



أفكار أبوظبي 2019
IDEAS ABU DHABI



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IDEAS ABU DHABI



INTRODUCTION



The need for meaningful dialogue on the topics addressed at Ideas Abu Dhabi has never been greater, while Abu Dhabi's emergence as a global hub for knowledge, culture, and innovation makes it an ideal location.

The event is hosted by Tamkeen, a company that delivers projects to meet Abu Dhabi's vision of knowledge-based development, and is held in association with the Aspen Institute, which convenes the annual Aspen Ideas Festival in Colorado. The event in Colorado is one of the world's leading forums for the exchange of ideas, featuring some of the most influential speakers in their areas. Ideas Abu Dhabi follows suit, framing discussions that delve into the latest ideas and advances to draw out globally relevant insights and potential solutions.

L.E.K. Consulting, as one of the world's leading strategy firms with deep industry expertise and knowledge in a variety of sectors, found a natural connection with Ideas Abu Dhabi and joined as the event's Knowledge Partner, reinforcing its commitment to learning and innovation.

Over the last three years, Ideas Abu Dhabi has created a vibrant platform for thinkers, innovators, and policy makers to consider 'moonshot' ideas for changing the way we think of the world and our place in it.

This year's speakers included eminent Emirati and global leaders including UAE Minister of Tolerance **His Excellency Sheikh Nahayan Mubarak Al Nahayan**, UAE Minister of State for Foreign Affairs **His Excellency Dr. Anwar Gargash**, former Prime Minister of the United Kingdom the **Rt. Hon. Gordon Brown**, and former Prime Minister of Italy **Sen. Matteo Renzi**, along with experts in their field such as former Director of the U.S. National Security Agency **Admiral Mike Rogers**, the 'world's most famous hacker' **Kevin Mitnick**, and many others.

These influential speakers, coupled with a future-focused agenda, attracted a wide range of attendees across the invitation-only Forum. As His Excellency Sheikh Nahayan Mubarak Al Nahayan noted in his opening speech, "Ideas Abu Dhabi demonstrates that world progress relies on three factors: the quest to find peaceful and innovative solutions to global problems, the sharing of knowledge and the promotion of its application for improving quality of human life, and the constant nurturing of creativity and new ways of thinking."

The Forum was attended by 300 influential,

senior individuals across global industry, government and academia, who engaged in discussion on the four topics chosen for 2019:

- From New World Order to None?
- The Brain: Unfolding the Mystery
- Cyber: The New Battleground?
- Faster, Further, For All? Future of Transport

Each 'moonshot' had a number of curated talks to answer large, complex questions that face humanity, from efforts to repair the brain and revive supersonic flight, to the future of cyber warfare and what may be next for the global order.

A Public Festival followed the Forum each day, providing an additional 800 attendees the opportunity to hear from and interact with 25 leading thinkers, entrepreneurs, international artists, musicians and explorers from across the globe.

The following pages provide an overview of the sessions.

For more information on the event

Please visit
<https://ideasabudhabi.ae>

Watch the talks on the
[@ideasabudhabi](#) YouTube channel

#1 MOONSHOT FROM NEW WORLD ORDER TO NONE?



Evolution and Crisis in Global Relations

A New World Order, as outlined by President George H.W. Bush in the early 1990s, sought stability and cooperation in a world no longer characterised by competing U.S. and Soviet systems.

Core to this vision were broad multi-lateral coordination and neo-liberal economic and political values, such as free trade, solidarity against aggression, and arms control. With the U.S. victory in the Cold War, the U.S. (and the 'West' more generally) implicitly came to lead this order.

But decades on, the system of global relations and international institutions has begun to fray. The structure of the global economy is shifting, with the relative share of global economic activity from developed countries decreasing, and a corresponding increase from emerging countries – largely in Asia. China, in particular, has also increased its overseas investments to support the development of lagging regions through its 'Belt and Road Initiative'. These circumstances raise the possibility of realignment between the existing and emerging 'superpowers', which carry broader implications for the international system.

While 'the rise of the Rest against the West' may be acknowledged in popular discourse, this sentiment has not (yet) found solid policy footing. Former Prime Minister of the United Kingdom, the Rt. Hon. Gordon Brown, argued, **"The West has not come to terms with the rise of the rest of the world. The driver of change in the coming years will be the growing middle classes in all countries, and their consumer spending will drive the world economy, leading it to double in size in the next 25 years."** In Brown's view, these trends present a global opportunity, which countries resisting the rise of emerging economies may miss.



Former Prime Minister of the United Kingdom, the Rt. Hon. Gordon Brown
Mina Al Oraibi, Editor in Chief, The National



Bill Emmott, Chairman of the International Institute for Strategic Studies & Kishore Mahbubani, Professor in the Practice of Public Policy at the National University of Singapore

But an inflection in the world order may not only present a missed opportunity. Kishore Mahbubani, Professor in the Practice of Public Policy at the National University of Singapore argued, **“The past 200 years of Western domination of world history have been a major historical aberration. From the year one to the year 1820, the two largest economies were always those of China and India. Now we are seeing the natural return of China and India.”** If the West does not accept this and continues to “impose” its ideals on the world, Mahbubani warned it risks making “serious strategic mistakes and [as his book is entitled] the West will lose it.”

