

The Limitless Potential of Artificial Intelligence

STEVE AUSTEN-BROWN: The question for us was *how* do we bring space into something that is about people, is about the planet, is about humanity. Stephen Hawking, one of his last projects was something called the Breakthrough Message and it was if we do meet alien intelligence at some point, what do we say?

We are still a planet of different people, but how do we talk as one people? And how do we talk as humanity? What would give a little idea to this intelligence out there of what we are, what makes us tick? What makes us happy?

My name is Steve Austen-Brown, and I'm a creative director here at Avantgarde London.

NOON SALIH: Avantgarde is the experience agency that produced the UK pavilion at Expo 2020 Dubai with award-winning stage designer and artist Es Devlin.

STEVE AUSTEN-BROWN: This challenge was very much what is the story that we want to tell? Rather than a passive experience, can we create an active, collaborative, experience for the visitor? How do we allow up to 25 million people to contribute to write this message?

NOON SALIH: The message would theoretically be one that we, as a human species, would send out into the universe. It's a way for us to reflect on the things

we care most about in our world but also, our ambitions as human beings to innovate and discover.

STEVE AUSTEN-BROWN: And AI is evidently going to help us.

MUSIC

NOON SALIH: I'm Noon Salih, and this is Inside Expo, an official podcast of Expo 2020 Dubai, where history is being made.

[INTRO STING]

NOON SALIH: World Expos have always been a hub for countries to come together and showcase the best of what they have. Initially the focus was more on tangible innovations and inventions. But over time, participating nations started to express more elaborate or abstract themes through their pavilions. The objective started to evolve.

STEVE AUSTEN-BROWN: It became a collection of stories. So it was less obsessed about things, it became nation stories.

NOON SALIH: And the UK has been keeping up with this trend of telling stories through structures. Its pavilions at the Shanghai World Expo in 2010 and then at Expo 2015 Milan, along with the current pavilion at Expo 2020 Dubai, form something of a trilogy, Steve says. The one in Shanghai...

STEVE AUSTEN-BROWN: That first one, the Seed Cathedral, by Thomas Heatherwick was a collection of 250,000 individual seeds. Seeds are the origin of life. Then move on to Milan and Wolfgang Buttress. His story was the importance of the bee.

NOON SALIH: The Beehive was a rather iconic structure, or as Steve describes it, sculpture, that resembled a honeybee colony. It was built to highlight the plight of honeybees and their value in our world.

STEVE AUSTEN-BROWN: You can see one is showing a vast collection. The next is allowing you to immerse in a story. The way we wanted to develop that thinking was now, can we let everyone make the story?

NOON SALIH: And this is how the UK's pavilion at Expo 2020 Dubai takes form, with its concept of a collective message to space.

MUSIC

STEVE AUSTEN-BROWN: So what you will see expressed on the outside of our pavilion is a poem is a collection of words coming together. And those words are donated, contributed by each and every visitor.

NOON SALIH: To do this, the UK pavilion is using a word processing artificial intelligence software that actually thinks of and writes out these poems. But for the experience to come to life, visually and acoustically, the design of the pavilion itself would also need to reflect the concept of the collective poem.

STEVE AUSTEN-BROWN: This was something very much in Es Devlin's mind when she was thinking of this, is that she wanted to deal with the voice as much as the word and wanted to create something that was almost a musical instrument.

NOON SALIH: Something that looked like it could enlarge sound. And so the building, in both material and form, was designed with this intention.

STEVE AUSTEN-BROWN: So it was created in timber. It was shaped as I described in - I don't want to use the word megaphone because it's wrong - but if you see what I mean, it is that kind of thing that you speak through and amplify out to the world. In this instance, we had an even bigger ambition to amplify out into space.

MUSIC

AISHA ALOWAIS: Artificial intelligence is basically a field in computer science. It is concerned with building systems, machines that can think and behave like human beings.

NOON SALIH: This is Aisha ALOWais. She's a research assistant at the Sharjah Academy for Astronomy, Space Sciences and Technology.

AISHA ALOWAIS: There are several subfields of artificial intelligence. For example, we have machine learning. We also have robotics. We have natural language processing and many other subfields.

NOON SALIH: The multifaceted world of artificial intelligence is pushing us to become more curious about how much more computers can do on our behalf in

the future. But Aisha says, whatever we're seeing today and whatever we'll see tomorrow, is inspired by the past.

