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مركز الابتكار الكبير

REPORT
SEPTEMBER 2019
Zaabeel Hall 1

AI TODAY AND TOMORROW

AI EVERYTHING WORKSHOP 1

AI Today and Tomorrow is a report based on the first workshop of AI Everything - held on 1 May 2019 at Zaabeel Hall, Dubai.

This meeting was chaired by Stephen Metcalfe MP, UK House of Commons, and Abrar Faisal Almasoud, CEO of Future Group.

We would like to express our appreciation to the following people for their oral evidence: Lawrence Eta, City of Toronto, Deputy CIO; Rob Flaws, CMS, Head of Technology - Media and Telecoms Middle East; Abhijit Akerkar, Business Integration Lloyds Banking Group, Head of Applied Sciences; and Dr. Ben Goertzel, SingularityNET, Founder & CEO.

The evidence presented in the report is not exhaustive but reflects what was discussed at the meeting, and the views and experiences put forward by the people giving evidence. Written submissions by individual expert advisors in relation to this meeting are also included.

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WORKSHOP OVERVIEW

Details

- Date: 30th April 2019
- Time: 1:00 – 2:30 pm
- Location: Zaabeel Hall, Dubai.
- Participants: 40 registered attendees

Speakers

- Lawrence Eta, Deputy CIO, City of Toronto
- Rob Flaws, Head of Technology, Media and Telecoms (TMT) Middle East, CMS
- Abhiji Akerkar, Head of Applied Sciences, Business Integration Lloyds Banking Group
- Dr. Ben Goertzel, Founder & CEO, SingularityNET

Questions

Live

- How should chat bots and intelligent agents run our homes?
- We on the flux – will AI generated transportation, finance and health make us more sustainable

Work

- A New Elite? - Good news for people who can get high level consultancy projects?
- Gig workers economy? - Bad news people who are looking for security and a permanent job? Will they end up 'gigging' endlessly with no sick pay, no pension, no training at the job, bank-rejects to take a house loan?

Play

- You and your phone-friend – how will AI control your social life?
- What is 'Fake News' and what is authentic news?



INTRODUCTION

As part of AI Everything in Dubai, Big Innovation Centre hosted a multi-stakeholder workshop to explore the state of AI, where it is currently and where it will be in the future.

Stephen Metcalfe MP and Abrar Faisal Almasoud chaired the session and the panel included: Lawrence Eta, City of Toronto, Deputy CIO; Rob Flaws, CMS, Head of Technology - Media and Telecoms Middle East; Abhijit Akerkar, Business Integration Lloyds Banking Group, Head of Applied Sciences; and Dr. Ben Goertzel, SingularityNET, Founder & CEO.

The audience of the workshop were attendees at AI Everything, representing all sectors of life from government to business and from academia to civil society.

Together, the participants explored the trajectory of AI systems, highlighting what AI technologies are capable of doing today but also the technological capabilities that might await us in the future.

Specifically, the workshop explored how AI is impacting the way we live, the way we work, and the way we play. It shed light on the vision of how we want AI systems to impact us in the future.

What really is AI? Generally, AI is defined as an area of computer science that is focused on creating intelligent machines that could work and react like humans. It normally involves an automated process that makes use of various human senses such as speech, sight, sound, smell, or even taste. According to Max Tegmark, the President of the Future of Life Institute, all the things that people love about civilization, is a product of intelligence. Therefore, to maximize human intelligence using artificial intelligence could be beneficial in improving civilization as long as the society is able to keep it beneficial.

When people refer to various AI examples, they tend to categorize them into two main groups: Strong AI and Weak AI. Currently, the AI that the society gets to use is referred to as weak or narrow AI. In fact, the most successful AI applications like face recognition, lip reading, spoken language interpreting, and real-time translation are all examples of Weak AI. In the Weak AI category, computers focus on automating a very specific, or narrow, task. The aim of these technologies is to develop the capability to successfully complete a given task, in the most efficient way possible. The machine does not adapt all human qualities but, rather, uses human-like traits to solve a problem.

Most of the public, when asked about AI, think about Strong AI or general AI. The goal of Strong AI is to develop technology to the point where a machine's intellectual capability is functionally equal to that of an individual's. According to experts, the ideal Strong AI machine, would be built in the form of a human, have the same sensory perception as a human, and go through the same education and learning processes as a human child.

AI illustrated in Hollywood science-fiction – whether it is network Skynet threatening the human race in the film Terminator or David, the robot in Steven Spielberg’s 2001 film A.I. Artificial Intelligence – fit the categorization of Strong AI.

