants A.I. to Be Made in China by 2030.” *The New York Times*, The New York Times, 20 July 2017, www.nytimes.com/2017/07/20/business/china-artificial-intelligence.html?

[14] “Artificial Intelligence Revenue to Reach $36.8 Billion Worldwide by 2025, According to Tractica.” *Artificial Intelligence Revenue to Reach $36.8 Billion Worldwide by 2025, According to Tractica | Business Wire*, 25 Aug. 2016 www.businesswire.com/news/home/Artificial-Intelligence-Revenue-Reach-36.8-Billion-Worldwide


ARTIFICIAL INTELLIGENCE
PREDICTED GROWTH
$36.8 BILLION
$643 MILLION
2016
2025
AI PATENTS AWARDED 2014-2015
USA
1550
CHINA
306
EUROPE
102
JAPAN
96
INDUSTRY GROWTH
EXPERT SYSTEMS 12%
DIGITAL ASSISTANTS 30%
EMBEDDED SYSTEMS 19%
NEUROCOMPUTERS 22%
AUTONOMOUS ROBOTS 31%

Digital Assistance: Bitcoin, 3D Printing & Drones

Kresten Due

Artificial Intelligence (AI) is becoming more prevalent. Revenues from AI are expected to reach anywhere between $35.8 billion[15] to $59.8 billion by 2025[16]. Furthermore, it is predicted that by 2020, 85% of customer interactions with enterprises will be facilitated primarily by AI[17]. Approximately 8% of all US households already have a smart speaker (Amazon Echo or Google Home), a number which is expected to grow by 67% by 2020[18]. AI will have many positive effects, some of which can already be seen today. Google's predictive search function uses AI and a variety of inputs to determine what you're likely to search. Facebook can notify you of pictures you are tagged in and can recognize faces with 97.25% accuracy (humans have an accuracy of 97.53%)! AI is also offering the ability to diagnose medical issues without the presence of a medical professional[19]. These technologies are only scratching the surface of what AI is capable of. On the other hand, there is fear of a "Matrix-esque", a future controlled entirely by AI. Should AI be able to invade and record our privacy? It is too early to tell what the effects of an AI revolution will be.

Another large trend in technology is the delocalization of things. Bitcoin (BTC) is beginning to damage banking. There are currently 16.8 million BTC in circulation, worth approximately $275 billion. Bitcoin uses the blockchain, which allows currency to be tracked and prevents fraud. Furthermore, through innovative use of transferring and money generation processes (mining) bitcoin has created a very valuable, though very volatile currency. Increased use of bitcoin will decrease regulation of capital, will allow for more seamless and efficient online interaction, and decrease the power of central banks. On the other hand, bitcoin is speculative and risky and it is currently extremely unstable. Will the bubble burst? It is also completely anonymous and an increase in its use may lead to the emergence of new illegal markets. Some such already exist such as the "Silk Road", an online marketplace for illegal goods[20]. What else will be

---

[15] Artificial Intelligence Market Analysis By Solution, By Technology, By End-use, By Region, and Segment Forecasts, 2014 - 2025. Grand View Research, July 2017. Grand View Research, www.grandviewresearch.com/industry-analysis/artificial-intelligence-ai-market

[16] "Artificial Intelligence Software Revenue to Reach $59.8 Billion Worldwide by 2025." Tractica, 2 May 2017, www.tractica.com/newsroom/press-releases/artificial-intelligence-software-revenue

[17] Gartner Customer 360 Summit 2011. Gartner, 2011. Gartner, www.gartner.com/imagesrv/summits/docs/na/customer-360/C360_2011_brochure_FINAL.pdf

[18] Kinsella, Bret. "Survey Says 18.8 Million Amazon Echo Devices Sold." voicebot.ai, Voicebot, 19 June 2017, www.voicebot.ai/2017/06/19/survey-says-18-8-million-amazon-echo-devices-sold/.

[19] Parkin, Simon. "The Artificially Intelligent Doctor Will Hear You Now." MIT Technology Review. MIT Technology Review, www.technologyreview.com/the-artificially-intelligent-doctor-will-hear-you-now/.

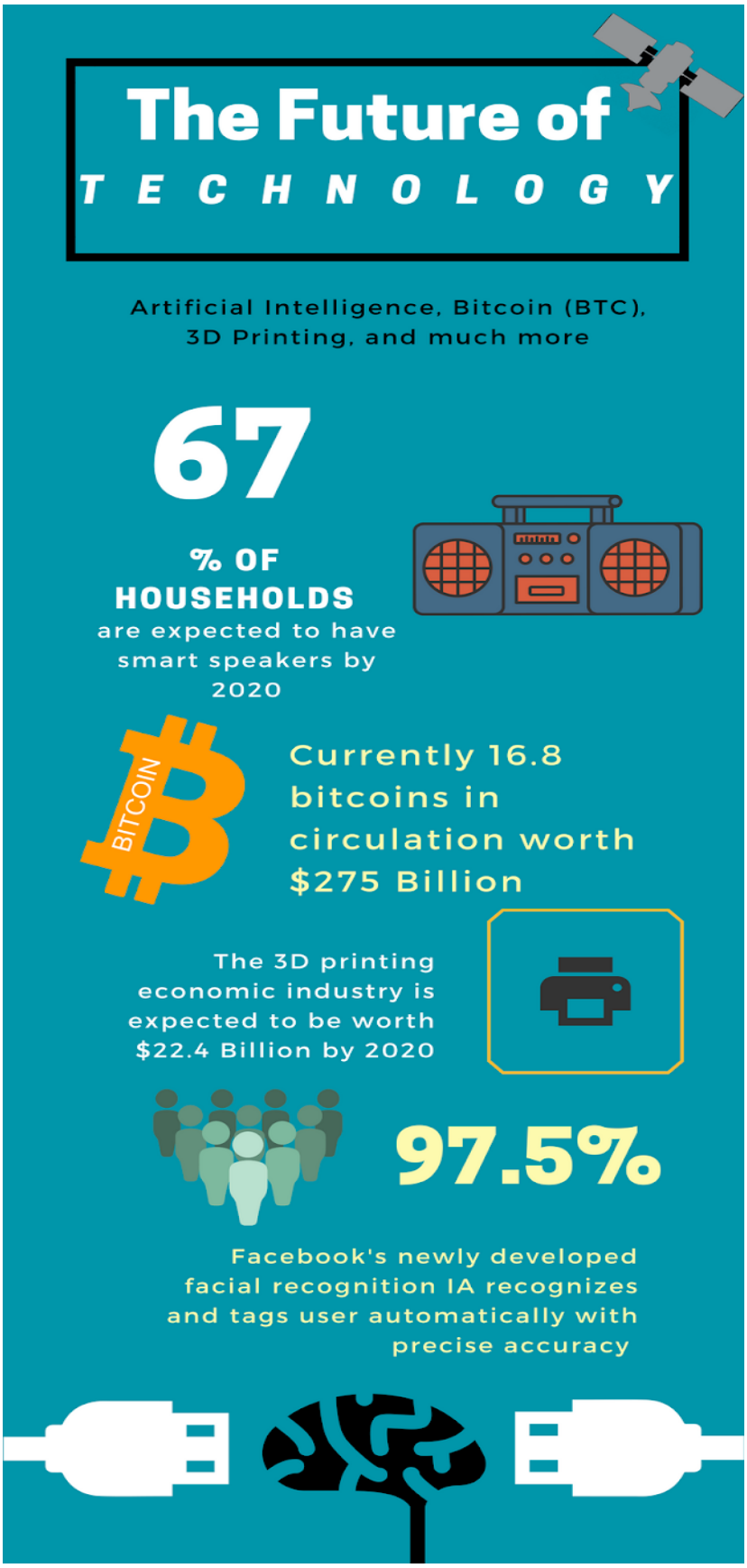
[20] "5 Impacts of Bitcoin on Economy, Banking & Finance." NewGenApps, 25 July 2017, www.newgenapps.com/blog/impact-of-bitcoins-on-the-economy-banks-finance

delocalized? More mainstream markets have already gone under this change; a process primarily lead by Amazon.