AISHA ALOWAIS: The idea of artificial intelligence, how it came to be itself is inspiring. If we go back in time, back to the golden ages of the Islamic civilizations, we meet Al-Khwarizmi, who is known to be the father of algebra. And he is the one who introduced the Hindu-Arabic numerals, which are the numbers we use nowadays, to the European Renaissance. Without numbers, we cannot really code. We cannot program. We cannot write algorithms.

The other thing is in 1950, Alan Turing was thinking, can machines think, and ever since people started, or the sciences (field), started to envision and visualize a world where computers start acting and thinking like human beings.

NOON SALIH: Around the 1960s the fascination with robots began to grow and industrial automation started to gain traction.

AISHA ALOWAIS: In 1997, if I remember correctly, here is where we had an AI machine that was able to beat the champion in chess, Garry Kasparov. And this was a remarkable milestone in the field of artificial intelligence.

NOON SALIH: And whether we notice it or not, AI is very much integrated into our lives, sometimes even in the mundane.

MUSIC

AISHA ALOWAIS: We have artificial intelligence in business and banking.

NOON SALIH: It's what helps predict the weather or streamlines transportation.

AISHA ALOWAIS: In factories when we are talking about packaging, and automation of that process.

NOON SALIH: As well as in our digital assistants and voice recognition programs.

AISHA ALOWAIS: We also have artificial intelligence applied in the health sector. We also have it in agriculture.

NOON SALIH: And then other times, it really stretches beyond our imagination and ventures into the universe - literally.

AISHA ALOWAIS: Space exploration is like a very big door. Whatever inventions we do on earth and send it to space, this comes back to us in forms of knowledge, science and economic income as well.

Why do we need artificial intelligence? One example is a project known as the UAE Meteor Monitoring Network. We have a system that can distinguish between a meteor and other objects. How is that important? When that meteor is captured, we try to find the possible fall side of that meteor.

This tiny or big rock is our door or our record to understand the formation of the solar system, so we know what kinds of elements were there. Because at the end of the day, we are made of Stardust.

NOON SALIH: There are so many ways that AI can be used to help us better learn what's out there in the vastness of the universe, whether it's to aid astronauts on the International Space Station or to predict the location of exoplanets outside our solar system to see if any of them could be habitable. Or even just closer to home, perhaps one day we can build a structure that welcomes us on Mars.

MUSIC

AISHA ALOWAIS: Another thing I like and appreciate so much about space exploration is the idea of cooperation. Space exploration is a hub for global cooperation. It brings different countries together to build something.

NOON SALIH: This power of connecting minds from around the globe, to input diverse data points and create a pattern of some kind, is at the root of artificial intelligence. This is what makes a melting pot like Expo 2020 Dubai an ideal incubator to showcase and experiment with AI.

AISHA ALOWAIS: By walking around the Expo, whether we are looking at artificial intelligence or astronomy, we can see it in several pavilions. I've seen the sky in the Australian pavilion. I've seen some examples of Muslim astronomers from the golden ages in the Uzbekistan pavilion. So Expo is really a great place to have AI in full manifestation so that the future generation can learn more about it, can invent ways where AI can be utilized even further.

STEVE AUSTEN-BROWN: What's delightful is the Expo allows all of the countries to come together. It's like the Olympics, it's got a spirit of togetherness. You're not

out there selling things. What you're doing is selling visions especially for something like Expo where you've got a lot of diverse audience.

Whatever we did in Expo had to really be about that, bringing people together, asking them to share in a collective message. And also to think about the bigger picture of humanity. And that's what you often get at Expos, are the big fundamental questions. This is the thing, the glue that brings our desires and our hopes of the project.

NOON SALIH: So how, technically, functionally, and intelligently - pun intended - was this collective message actually constructed?

STEVE AUSTEN-BROWN: We've been using AI to allow a kind of combined story to be told. The invitation for our audience is, give us that word that in some way is really important to you, that speaks to you and humanity.

NOON SALIH: The UK pavilion's AI program was fed thousands of poems to quote-unquote "study" as a starting point. When someone inputs a word, it uses what it learned from those poems and the knowledge it gained from previous inputs, and generates a two-line individualized poem: a couplet.

STEVE AUSTEN-BROWN: AI can create that couplet for each of our visitors in six seconds. Every six seconds it will create a totally unique incorporation of your word into a poem. The AI has the capability of knowing what had happened just before and what the next line is going to be.

This algorithm can learn how to put words together. It can work out the patterns of words. It can register the meaning - the sequence, the balance, the pace, the nuance, you know, and so gradually you teach it how to write and think poetry. So it can actually create quite a strange and surreal at times thread that runs right through.