A commonly used product of AI that many individuals, professionals, and businesses today already are familiar with is the intelligent agent. An intelligent agent operates based on the information that it perceives from the environment and uses its current applicable knowledge. The intelligent agents can be classified into model-based, simple reflex, utility-based, goal-based, and learning. An example of intelligent agent that is commonly used by users is activating alerts on their smartphones or computers when news about certain topic of interest appears on the net. It completes tasks on a daily basis and provides skills and solutions to various human problems. Intelligent agents aim to provide answer on all types of questions and inquiries. Today, it has created a big hype in the internet as it is being used by many organizations and integrate it with their businesses.

An intelligent agent can sometimes be referred to as chat bot. A chat bot is an AI software which can create a conversation or a chat using natural language through websites, messaging applications, mobile apps, and even through telephone. It is believed to be one of the most promising benefit of AI due to the great interaction between humans and machines.

Despite the many benefits of AI applications including intelligent agents and chatbots, policymakers, scholars, researchers, scientists, and employees are also concerned with the complex challenges. AI creates a fear of being replaced and worthless if machines can do everything for humans. Ethicists argued that the role of AI systems should be to provide assistance and do tasks such as answering inquiries. However, they should never be used as the sole source of customer service by organizations.

LIVE

Today, AI plays an important role not just to nations and businesses but also to individuals across the globe. As AI is already being embedded in the social, political, cultural, and economic processes of communities worldwide, AI has revolutionary implications for the way human being live.

There are so many things that people use which are products of AI. Nowadays, AI applications such as SIRI or a personal assistant application for iOS that gives answers to questions, makes recommendations, and conducts actions of web services are normal in our daily lives. There are self-driving cars and robots with human-like characteristics. There are algorithms being applied by companies across industries to predict consumer behaviour. The AI applications are endless.

AI has indeed penetrated all industries – from healthcare to transportation, finance, education, retail, manufacturing, security, and more. All of these areas have been utilizing AI for convenience, efficiency, and better products and/ or services.

AI in healthcare is being used to create complex algorithms and software in order to analyze complicated medical data. It is used for clinical diagnoses and recommending treatments. It is also useful with regard to obtaining data and discovering new medicine. Ultimately, AI in health has the potential to save billions of lives worldwide.

AI in education promises to revolutionize the way people learn in developed and developing countries alike. Students can have access to personalized education even in



remotes part of the world where there is lack of teachers and education infrastructure.

The finance field also uses AI. Mostly, it is being implemented by finance corporations to address security issues. AI technology helps in identifying fraud and stays in compliance. It also serves as a way for finance service companies to earn more cash through more accurate trading and wealth management.

With regard to the transportation industry, the problems mostly occur due to the difficulty to create a predictable pattern, human errors, traffic, or accidents. AI can help in the unpredictability aspect of transportation problems. It can help in improving public safety as it can track crime data in real time. It can also aid in the decision making such as when it comes to road freight transport system. AI can also help in analyzing trading patterns and probably reduce the congestion.

However, amidst the many benefits of AI in various fields, the trend today that most people and companies are looking for, is sustainability. Would AI help in making the transportation, finance, and health more sustainable? According to the experts in the ecosystem, AI applications for sustainability are still in their early stage, however, it could bring significant benefits in the medium term. When considering sustainability in the future, machines could provide less gas emissions in vehicles compared to the ones being driven by humans. That is why companies such as Uber, Tesla, Ford, and Nissan are trying to work hard to create self-driving cars. Other companies such as construction and IT companies also see the sustainability that AI brings.

While recognizing the clear benefits for human lives that AI technologies could bring, the participants at the workshop also shed light on the negative consequences linked to these technological developments. For instance, AI has, without a doubt, replaced many tasks that humans have traditionally been doing. This could lead to technological unemployment for billions of people across the world

Mr. Barley from Oracle expressed his concerns that AI is going to create a larger gap between rich and third world countries - asking how to use AI to improve communities in society. Dr. Ben Goertzel supported this point arguing that AI is increasing inequality between those that are using those technologies and those that are no. He called for the need to empower those vulnerable groups to use AI to uplift their communities.

As a policymaker, Mr. Metcalfe MP of UK Parliament said more investment needs to be put in this area but there is an effort to build responsible AI to solve some global challenges. For example, in Africa, AI is being used to mitigate infections.

Governments need to help build incubators which will create these initiatives, also private and public sectors have responsibility to promote initiatives that use AI for public good.

We can use lessons from one country and apply them to other countries, or from developed countries to developing countries so they can leap-frog.

Mr. Lawrence Flaws, for example, illustrated how the city of Toronto decided to target homelessness because of the issue of inequality. Referring to the case study of Texas, he explained how one of the key reasons for homelessness is lack of identification. Hence, in Toronto, they have started using AI to help identify individuals who are homeless or likely to be homeless.