Technology is undergoing significant upheaval ranging from growth in 3D printing to advancements in the drone industry. Sculpteo, a 3D printing service, released its findings about the technology: 72% of its clients expect their spendings on the technology to increase[21]. It is predicted that by 2020, 2.4 million 3D printers will be shipped (182,000 were shipped in 2015) and that the global market for 3D printers will grow to $22.4 billion[22]. With new developments, it is possible that 3D printing could replace other forms of manufacturing. This reality is becoming more plausible now that 3D printing is no longer reserved for plastics, but can also be used for different metals and compounds[23]. 3D printing will likely be used in the production of customized goods like 3D printed shoes, which has already been made by Adidas[24]. Similarly, the market for drones is experiencing an extreme increase in production. The Federal Aviation Administration (FAA) estimates that 2.5 million drones regularly fly over American skies. In 2020, that number could almost triple, with 7 million drones projected to be active[25].

Technology is constantly evolving. One year's state of the art machine is obsolete by the next. While the aforementioned fields seem promising, it is entirely possible that they will all turn out to have minimal use beyond what they can do now or it might completely change the way we live. The only way to figure out what will happen, is to wait and see.

[21] "The State of 3D Printing." Sculpteo, 2017, www.sculpteo.com/media/ebook/State%20of%203DP%202017_1.pdf
[22] "3D Printing Market to Be Worth US$22.4 Billion in 2020." Canalys, 16 May 2016, www.canalys.com/static/press_release/2016/media-alert-17052016-3d-printing-market-be-worth-us224-bil
[23] "The State of 3D Printing." Sculpteo, 2017, www.sculpteo.com/media/ebook/State%20of%203DP%202017_1.pdf
[24] Yurieff, Kaya. "Adidas unveils new 3D printed shoe." CNN, 7 Apr. 2017. CNN, http://money.cnn.com/adidas-3d-printed-shoe
[25] Atherton, Kelsey D. "The FAA Says There Will Be 7 Million Drones Flying Over America By 2020." Popular Science, 24 Mar. 2016, www.popsci.com/new-faa-report-stares-in-face-drone-filled-future


The Future of
TECHNOLOGY
Artificial Intelligence, Bitcoin (BTC), 3D Printing, and much more
67
% OF HOUSEHOLDS
are expected to have smart speakers by 2020
BITCOIN
Currently 16.8 bitcoins in circulation worth $275 Billion
The 3D printing economic industry is expected to be worth $22.4 Billion by 2020
97.5%
Facebook's newly developed facial recognition IA recognizes and tags user automatically with precise accuracy

What are the Consequences of Technology?

Juan Carlos Pena

The evolution of technology has changed society in both positive and negative ways. Technology has simplified the access to many tools people need in education, medicine, communication, transportation, etc. It has allowed for the advancement of knowledge and research in many areas of study around the world; especially in genetics, astronomy, physics, and even other unconventional areas. It is important to be informed of the advancements that may lead to the surpassing of human capabilities by robots and it is vital to know the consequences and repercussions it holds on worldwide society. These advances will no doubt drastically change the way we live our lives.

The most influential technological advancement taking place in the present day often involve events that take place in the routines of average people. This affects daily actions, like commutes, leisure time, drives, and learning accessibility. According to the MIT Technology Review, 2017 was a year that brought many technological innovations to the aforementioned daily routines. Amongst the most notable of technological advances are self driving cars and trucks, and practical quantum computers. Self driving cars and trucks will to an extent be able to remove the issue of human error when transporting goods while increasing productivity. In fact, it is predicted that automation could raise productivity growth globally by 0.8 to 1.4 percent annually from 2015-2065[26]. A practical quantum computer is a specialized piece of technology that is in the process of being completed. However, once all the pieces come together, quantum computers could potentially increase the computing power of many non-governmental corporations and could expand their capabilities in research, which has not been previously accessible to the masses. Quantum processing will allow work that usually takes years to complete and will reduce it to a matter of simply a couple of minutes. What these computers could process in a second, a normal computer can't even handle in a lifetime.

Eventually, enough technological advances will lead to machines to become smarter than their creators. This takes importance in the field of Artificial Intelligence (AI). Machines equipped with AI are currently handling huge amounts of data and will soon be able to analyze certain situations and act accordingly to find the best solutions. These types of machines will soon have more reasoning capabilities superior to that of humans by 2029, according to HP's Chief Technology Officer (CTO)[27]. Artificial

---

[26] James Manyika, Michael Chui, Mehdi Miremadi, Jacques Bughin, Katy George, Paul Willmott, and Martin Dewhurst. "Harnessing Automation for a Future That Works." McKinsey & Company, www.mckinsey.com/global-themes/digital-disruption/harnessing-automation-for-a-future-that-works.

[27] Ians. "Robots Will Become Smarter than Humans by 2029: HP CTO." The Hindu, 13 Sept. 2017, www.thehindu.com/sci-tech/technology/robots-will-become-smarter-than-humans-by-2029-hp-cto/article19675232.ec

Intelligence may also be a useful factor in the administration of hacking or data breaches. In fact, HP's CTO stated that the Equifax hacking scandal, which affected the privacy of 120 million people, would have been better solved and responded to if AI had been implemented into the management services.

A new way of thinking has emerged about the future solely based on the presumption that the human race, in its current form, will continue to progress further.[28] It is known as transhumanism, where the combination of technology and human biology will be able to overcome many limitations to the human conditions such as thinking capabilities, restoring limbs, and enhancing abilities such as strength and stamina. Without going as far as this thinking, technology in the broader aspect can eliminate diseases, provide affordable products to the world's poorest, and enhance the quality of life. For example, CRISPR-Cas9 is a genome editing tool that enables organisms to respond and eliminate invading genetic material. According to the U.S National Library of Medicine, genetic engineering will become cheap and compelling, allowing humans to be immune to certain types of diseases[29]. Writer Eric Drexler stated in his book, *Nanosystems: Molecular Machinery, Manufacturing, and Computation,* that ever since the 17th century, scientists are finding new ways to allow technology to manipulate our human body. These technological innovations will change the future as we know it.

The consequences of advancing technology has many social and political implications. Artificial Intelligence will have social consequences in the sense that people will fear that technology will be misused, fear that it will create inequality, and fear that it will play with the morals and ethics of society. A public opinion poll found that 56.3% of voters are not afraid of intelligent machines, but are afraid of how humans will use the technology[30]. The McKinsey Global Institute released statistics indicating that 48% believed the rise of AI would negatively affect blue and white collar workers, leading to higher levels of inequality. Artificial Intelligence is also politically polarizing, as it serves as a national threat. It can be used as a military tool in warfare, but can also be seen as a threat by some nations. Will this mean that governments will have to implement specific legislation in order to ensure that AI will properly be used within the ethical standards of the nation?

Current day technological advances are extremely beneficial in enhancing the human scope; however, developing technological innovations that surpass human skills bring in social and political questions.

---

[28] Vita-More, Natasha. "What Is Transhumanism?" What Is Transhumanism?, whatistranshumanism.org/.
[29] Nissimov, Michael. "Lifeboat Foundation." Top Ten Transhumanist Technologies, Lifeboat.com/ex/transhumanist.technologies
[30] "Artificial Intelligence: Socioeconomic, Political and Ethical Dimensions." Pambazuka News, www.pambazuka.org/ict-media-security/artificial-intelligence-socioeconomic-political-and-ethical-dimensions.

CONSEQUENCES OF TECHNOLOGY

IN AUTOMATION

INCREASE IN PRODUCTIVITY BY 1.4% FROM 2015-2065

SELF-DRIVING CARS:
REMOVE ISSUES OF HUMAN ERROR?
ETHICAL?

HUMAN VS MACHINE

56.3% OF PEOPLE ARE NOT AFRAID OF INTELLIGENT MACHINES

INTELLIGENT MACHINES COULD POTENTIALLY HAVE MORE REASONING CAPABILITIES THAN HUMANS BY 2029

What is Technology's Impact on the Environment?