NOON SALIH: As sci-fi as this sounds, there was actually a very human process at the center of this learning.

STEVE AUSTEN-BROWN: Quite a lot of artists and scientists do look at poetry as a rather wonderful way of exploring how an algorithm might work because poetry is abstract.

Algorithms are the poetry of computation. Just like verse, they can be terse, elusive, dense, and even mysterious.

NOON SALIH: Steve is quoting a mathematician and computational scientist named Francis Sullivan. He says there was a balancing act between the data scientists and the poets working on this Expo project but what it came to in the end was this mutual excitement over patterns.

STEVE AUSTEN-BROWN: The magic point was we worked very closely with the poetry society here in the UK. They would take the homework back and go, yep, this is great. This is terrible.

As we progressed further and further, they were questioning which was done by the algorithm and which was an example of poetry.

MUSIC

NOON SALIH: This wild experiment to merge data science with artistry, and to do it all at Expo 2020 Dubai with millions of people - it's bold. How the poem will actually be blasted out into space in search of intelligent life, is another question.

STEVE AUSTEN-BROWN: This will be others, not me. I don't know how to send a vast poem out in space.

The problem is alien intelligence doesn't understand a language or does it, you know, so if you want to get into another debate, it's how do you actually communicate? Is it color? Is it sound, is it gesture? Maybe that's something an algorithm can assist with as well.

However it is there, it is available now. That is a project in itself, I think.

AISHA ALOWAIS: I think it is human nature or by instinct, we want to learn. We want to see if there's something else. We know this globe which we are living on is just a tiny blue dot in this vast universe. So we really want to see if there are other people or other creatures in the universe.

As humans, when we want something, we are willing to invest in it and see what the results are, because it is never a waste to invest in knowledge.

NOON SALIH: And the infinity of the universe, or multiverse even, is possibly the perfect metaphor for the limitless potential of AI.

AISHA ALOWAIS: Today, we think about a certain concept in astronomy or space, for example. Tomorrow we'll change if we discovered something else. So artificial intelligence is actually an opportunity to offer many more things which we still have not imagined yet.

MUSIC

STEVE AUSTEN-BROWN: There is an apprehension and an uncertainty of what AI means to people. You can look at a dystopian future of course. Is AI getting so intelligent that it begins to make us redundant? The algorithm does not have an emotion. However, what it is doing is seeing patterns repeating and twisting and turning, patterns to create interesting stuff that we then put our emotion onto it.

AISHA ALOWAIS: It started to become a focus and more than just a buzzword, because AI can do so many things that humans can't do and it can save them from doing mundane and the menial. Humans are the makers of those robots, are the makers of those artificial intelligence algorithms.

NOON SALIH: What this means is that there's probably less to fear when it comes to the evolution of AI and more for us to ponder when we look ahead to the role it will play in our future.

AISHA ALOWAIS: Humans will be focusing more on the ethics aspects because we don't want evil robots. We want good ones that represent humans in a good way. We also should look at policies.

This will always keep AI grounded and for the benefit of humanity. So the human is the key to artificial intelligence

STEVE AUSTEN-BROWN: I am staring at the poem and every minute it is changing and I'm reading it and I'm just like sometimes I don't know what it means. Sometimes I'm trying to work out the word that was donated. And then I'm reading a couple of lines and going, wow, that's deep. I'm moved by that.

NOON SALIH: So what exactly did our message reveal? This message that was crafted to mirror the fabric of humanity through our words but also, not our words?

STEVE AUSTEN-BROWN: As an entire piece of work, what was interesting is people are optimistic. People immediately when asked about what is the word, some word that, that you feel should be contributed to humanity. Do you know what - they mostly think of good words. They think of uplifting emotionally positive words.

There is a diversity of voices. Yes, but we all do have the same dreams. The same thoughts begin a day, the same thoughts end the day, and throughout our day our lives are so different. But as a human species, we share way more than we have as differences.

NOON SALIH: Inside Expo takes you behind the scenes at Expo 2020 Dubai, sharing our stories and others across the 170-year history of this global event. Learn more by visiting [VirtualExpoDubai.com](https://virtualexpodubai.com).

Inside Expo is produced by Kerning Cultures Network.

Inside Expo
Episode 33: The Limitless Potential of
Artificial Intelligence



We release episodes every Tuesday and Friday. Subscribe to Inside Expo on your favorite podcast app so you don't miss an episode. If you enjoyed the show, share it with your friends and leave us a review.

<https://virtualexpodubai.com/listen-watch/podcast-series>