Lawrence Eta
Deputy CIO, City of Toronto

Talking points from Mr. Eta's presentation

- Key role is infrastructure services across the city of Toronto
- Conducted an AI proof of concept to reduce homelessness; in North America homelessness is causing a lot of challenges in terms of people feeling displaced; how can AI provide social benefit
- We commence a proof of concept that were looking at employment, mental issues, occupancy and residency; following the roof of concept there was a report generated to apply a human centred design and how do we leap from business intelligence to AI
- Investing millions of dollars to build shelters, look at occupancy in terms of capacity
- Housing is not the general cause, but mental health is
- AI is helping us gather insight to tackle this issue
- City of Toronto is custodian of data so we need AI to make sense of it and help improve lives of citizens
- First stage of making a pilot is building a use case, what problems are we trying to solve, how AI can solve big society problems
- Using technology for human good

WORK

Besides AI's impact on the way individuals live, AI has also had tremendous impact on the way people work and what work looks like. Thus far, AI technologies have had both positive and negative effects.

AI is transforming how products and services are generated, delivered and used or consumed. As it can totally disrupt business processes it is not merely about replicating human tasks but about creating radically new organisation of production. Cost and time are reduced while quality and variety are all enhanced. Ultimately, AI is changing the factors of competitive advantage and the criteria for success. Data access, platform control, and AI capabilities become more important in the competitive spheres than the products and services themselves.



Abhijit Akerkar
Head of Applied Sciences, Business Integration
Lloyds Banking Group

Talking points from Mr. Akerkar's presentation

- Bringing Machine Learning to live at Lloyds banking group, marrying AI with human intelligence to change the way we do business
- How is AI affecting me now and how will it affect tomorrow?
- Providing three perspectives: individual, banker, and father
- Individual: enjoying the revolution happening around us, making life easier, excited by the personalised medicine which is likely to increase life span; worrying is how prepared humans are to deal with these machines (i.e. will human be ready to take charge of the system when things go wrong)
- Ex. If human is in autonomous vehicle, if something goes wrong, will they be able to take hold of the action
- Banker: excited of the superhuman powers of AI is giving banks to look into the future, predict business parameters more accurately; fundamentally changing the way we do business because now better decisions are being made; find

patterns and trends to stay ahead of bad actors like fraudsters or money launderers; how do I prepare my bank for tomorrow? – if you want to go far, go together; as we prepare for tomorrow, how do we get all stakeholders together to solve the shared challenges; how do I give confidence to my shareholder; do we have the governance and risk management mechanisms that deployment is safe

- How do we ensure regulators are caught up to the revolution; we need to make sure we have the right regulatory landscape to prepare for a better tomorrow
- Father: very excited for his daughter, more excited for her tomorrow because she will be able to live her life to full human potential; how do we prepare our youth for the tomorrow in which we don't know what jobs will exist and what technologies will have been created; the future will have new problems we don't know any more

Most significantly, AI technologies are creating new pressures on the labour market, misaligning the demand and labour sides of the equation. Precisely, the demand side of labour is changing in three ways: jobs losses, job creation, and job transformation. As AI technologies have the power to automate increasingly more tasks, cheaper and faster, there is growing concern that jobs across levels and sectors will be at risk of automation. New technologies are also creating new jobs, but this means employers are demanding a completely new type of employee with specific qualifications.

This is not a new phenomenon. The introduction of technologies throughout history have always disrupted the labour market. However, AI technologies of today have the capacity of doing much more than the technology of the past. While in the past inventions such as the automobile or the telephone had the power to replace the human hand, the innovations of today have the potential to replace the human brain

As a result, there is an ongoing debate about whether AI technologies will diminish more jobs than create. Even the panel at the workshop could not agree on AI's impact on the labour market. Ms. Abrar asked the panel what jobs they think AI will replace. Dr. Ben Goertzel said AI will replace all human jobs eventually, while Mr. Abhijit Akerkar said tasks will be automated but not jobs. Mr. Rob Flaws and Mr. Lawrence Eta argued that AI is going to create more jobs than erase.

The different perspectives reflect the two sides that have evolved in the past two years. One side believes that AI will be harmful for workers, completely disrupting the supply and demand side of the labour market. The other side believes that AI will transform labour but will do more good than harm.

The positive side is that AI has the potential to augment the workplace, allowing individuals to focus on the things that matter while machines do the mundane

administrative work. It gives opportunities for individuals who can now get new jobs that did not exist in the past. Although it is most beneficial to those who possess specific skills. These skills fall mostly under the STEM (science, technology, engineering, and mathematics) category, and represent the individuals who can create, use, train, manage, and monitor these emerging technologies. Hence, those who have benefited most from AI in work are IT experts or others who have the ability to work well with AI applications. That is why some of the fastest growing opportunities these days in the job market are software developers, data analysts, and social media specialists.