Isabelle Jaber and Luna Maki

Nowadays, technology drives innovation. It touches many areas of our world from medicine, to fashion, to food, to the government, but most importantly it has been—to a certain extent—crucial to promoting productivity and environmental sustainability. In recent years, workers have been producing 47% more than 20 years ago; however, in the process of doing so, they are generating more waste and requiring more power consumption than ever[31]. This is due to the development of robots, advanced manufacturing, automation, and computerized systems. The United Nations has calculated that producing the average computer and monitor requires 530 pounds of fossil fuels, 48 pounds of chemicals, and 1.5 tons of water[32]. Although producing technology (as well as discarding it) has detrimental effects to the environment, it benefits society in numerous ways. Computers, phones, and other pieces of technology have improved lifestyle and productivity, not to mention developed technology that also helps our environment to convert energy. But, we have to ask ourselves: does technology do more harm than good to the environment?

Advances in farming technology have led to cheaper and more diverse food options. However, technological advances that improve production, such as pesticides and chemical fertilizers, also harm the environment. Modern fertilizers do increase yields, but they linger in the local environment, damaging soil and groundwater and creating "dead zones" in lakes and oceans. Pesticides may kill the pests that affect crops, but it also kills beneficial insects and animals, and can build up a population of pesticide-resistant insects that will damage future yields[33]. Industrial livestock farms contain massive cesspools that store animal waste. They have been known to leak nitrates, dangerous microbes, and drug-resistant bacteria into nearby waterways. When these byproducts get into local waterways, they cause toxic algae which deplete the oxygen required to support most marine life. High levels of nitrates in drinking water can cause spontaneous abortions and bacteria outbreaks that are responsible for several diseases across the United States[34].

Though technology has its adverse effects during use, study shows that 81% of the energy a computer expends is during production, according to the United Nations University. In other words, it takes more energy to create a computer than it takes to run

---

[31] West, Darrell M. "SolarGaps for Homes." SolarGaps Home, 2 June 2017, https://solargaps.com
[32] Soltan, Liz. "Technology Depleting Resources and Pollution." Digital Responsibility, www.digitalresponsibility.org/technology-depleting-resources-and-pollution.
[33] Gellert, Andrew. "Technological Advancement and the Effect on the Ecosystem." *Sciencing*, 25 Apr. 2017, https://sciencing.com/technological-advancement-effect-ecosystem-23107.html.
[34] Good, Kate. "5 Ways Factory Farming is Killing the Environment." One Green Planet, 16 Sept. 2017, www.onegreenplanet.org/animalsandnature/factory-farming-is-killing-the-environment/.

the computer for its entire working lifetime. That makes computers different than other household appliances, which tend to use more energy during their running lifetime than in production. But what happens when there is no more use to that piece of technology? What takes place when your computer gets too old? The U.S. exports 50% to 80% of its e-waste to poor Asian countries for “recycling”. We discard 20 to 50 million tons of “technotrash” worldwide every year, which amounts to about 5% of all solid waste. This ‘technotrash’ is processed by poor workers in rural towns in places like China and India. They expose workers and their communities to shocking levels of toxic materials, turning towns into contaminated dumps[35]. However, there are not enough workers to break down and “recycle” unwanted technology especially with the increasing trend of waste that is being produced. For example,152 million mobile devices were thrown away in 2010 and only 11% were collected for recycling.

Nonetheless, there are some forms of technology that are making an impactful difference on the environment. The recent pressing issue of rising carbon dioxide emissions has called for a major technological breakthrough to capture CO_2 to slow down global warming. In the past years, 40 billion metric tons of CO_2 have been discharged into the atmosphere annually[36]. This number is no surprise due to the new innovations our modern world has invented. 2 billion cars and trucks, thousands of coal-fired power plants, and billions of tons of mined coal, oil, and natural gas are some of the components that make up the CO_2 in the world. This affects a wide range of events, from meltdowns in the Arctic, to thawing glaciers worldwide, to unstable weather, and to rising sea levels. However, technological breakthroughs have started to reverse the pollution that has been done to this world. In fact, U.S. emissions of CO_2 are now back down to levels last seen in the last decade of the 20th century.

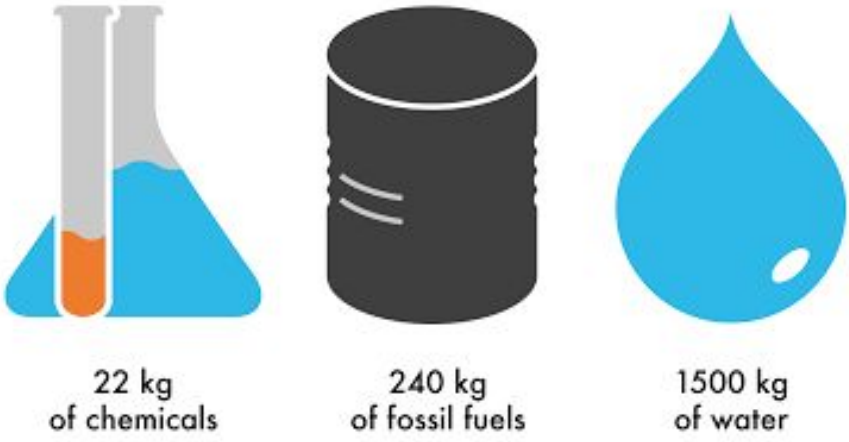
Technology has had multiple effects on the environment: some are negative, some are being used to keep the effects of climate change at bay, and others are vitally important. Technology is a key agent in affecting how the United Nations’ Sustainable Development Goals 3, 6, 9, 13, 14 and 15 will be accomplished[37]. Using technology effectively and efficiently will help to accomplish these goals, thereby improving the quality of life for billions of people all around the world.

---

[35] Soltan, Liz. “Technology Depleting Resources and Pollution.” *Digital Responsibility*, www.digitalresponsibility.org/technology-depleting-resources-and-pollution.

[36] Biello, David. “How Far Can Technology Go to Stave Off Climate Change?” Yale E360, 18 Jan. 2017, www.e360.yale.edu/features/how_far_can_technology_go_to_stave_off_climate_change.

[37] “SDGs .:. Sustainable Development Knowledge Platform.” *United Nations*, United Nations, https://sustainabledevelopment.un.org/sdgs.



What it takes to make a computer + monitor

152 million mobile devices discarded in 2010

How Accessible is the Dark Web?

Femke Teunissen

The Internet is a much bigger platform than most people probably have realized. When we use the Internet we can only see 4% of the available information. The other 96% of the Internet consists of the dark web and the deep web, which are not accessible through standard search engines[38]. The dark web, also known as the hidden web or the invisible web, is only accessible with special software. The deep web is the opposite of the surface web, and it is known to be 500 times larger[39]. The deep web and the dark web are not indexed, thereby making them invisible to the public.

The dark web is a small part of the deep web that is not easily accessed and requires additional private information and authorization[40]. The dark web is found on darknets and overlay networks and requires certain software[41]. A software that is commonly used to access the dark web is the Tor browser. Tor helps users access pages on the dark web that have a ".onion" extension, while disguising the user's identity by routing traffic through a complex network of servers. It is the most popular and well known network of its kind, and it is used worldwide by over 750,000 Internet users every day. Over half of Tor users are located in Europe. Italy, in particular, accounts for over 76,000 users a day and the United States has over 126,000 people accessing the Internet through Tor daily[42].