At the same time, experts are speaking about the growing demand for problem-solving, creativity, interpersonal, and adaptability skills - as those are arguably the group of skills that humans have a comparative advantage in over machines. Many jobs require uniquely human characteristics like empathy, creativity, judgment, and critical thinking. It is this group of jobs - that rely mostly on heuristics - that are in less likely to face technological unemployment.



Rob Flaws
Head of Technology, Media and Telecoms (TMT)
Middle East, CMS

Talking points from Mr. Flaws' presentation

- CMS is doing a lot to help clients integrate with AI and to drive regulatory changes and ethical AI
- Coming at this in 2 different angles: (1) AI is changing legal industry, positive aspect of change to make it more efficient (2) working with clients to see how to implement AI
- UAE in many ways is leading the AI regulation
- Clients are keen to implement AI but are conscious of the regulation around it, to understand what they can and cannot do
- A big component of this is data and data governance
- What is the type of data being collected?
- Traditionally there has been a push of privacy and we have to get the right balance of improved innovation and protecting privacy at the same time
- Dubai Data Law: data should be open, open data drive, individual companies should be sharing datasets to enable govt to improve public services (Transportation, pollution, immigration)
- Dubai making a strong point around data rights (what is the value of my data, who owns my data, how is my data being used)

PLAY

AI is also controlling the social lives of the people as well – or the way they play. As ‘living’ and ‘working,’ playing is a critical dimension of the quality of life cities worldwide are trying to provide for their citizens.

AI can easily provide information to the public. However, at the same time, this control of information has a risk for manipulation or the formation of monopolies. Some of the participants at the workshop noted a trend towards commodification of social control wherein digital tools are created to cause social control initiatives.

For example, AI can gather personal data of individuals and have control over what they see on their social media accounts. The websites that a person often visits are being checked and analyzed by AI. Digital marketers, on the other hand, are taking advantage of AI in order to know more about the preferences of the consumers. As such, they get to advertise and show only the ‘products’ that consumers are most likely interested in. Many companies are making use of AI to gather information about the general market and the trends today. The analytical capabilities and processing power of AI allow many businesses to obtain big data. This allows them to strategize better and make their products/ services known to the target market. This is how AI has control over the social lives of many.

As a consequence, there are many harmful applications of AI technologies. Nowadays, there is the so-called deepfaking. This is the process by which high-tech computers can create completely false but realistic videos that show events that never really happened. Individuals can potentially misuse and or abuse this application to create images and videos that have negative impact to the society. Creating fake videos can only lead to confusion, problems, and even chaos. It could provide misleading information that the public might easily believe in.

Some individuals are using AI to create fake news and deepfakes because they know that people can easily be persuaded. They take advantage of the weakness of humans to easily be influenced or manipulated.

The world that we live is changing in exponential speeds and it is time for everyone to see that together with the changes comes the responsibility to learn from it. As noted by the panel, not everything that AI brings is good for humankind. It has many negative effects as well that stakeholders have to urgently address.

Furthermore, AI will continue to progress and its deployment in the society and the economy will grow. This means that the impact can dramatically increase in scale – potentially heading towards a point of singularity where humans and machines become one.

One of the participants at the workshop, Sala Ahmed asked how humanity will be affected by singularity and whether we are ready for it. Dr. Ben Goertzel clarified that we can’t

control the evolution of AI in hast manner. When the world underwent the agricultural and industrial revolutions they unfolded without being controlled. In a similar manner, one cannot have full control over how their children develop. Therefore, we have to leave some space for the AI revolution to happen freely. At the same time, now that we still have some control, we should treat it like power. We must not build the infrastructure and decide on the processes which will develop and deploy AI in the future. We need to build a collective vision of the future and then allow AI to fit that vision.



Dr. Ben Goertzel
Founder & CEO, SingularityNET

Talking points from Mr. Goertzel's presentation

- Acknowledging how important this topic is getting across the society
- Approach 1: Look at AI tools we have now and how they are affecting our lives
- Approach 2: Technological singularity, by 2029, AI is going to be smarter than human beings, what will happen than?
 - Mr. Kurzweil, key individual promoting singularity
 - Now national leaders and business are realising that AI is the most transformative technology
 - AI strategy is key in all of this
- It doesn't matter when AI will reach the point but we need to prepare to it; this will be the most important part of the human race
- Two key possibilities for decades from now:
 1. We are plugged in the matrix; you can give up human conventional self but gain others.
 2. We might remain humans, but will be watched by machines
- If we are going to create a future of AI being superhumans offering an array of benefits for humans
- The way we build AI right now if this is to happen. The AIs we create now will evolve into superficial AI
- If early stages AI are teachers, doctors, etc. this means a bright future
- SingularityNET, using Blockchain and AI together to involve



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