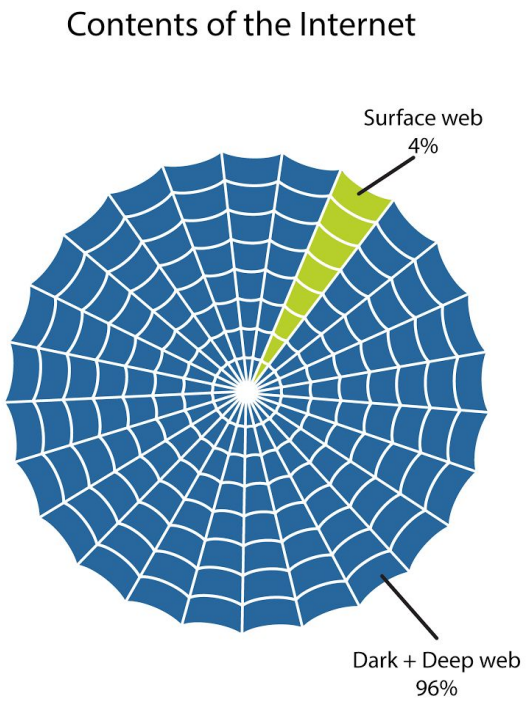
Since the dark web acts as a cloak, it appeals to certain groups or individuals. It helps with illegal activities, such as child pornography, drug trade, firearm trade, and the dealing of credit card information. The Silk Road, a black market for drug and weapon trade, was shut down in 2013. It was one of the most famous cases of the use of the dark web. The Silk Road was owned and operated by Ross Ulbricht, who was arrested shortly after the shut down of the site and is currently serving a life sentence in prison. In fact, cybercrime is a big business that is projected to grow to $600 billion this year, outpacing any other form of crime, according to the the United Nations Office on Drugs and Crime[43]. However, technology continues to evolve and law enforcement has cracked down on accessing these black markets on the dark web and applying appropriate punishments to those responsible. For example, the joint operation to shut

---

[38] Staff, NPR. "Going Dark: The Internet Behind The Internet." NPR, NPR, 25 May 2014, www.npr.org/sections/alltechconsidered/2014/05/25/315821415/going-dark-the-internet-behind-the-internet
[39] "What Is Deep Web? - Definition from WhatIs.com." TechTarget, July 2016, whatis.techtarget.com/definition/deep-Web
[40] Staff, NPR. "Going Dark: The Internet Behind The Internet." NPR, NPR, 25 May 2014, www.npr.org/sections/alltechconsidered/2014/05/25/315821415/going-dark-the-internet-behind-the-internet
[41] Finklea, Kristin. "Dark Web." Congressional Research Service, 10 Mar. 2017, https://fas.org/sgp/crs/misc/R44101.pdf
[42] "The Anonymous Internet." Tor Metrics, Aug. 2013, metrics.torproject.org/oxford-anonymous-internet.html.
[43] Taylor, Harriet. "Hit Men, Drugs and Malicious Teens: the Darknet Is Going Mainstream." CNBC, CNBC, 19 May 2016, www.cnbc.com/2016/05/18/hit-men-drugs-and-malicious-teens-the-darknet-is-going-mainstream.html

down Hansa and Alphabay, the two biggest dark web markets, required both the America's FBI and the Drug Enforcement Agency and the Dutch police to effectively terminate these sites. As a result, they were able to obtain the postal addresses of over 10,000 dark web users[44].

In addition, the dark web is also used for other "non-illegal activities". For example, the U.S. government surveillance program used the dark web as their channel to communicate with the media and the media used the dark web to avoid being caught. Furthermore, in countries with large media crackdowns the dark web can be used to access these websites. In China, this is a way for the Chinese citizens to circumvent the Great Firewall. It has also been extremely prevalent during the Arab Spring. In Iran, Tor users soared to around 40,000 in 2012 from 7,000 in 2010. Similarly, the number of users of Tor in Syria have also dramatically increased from 600 to 15,000[45]. The dark web is becoming more mainstream and big companies are starting to utilize it more. This is primarily because everyone is becoming more concerned about privacy, especially online[46]. In turn, this could mean that eventually everyone will be using it for either illegal or legal purposes



[44] " Two of the Biggest Dark-Web Markets Have Been Shut Down." The Economist, The Economist Newspaper, 21 July 2017, www.economist.com/blogs/graphicdetail/2017/07/daily-chart-13.
[45] Staff, NPR. "Going Dark: The Internet Behind The Internet." NPR, NPR, 25 May 2014, www.npr.org/sections/alltechconsidered/2014/05/25/315821415/going-dark-the-internet-behind-the-internet
[46] Lazzaro, Sage. "The Dark Net Is Becoming Mainstream-Here's Why." Observer, Observer, 3 Sept. 2015, observer.com/2015/09/the-dark-net-is-becoming-mainstream-heres-why/

Cyberwarfare: The New Face of War

Timothy Lin

We're currently living through the next generation of war, though we may not think it so. There seems to be no cause for alarm: it doesn't involve missiles, tanks, or dead men on the front lines. Much of this new "cyber war" is hidden under the surface. Yet the impacts are far-reaching and have the potential to disrupt the livelihoods and security of billions of people worldwide.

To be sure, recent advances in communications technology have certainly been a boon for many, but they have also added a scary new dimension for military strategists as we see a new computer-based, disruptive type of warfare—known as cyber warfare—emerge. Our increasing reliance on computer networks to store sensitive information, including personal and business finances, as well as governmental classified information, comes with the increasing risk of infiltration through cyber means. The financial impact is already great. It's estimated that the monetary damage from cybercriminal thefts alone totals to $3 trillion annually as of 2015 - a statistic that represents the greatest transfer of wealth in human history[47]. And that's not all: our modern infrastructure and military systems are also largely digitized, so a remote cyberattack from overseas could also lead to complete dysfunction of power grids or military arsenals and cause economies and political systems to grind to a screeching halt. Cyberwarfare, much like traditional warfare, has the potential to affect absolutely anyone, regardless of location.

This isn't some hypothesis of the future: it's our current reality. In 2017, a total of 1061 major cyberattacks were recorded, an increase over the 950 cyberattacks recorded in 2016[48]. We're seeing both state and non-state actors racing to develop their own cyberwarfare capabilities, that ranges from large state-run cyberwarfare wings in China, Iran, Russia, South Korea[49], and the US to smaller-scale threats posed by individual cyberterrorists and cybercriminals.

Cyberwarfare has already been used as a means for states to interfere in the affairs of other states, with very tangible results. North Korea has allegedly launched the WannaCry cyberattacks against the US with the attempt to disrupt essential US services, including hospitals and banks[50]. Groups of Russian hackers are widely

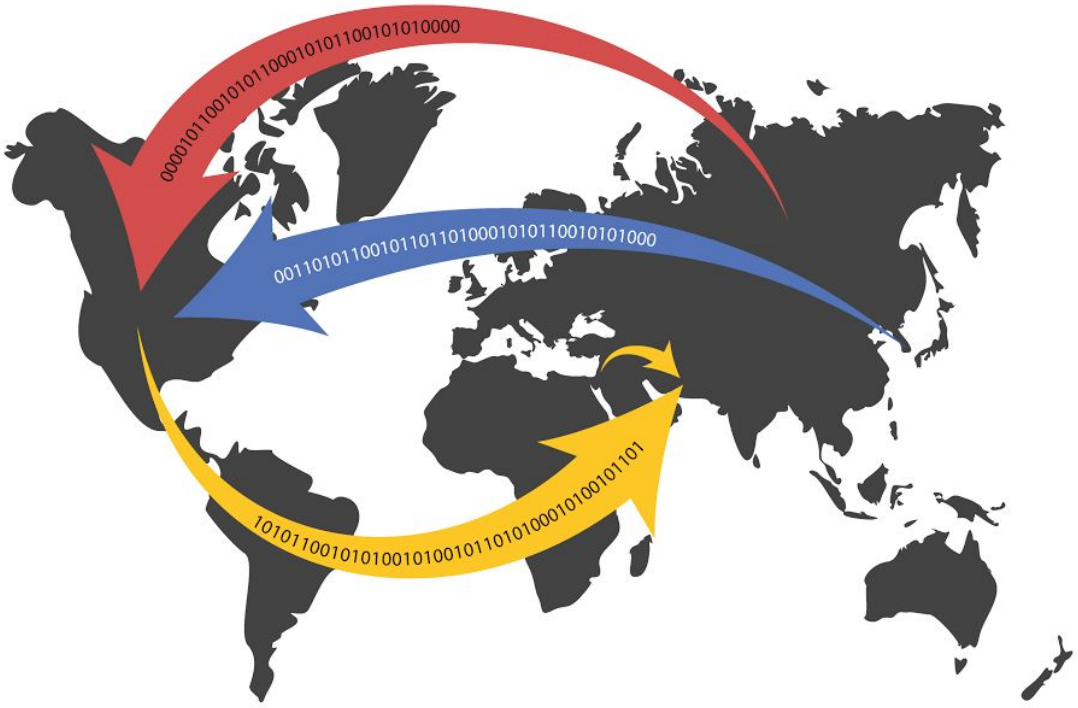
---

[47] Morgan, Steve. "Top 5 Cybersecurity Facts, Figures and Statistics for 2018." *CSO Online*, CSO, 23 Jan. 2018, www.csoonline.com/article/3153707/security/top-5-cybersecurity-facts-figures-and-statistics.html.
[48] Passeri, Paolo. "2017 Cyber Attacks Statistics." *Hackmageddon*, 17 Jan. 2018, www.hackmageddon.com/2018/01/17/2017-cyber-attacks-statistics
[49] Dujmovic, Jurica. "This Is South Korea's Elite Cyber Army That Fights North Korea."*MarketWatch*, 30 June 2016, www.marketwatch.com/story/this-is-south-koreas-elite-cyber-army-that-fights-north-korea-2016-06-30
[50] Volz;, Dustin. "U.S. Blames North Korea for 'WannaCry' Cyber Attack." *Reuters*, Thomson Reuters, 19 Dec. 2017, www.reuters.com/article/us-usa-cyber-northkorea/u-s-blames-north-korea-for-wannacry-cyber-attack-idUSKBN1ED00

believed to have used cyberwarfare to hack into the emails of US politicians to influence the results of the 2016 US presidential election[51]. The US and Israel, in turn, are thought to have developed computer worms to damage the development of Iran's nuclear program[52]. The rate and sophistication of these attacks are surely poised to increase in the future as cyber technology develops further.

The most difficult facet of this new face of warfare is proper attribution. We can see the effects of cyberattacks plainly and clearly enough, but placing the blame is much harder due to the untraceable, anonymous nature of cyberattacks. States frequently deny responsibility for allegations of cyberattacks, and the distinction between actions committed by foreign rogue actors unaffiliated with governments versus state-orchestrated attacks is indeed an impossible distinction to make.

In the meantime, states lack a unified response to cyberattacks. Should these attacks be considered acts of war since they represent undue interference in the affairs of other states? Or should they be considered as standard acts of espionage, par for the course for the world's intelligence agencies? It is ultimately up to the international community to decide the answers to these and other pressing questions regarding this new frontier of warfare.



[51] McFadden, Cynthia, et al. "Russians Penetrated U.S. Voter Systems, Top U.S. Official Says."*NBCNews.com*, NBCUniversal News Group, 8 Feb. 2018, www.nbcnews.com/politics/elections/russians-penetrated-u-s-voter-systems-says-top-u-s-n845721.

[52] Nakashima, Ellen, and Joby Warrick. "Stuxnet Was Work of U.S. and Israeli Experts, Officials Say." *The Washington Post*, WP Company, 2 June 2012, www.washingtonpost.com/world/national-security/stuxnet-was-work-of-us-and-israeli-experts-officials-say/2012/06/01/gJQAlnEy6U_story.html?utm_term=.e6f2ca83b0fc.

Breaking News or Fake News?

Paloma Delgado

As Martin Luther King Jr. once said, “Nothing in the world is more dangerous than sincere ignorance and conscientious stupidity.”[53] Fake news is a phenomenon that has been taking the world by storm. It can be defined as deliberately false, fabricated pieces of information, distributed through news and social media platforms. Moreover, fake news can be described as a somewhat old propaganda technique. However, the use of computational propaganda is new. This technique involves the use of highly automated accounts, also known as “bots”, that spread fake information to sway public opinion[54]. Social media platforms such as Facebook, Twitter, Youtube, and Instagram are common sites used for the dissemination of fake news. In a survey conducted by Stanford University in 2016, 14% of participants considered Facebook and Twitter as their primary source for news[55]. That being said, a study conducted by Buzzfeed News and Ipsos found that 75% of American adults were unable to distinguish between real and fake headlines[56]. Fake news has been around for decades; however, the methods of distribution for this have recently seen major innovations, particularly through the introduction of bots. They are a powerful tool that can be used for the spreading of falsities, as well as pinpointing political attacks. These highly automated and efficient accounts can produce incredibly believable, human like responses and articles with the press of a button[57].

It is only until recently that feeding false information through the Internet has been used as a form of cyberwarfare. In 2007, the Estonian government mainframe was taken over by what still appears to be Russian hackers. They blocked the Estonian government from accessing online records and websites such as, the parliament website, various banks, health records, and many government agencies. While denying the government access from their mainframe, they simultaneously released a multitude of fake articles and advertisements that often depicted the corruption of the Estonian government and Russian Federation propaganda. These false advertisements and articles caused massive public distress and eventually lead to some of the most severe riots in Estonia's history. The government was forced to quite literally pull the plug in order to stop the attacks[58].

---

[53] Martin Luther King Jr.
[54] Woolley, Samuel C, and Philip N Howard. “Computational Propaganda Research Project.” University of Oxford
[55] Allcott, Hunt, and Matthew Gentzkow. “Social Media and Fake News in the 2016 Election.” Stanford University, 2017
[56] Singer-Vine, Craig Silverman Jeremy. “Most Americans Who See Fake News Believe It, New Survey Says.” *BuzzFeed*, 6 Dec. 2016
[57] Darrow, Barb. “Blue Prism Software Which Makes Bots Productive Will Now Run in the Cloud.” *Fortune*, 7 June
[58] Krogerus, Hannes Grassegger and Mikael. “Fake News and Botnets: How Russia Weaponized the Web.” *The Guardian*, 4 Dec. 2017

More recently, during the 2016 U.S. presidential elections, the presidential candidate Donald Trump coined the phrase “fake news” to describe news outlets that would often disagree with his policies, rhetoric, etc. Media giants such as CNN, *The New York Times*, and *The Washington Post* all made up Trump’s group of so-called fake news outlets[59]. These claims led to an overall decrease in the general public's trust in mainstream media: among Democrats trust went from around 55% to 53% and among republicans it went from around 35% to 10%. Overall, trust in mainstream media dropped from around 40% to 30%[60].

During this same time period, highly automated accounts or bots on Twitter would consistently bombard the website with pro-Trump and pro-Hillary tweets. According to experts at the University of Washington, Oxford University, and Corvinus University, if these highly automated accounts tweet 450 times a day or more they can be considered as a “bot”. During the days leading up to election day, particularly in the morning, 20 to 25% of all Twitter traffic was generated by bots. The gap between highly automated pro-Trump and pro-Clinton activity widened from 4:1 during the first debate to 5:1 by election day[61].

Creating convincing fake articles and propaganda may not seem like a difficult thing to achieve; however, there have been recent innovations in Artificial Intelligence (AI) that allow a person to re-configure both audio and video clips in order to create incredibly convincing fake media. The University of Washington was recently able to create a video of former U.S. President, Barack Obama, give a convincing speech that had been fully fabricated[62]. The potential dangers and overall implications of these recent developments in fabricated media creation can be astronomical.

Fake news is not only distributed by individual people and entities. Recently there have been advances in AI to produce fake news, more specifically fake product reviews. Recently, over 900 reviews under Hillary Clinton’s new book, “What Happened”, were removed from Amazon’s page. Those 900 comments were varying positive and negative reviews about the book, but none of those “reviewers” had actually purchased the book. These fake reviews are becoming more and more common due to the increasing use of computer algorithms made specifically for this one purpose. As a result of this, a group at the University of Chicago decided to develop their own AI based machine to find out whether or not a more sophisticated piece of AI could be used to mass produce effective reviews on Yelp, a popular restaurant review website. Their AI based machine successfully bypassed Yelp’s security algorithms and was used

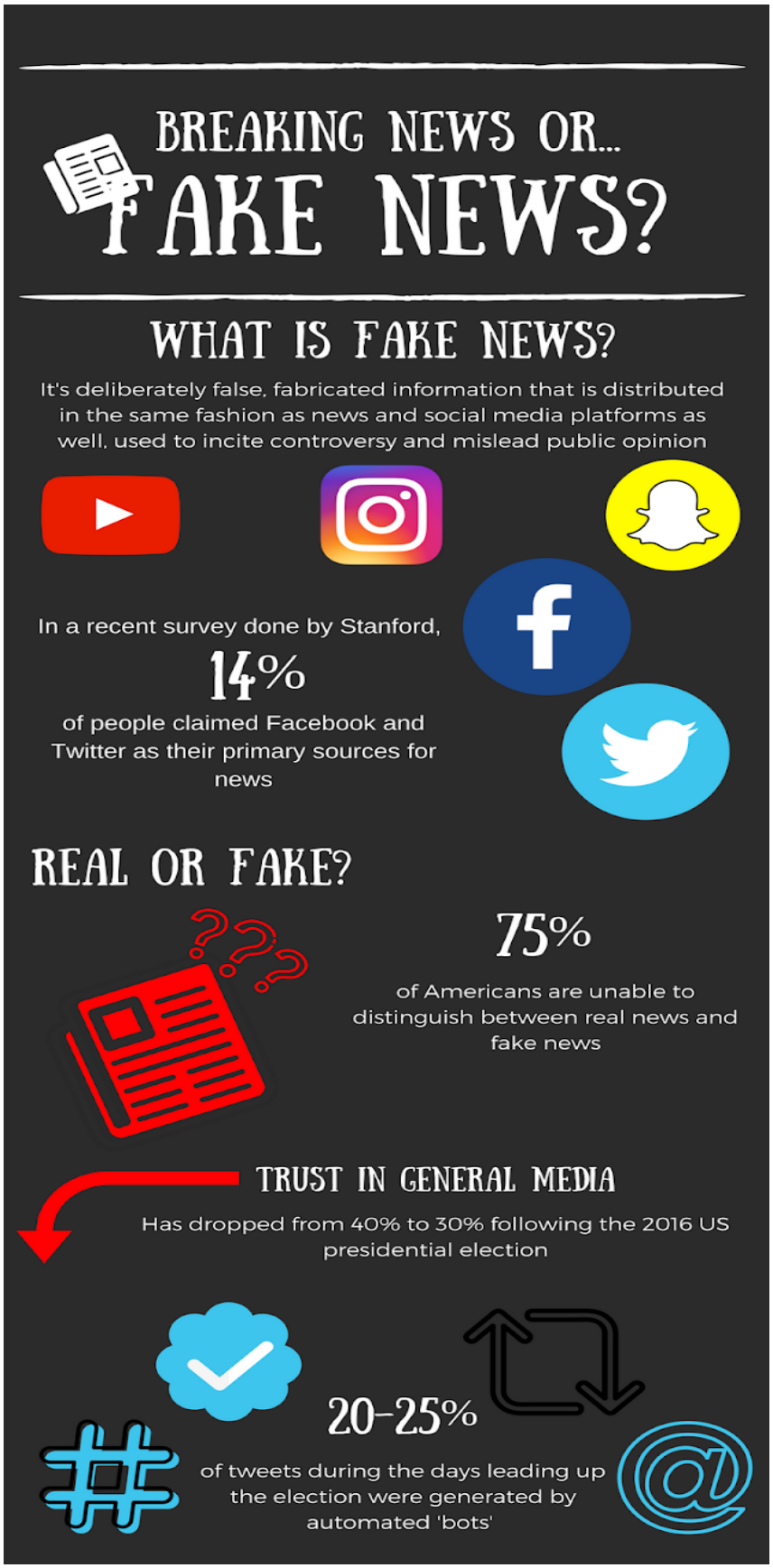
[59] Gamio , Lazaro. “Everything Trump Has Called ‘FAKE NEWS.’” *Axios*
[60] Hunt, Gentzkow, “Social Media and Fake News in the 2016 Election.”
[61] Woolley, Howard. “Computational Propaganda Research Project.”
[62] Solon, Olivia. “The Future of Fake News: Don't Believe Everything You Read, See or Hear.” *The Guardian*, Guardian News and Media, 26 July 2017

to hash out fake reviews, resulting in a significant development in AI used for the production and dissemination of false information[63].

Artificial Intelligence used for the spotting and removal of fake news and product reviews has seen major developments. As pointed out by the MIT Technology Review, various startups have been pressed on further developing their AI powered “truth serums”, in order to clean up websites such as Google, Facebook, Breitbart, and Cosmopolitan, as well as point out their general biases such as being deemed a leftist or rightist corporation[64].

[63] Greenemeier, Larry. “Could AI Be the Future of Fake News and Product Reviews?” *Scientific American*, 16 Oct. 2017

[64] Snow, Jackie. “Can AI Win the War against Fake News?” *MIT Technology Review*, MIT Technology Review, 13 Dec. 2017


BREAKING NEWS OR...
FAKE NEWS?
WHAT IS FAKE NEWS?
It's deliberately false, fabricated information that is distributed in the same fashion as news and social media platforms as well, used to incite controversy and mislead public opinion
In a recent survey done by Stanford,
14%
of people claimed Facebook and Twitter as their primary sources for news
REAL OR FAKE?
75%
of Americans are unable to distinguish between real news and fake news
TRUST IN GENERAL MEDIA
Has dropped from 40% to 30% following the 2016 US presidential election
20-25%
of tweets during the days leading up the election were generated by automated 'bots'

Will Technology Put us Out of Jobs?

Jon Sullivan

As a result of new, rapidly developing technologies, our lives will change significantly in many ways. Self-driving cars, Artificial Intelligence (AI), and assembly robots are just a few of the many new innovations that have started to modify the way society operates. Many of these changes will have an impact on the employment and the future of work, possibly risking up to 800 million jobs worldwide[65].

Some experts in the fields of technology and economics warn that these technologies will put many out of work, as they reduce the amount of human labor required. One study estimates that about 60% of occupations could automate at least 30% of work[66]. The study also suggests that this might cause downward pressure on wages due to increased unemployment[67]. These possible trends could have extensive effects on society, like increased poverty, and wider societal inequalities, mainly impacting those in less prosperous socioeconomic groups. Another study claims that about 47% of American workers have jobs with a high risk of potential unemployment due to automation[68]. This figure is around 49% in Japan and 35% in Britain[69]. As a large proportion of jobs in developed countries are at risk, it may be difficult for these workers to find new jobs. Many people underestimate automation's effect by assuming automation will only displace low-skilled work, but it has the potential to also replace high-skilled routine work, as a result of deep learning and AI. This can be seen in the growth of non-routine work, while routine employment has remained flat since the 1980s.

Despite the possible risks posed by automation, some economists claim automation will lead to increased employment in the long term. A survey found that more than half of technology experts do not think automation will displace more jobs than it creates[70]. Many of these experts argue historic automations have created more jobs than destroyed, and this time will be no different[71]. The research firm Gartner predicts automation will eliminate just 1.8 million jobs by 2020, but it will also create 2.3

---

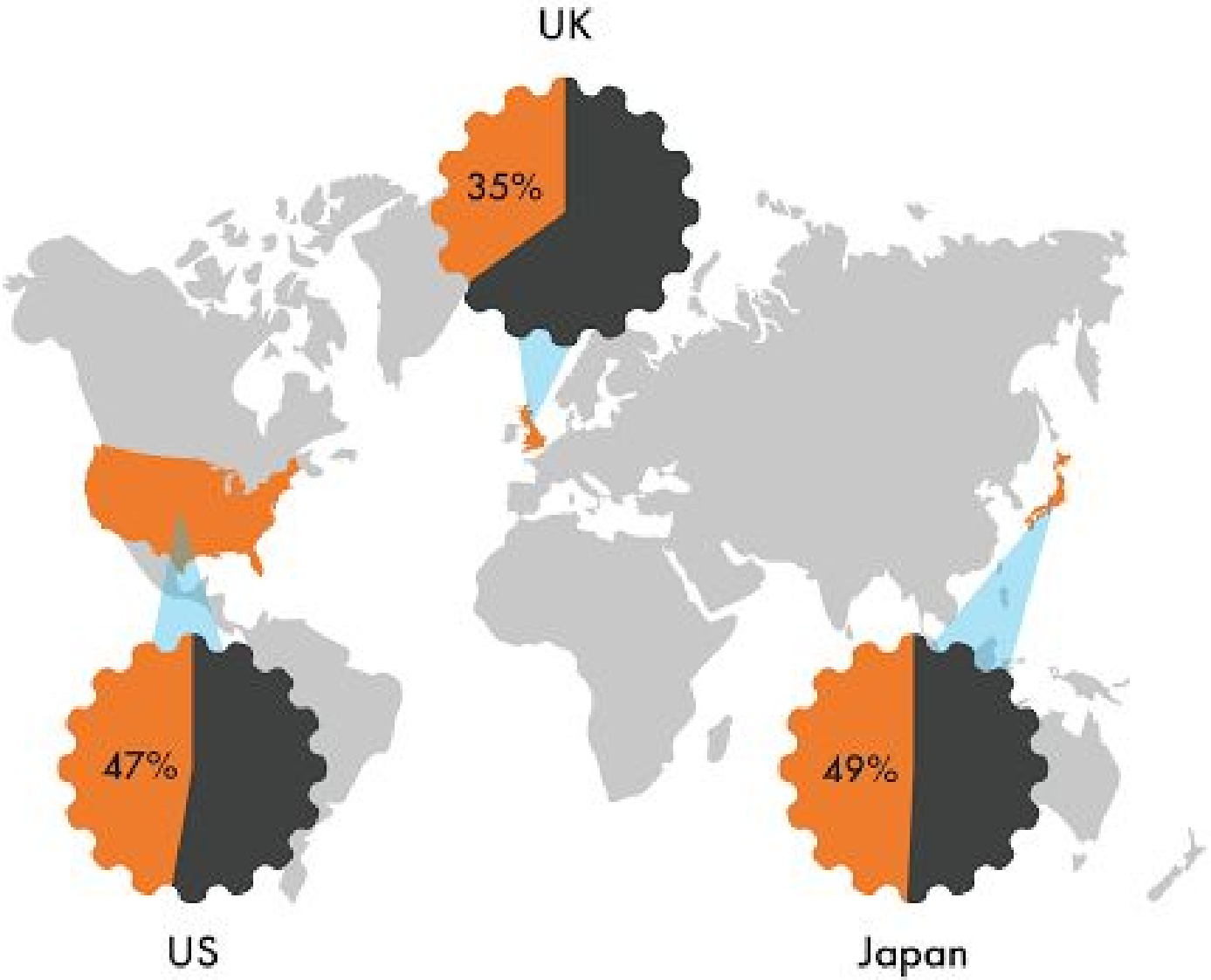
[65] BBC news, "Robot automation will 'take 800 million jobs by 2030' - report", http://www.bbc.com/news/world-us-canada-42170100.
[66] Thomas Franck, "McKinsey: One-third of US workers could be jobless by 2030 due to automation", https://www.cnbc.com/2017/11/29/one-third-of-us-workers-could-be-jobless-by-2030-due-to-automation.html.
[67] Franck, "McKinsey: One-third of US workers could be jobless by 2030 due to automation".
[68] The Economist, "Automation and anxiety" https://www.economist.com/news/will-smarter-machines-cause-mass-unemployment-automation/anxiety.
[69] The Economist, "Automation and anxiety".
[70] Aaron Smith and Janna Anderson, "AI, Robotics, and the Future of Jobs", http://www.pewinternet.org/2014/08/06/future-of-jobs.
[71] Katie Allen, "Technology has created more jobs than it has destroyed, says 140 years of data", https://www.theguardian.com/business/2015/aug/17/technology-created-more-jobs-than-destroyed-140-years-data-census.

million jobs in the process, leading to a net gain of 2 million jobs by 2025[72]. With regard to Artificial Intelligence, research shows AI is already creating new jobs, with a strong majority of surveyed companies reporting no loss in jobs due to AI[73]. One study looked at historical data on the use of machines in the U.K. The study found that new technologies boosted employment overall, bringing about the shift away from manual labor and lowering the price of necessities[74]. However, it is important to note that different groups of different educational levels will be affected differently. Overall, historical data and future projections might suggest automation will be good for employment.

New, automotive technologies of the near future will most certainly change the way we live our lives in a significant way. Technology has the potential to radically transform the way we define and understand jobs, but at the same time, it has the potential to create more opportunities. Either way, automation and AI in general will have massive societal implications, and governments may be forced to adapt in some form.

[72] Yen Nee Lee, “Robots 'are here to give us a promotion,' not take away jobs, Gartner says”, https://www.cnbc.com/2017/12/18/artificial-intelligence-will-create-more-jobs-than-it-ends-gartner.html.
[73] Bernard Marr, “Instead Of Destroying Jobs Artificial Intelligence (AI) Is Creating New Jobs In 4 Out Of 5 Companies”, https://www.forbes.com/sites/bernardmarr/2017/10/12/instead-of-destroying-jobs-artificial-intelligence-ai-is-creating-new-jobs-in-4-out-of-5-companies
[74] Katie Allen, “Technology has created more jobs than it has destroyed, says 140 years of data”, https://www.theguardian.com/business/2015/aug/17/technology-created-more-jobs-than-destroyed-140-years-data-census.

Percentage of jobs at high risk of unemployement due to automation



Does Automation Foretell the Political Scene?

Krithika Ravishankar and Anya Patel

The rapid development of technology is transforming our society by promoting innovation, increasing productivity, and expanding the Artificial Intelligence industry. However, these drastic societal changes generate consequences on the political scene. Former U.S. President Barack Obama once warned us that "the next wave of economic dislocations won't come from overseas. It will come from the relentless pace of automation that makes a lot of good middle-class jobs obsolete."[75] According to a recent study, there has been a rising correlation between employment and productivity since World War II, but a separation between the two started in 2000, where employment began to show a downward trend, as productivity increased[76]. This could possibly mean that automation is primarily responsible for the increase in unemployment. In relation to such a change, insecurities will begin to arise regarding job security and inequality, which has signaled towards a relationship between the fear of unemployment and the rise of populism.

The rise of populism "is the product of the deteriorating economic conditions, deepening inequality, and rising economic anxiety among the blue-collar working class." [77] Left-wing populist politicians blame wealthy people as the source of such disruption. This is a result of the growing inequality caused by automation and innovation, in which low-skilled workers are particularly targeted as *the rich get richer*[78]. Right-wing populist politicians base their argument on a similar discourse, and they often blame foreigners for economic disruptions. In the United States, under half of Donald Trump's voters and only fewer than a fifth of Hillary Clinton's voters were statistically shown to have been white men and women without a four-year college degree. These voters had a common concern: the lack of average-waged jobs. Additionally, 70% of truck drivers, 63% of assemblers and fabricators, and 56% of customer service representatives shared this same worry[79]. In response to this, the main premise of Trump's campaign and a major factor to his election, was a promotion of U.S. manual labor by its middle class and American-made products, at the expense of reducing globalization. Similarly, in the United Kingdom many of the supporters of Brexit feared that the influx of immigrants

---

[75] Rotman, David. "Here's How to Use AI to Make America Great Again." MIT Technology Review, MIT Technology Review, 22 May 2017, www.technologyreview.com/s/603465/the-relentless-pace-of-automation/.
[76] Rotman, David. How Technology Is Destroying Jobs. *MIT Technology Review*, 12 June 2013, www.technologyreview.com/s/515926/how-technology-is-destroying-jobs
[77] Florida, Richard. "The Real Roots of Populism." *CityLab*, 21 Mar. 2017, www.citylab.com/equity/2017/03/what-is-really-behind-the-populist-surge/519921/
[78] Wolf, Martin. "The Economic Origins of the Populist Surge." *Financial Times*, Jun 28, 2017, pp. 9*, ProQuest Central Student*, https://search.proquest.com/docview/1924177520?accountid=35001.
[79] Porter, Eduardo. "After Globalization, a New Specter Could Feed Populist Politics." The New York Times, The New York Times, 30 Jan. 2018, www.nytimes.com/2018/01/30/business/economy/populist-politics-globalization.html.

into European countries, in addition to the increase of automation, would threaten many jobs. The U.K City Outlook of 2018 examined the performance of 62 cities, and found that those most likely to be negatively affected also voted for Brexit[80]. For example, 70% of residents voted for Brexit in Stoke, an old industrial town, that is predicted to lose 45% of jobs by 2030. While only 40.1% of voters in London, a high-tech city, wanted to leave. The reason behind Brexit's popularization was because of the fact that the U.K would be able to separate from the European Union, thereby separating from the risk of further unemployment[81]. More generally, a Harvard Kennedy School study showed that in Europe, the share of votes going to populist right parties has more than doubled since the 1960s from 5.1 to 13.2% by 2012, while the share of seats held by left populist parties has tripled from 3.8 to 12.8% over the same period[82].

As a result, the spread of progressive values has also stimulated a cultural backlash among people who feel threatened by automotive development. Daron Acemoglu of M.I.T. notes that backlash will be more mutated in A.I. concentrated cities, where workers have more options to find new jobs[83]. Technological adaptation will be resisted simply due to some being acclimated to traditional customs. Calestous Juma, a technologist and professor at Harvard University, said that, "there is a convention that people are simply afraid of what they don't understand. That may not apply to technology, at least not exactly. It's the loss they are afraid of, not the newness." That loss − perceived or real − can be a part of their identity, their way of life or their economic security[84].

In conclusion, the fear that emerges from automation has not only put job security at risk, but has also fueled a rise of right-wing populist politicians. As automation becomes more prominent in our society and begins to further affect many countries, people and the political scene must prepare to adapt to the changes it entails.

---

[80] https://www.ft.com/content/0bf93ddc-02a9-11e8-9650-9c0ad2d7c5b5
[81] "EU Referendum: The Result in Maps and Charts." BBC News, BBC, 24 June 2016, www.bbc.com/news/uk-politics-36616028
[82] https://www.citylab.com/equity/2017/03/what-is-really-behind-the-populist-surge/519921/
[83] Porter, Eduardo. "After Globalization, a New Specter Could Feed Populist Politics." The New York Times, The New York Times, 30 Jan. 2018, www.nytimes.com/2018/01/30/business/economy/populist-politics-globalization.html.
[84] Overly, Steven. "Humans once opposed coffee and refrigeration. Here's why we often hate new stuff." *Washington Post*, 21 July 2016, www.washingtonpost.com/here's-why-we-often-hate-new-stuff/

Technology, Insecurity, and Populism

POPULISM

is a political philosophy supporting the rights and empowerment of 'ordinary' people against an empowered elite

SINCE 2000

Productivity has been increasing jointly with unemployment

BLUE COLLAR WORKERS

such as truck drivers, assemblers and fabricators, and customer service representatives are losing their jobs to developing automatons

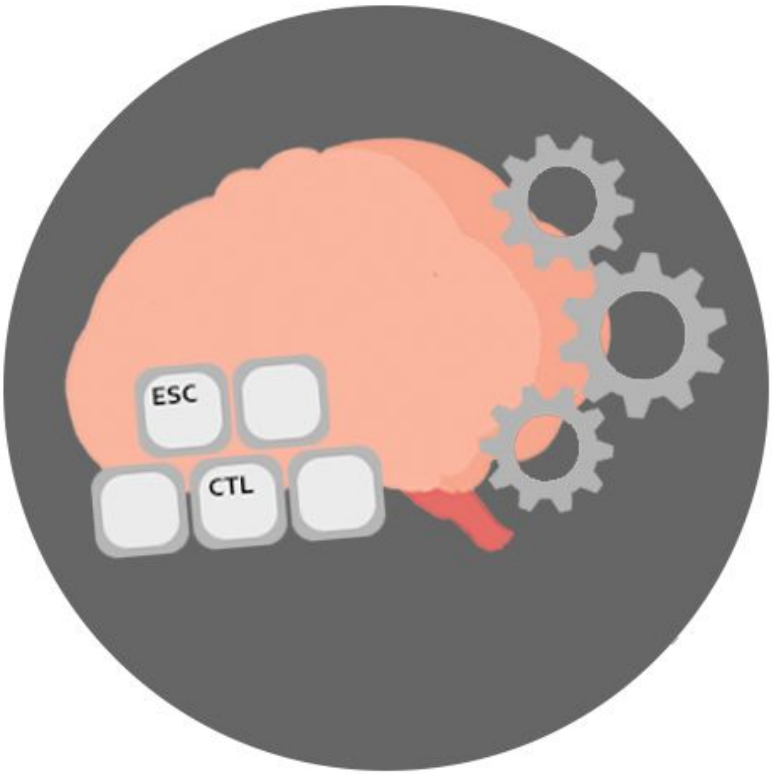
POPULIST PARTIES

on both the right and left have seen an exponential growth in popularity since the 1960s

Afterword

Technology continues to influence the way our world is evolving. It is changing the way we live our lives in both positive and negative ways. Ultimately, technology is a platform in which we can use our creativity and knowledge to solve problems and to advance society. In efforts to educate and inform, we, the UNIS UN executive committee, invited these speakers to help you think about the information you receive on a daily basis and to further expand your grasp on technology. We hope that each speaker has provided you with a unique perspective regarding technology, innovation, and the future of work.

The objective of this year's Working Paper is to explore this impact technology has on our world and to understand its consequences. We hope to be a foundation that allows you to begin your own discussions, raise awareness, and share your knowledge. The future lies in our hands and we will determine how technology will affect our world.



Contributors

Designers

Gabriela Penido
Josh Shearouse
Nikola Muyot
Reinis Mazeiks
Sophia Duff

Executive Committee

Anouk Murmann
Anya Patel
Ellie Smith
Eren Levine
Gabriela Penido
Indira Rao
Josh Shearouse
Kadiya McDonald
Luna Maki
Lucie Blau
Max Neve
Nikola Muyot
Paula Silvero
Razan Nasser
Sarah Bertrand
Sofia Rao
Sophia Duff
Tom Mckillop

Writers

Femke Teunissen
Isabelle Jaber
Jon Sullivan
Juan Pena
Kresten Due
Krithika Ravishankar
Lea Chambadal
Paloma Delgado
Sora Kanosue
Timothy Lin

Editors

Anya Patel
Luna Maki

Co-Chairs

Ayesha Wijesekera
Noëlla Kalasa

Faculty Advisors

Brian Kahn
Michelle Bertrand
Rodolphe Casado
Zakaria Baha (Office of Student Activities)

Acknowledgements

The 42nd Annual UNIS-UN International Student Conference executive committee wishes to extend a special thank you to the following individuals and groups for their invaluable assistance, their enthusiastic support, and their admirable commitment. They have been integral in the effort to put forth another successful conference.

Mrs. Sylvia Howard Fuhrman
Ms. Catherine Pollard: Chair of the UNIS Board of Trustees
The UNIS Board of Trustees
Ms. Joan McDonald: Special Representative for the Secretary General for UNIS
Ms. Katherin Caceres: Office Assistant of the SRSG for UNIS

Antoine Delaitre: Principal of the Tutorial House
Brian Kahn
Burcu Polat Bora
Corey Dorn and the UNIS Cafeteria Staff
Ed Peppe and the UNIS Maintenance Staff
Ernest Lentini and the UNIS Security Staff
Frank Sorrentino
Jérôme Dutilloy
Louise Wales
Michelle Bertrand
Philippe Chambadal
Rodolphe Casado
Salvador Uy: Acting Executive Director
Stephen Roache and the UNIS Business Office
Susan Enzer
Vera Tatel
Zakaria Baha
UNIS Hosting Families
UNIS Media/IT Department
UNIS Modern Language Department
UNIS Parents Association
UNIS Tutorial House Office
UNIS Students
UNIS-UN Organizing Committee
Visiting Schools and Advisors

We would also like to thank the greater organization of the United Nations, and to all its officials, officers, and staff for their hard work in coordinating our conference.

UNFCU®

In grateful appreciation to the United Nations Federal Credit Union for its generous donation to this year's conference.

UNIS-UN

United Nations International School
24-50 FDR Drive New York, NY 10010-4046
1-(212)-584-3108
www.unis-un.org