International institutions were also seen as needing to reform to this changing world order. Chairman of the International Institute for Strategic Studies, Bill Emmott, stressed the need for regular adjustments in international organisations. Emmott explained: “The World Trade Organization is a prime example of the challenges of multilateral organisations. The crucial situation we’re in now is a lack of leadership toward its renovation. In this [U.S.] Administration, there is no mission to lead the reformation of the WTO.” Given the lack of leadership, particularly from the U.S., Emmott and others called for Europe, which was characterised as “punching below its weight”, and for Asia to “stand up” and play a larger role.

H.E. Dr. Anwar Gargash, UAE Minister of State for Foreign Affairs, articulated the need for a multi-track approach. Dr. Gargash stressed the importance of maintaining the UAE’s core, traditional allies in the U.S. and Europe, but also in growing relations with rising powers in Asia and strengthening of Arab regional order. Particularly on the regional order, Dr. Gargash envisioned a system capable of solving, rather than managing, regional crises and of protecting the region from negative outside geopolitical influences.

In addition to these structural changes, speakers also considered the global rise of populism as a ‘shock’ to the world order.

Former Prime Minister of Italy, Sen. Matteo Renzi, characterised populism as “fear of the future”, particularly in the context of technological change which is expected to displace workers and create jobs which today don’t exist. Rather than emphasising reform, Renzi stressed the best response is education, which can serve as a “dam against populism” by teaching students resilience and openness to the future, and reducing the power of fear. Renzi also stressed the role of universities today, comparing them to the ‘bottegas’ of Renaissance Italy as places where progress is built. On the role of universities, Renzi hoped they would be the places where students build strategies for the future and can be trained, in the words of Leonardo da Vinci, to surpass the knowledge and accomplishments of their masters.

Sen. Matteo Renzi, Former Prime Minister of Italy



From a regional perspective, H.E. Dr. Anwar Gargash characterised political Islam as a regional form of populism, noting: **“Ideology hasn’t served many Middle Eastern countries well.”** He instead called for a focus on “results-driven politics” to address popular concerns.

While challenges to the current world order are real, there is no reason to believe a total system failure is inevitable, particularly given the forward-looking solutions the moonshot speakers proposed.

A more stable international system may lie in the West’s ability to better reconsider its approach to the rise of Asia, a larger role for Europe and Asia in ongoing enhancements and reforms to international institutions, and leveraging education to ‘future-proof’ individuals and promote openness to the world.

#2 MOONSHOT THE BRAIN



Unfolding the Mystery

In the last few decades, medical science has pioneered remarkable advances in our understanding of the brain.

Neurogenetics has offered new ways to identify neurological diseases, and brain mapping has opened new possibilities for treating them.

Neural implants have become increasingly sophisticated and hold promise for restoring brain functions, and adult brain plasticity has identified new ways to 'improve' our brains. The full list of advances is mind blowing. But still, there remains much about the human brain that we don't know.

We don't understand (exactly) what each of our individual neurons and other brain cells do. We don't understand which cell types are vulnerable to neurological diseases, and why. We don't know where our thoughts come from or why we dream. And while we know how to image the brain, we are searching for better tools.

The moonshot began by underscoring the limitless potential of the human brain, with Daniel Tammet, Fellow of the Royal Society of Arts. Tammet, who has linguistic, numerical and visual synaesthesia, perceives words, numbers and colours together, providing him a unique way of experiencing the world. He holds the

European record for pi memorisation, and said of his experience reciting the number of pi at Oxford, "It was like I communicated with the audience in a way that was speech. I was speaking the numbers - I wasn't calculating them. I was spitting it out like a computer would. It was an act of reading on stage." Tammet's poetic description of how he perceives the world left the audience wondering just how much of the brain's possibilities remain untapped.

Leading brain researchers followed Tammet and spoke to Ideas Abu Dhabi about their efforts to increase our understanding of the brain and to develop advanced applications.

*Daniel Tammet, Fellow of the Royal Society of Arts
Dr. Syed Hussain, Chair of Department of Neurology,
Neurological Institute, Cleveland Clinic Abu Dhabi*



Dr. Mary Lou Jepsen, Founder and CEO of Openwaters, is revolutionising brain imaging. Functional magnetic resonance imaging (fMRI) is currently a key tool to measure brain activity through blood flow, but it requires a room-sized, multi-million dollar machine. This means that 75% of humanity lacks access to medical imaging. Jepsen and her team are using light systems and lasers to create portable devices that can rival the quality of traditional medical imaging scanners and increase accessibility. In the longer term, Jepsen hopes to push medical science even further, noting that fMRIs can already show grainy images of words you're about to say or of images in your head, leading her to target making "telepathy possible in the next decade."

In the field of brain-computer interfaces, Dr. José del R. Millán, Defitech Chair at Ecole Polytechnique Fédérale de Lausanne, has had remarkable success helping some 1,200 individuals with motor impairments control prosthetics or direct avatars in virtual environments with their brain activity.

On the implications of his research, Millán added: **"If people are voluntarily capable of changing their brain activity in order to control or command, this opens up possibilities, not only to develop assistive devices, but also for devices that can help healing and recovery."** Millán hopes

to further develop neuro-prosthetics that are able to learn from patients, making them easier to use.

Anthony Geffen, CEO of Atlantic Productions, is involved in a similar project with Harvard Medical School, leveraging VR technology to provide a closed environment for people with autism to better connect their felt and expressed emotions with bio-psycho-social treatment. Geffen and his medical counterparts hope to transform treatment not only for autism but also for schizophrenia and other mental disorders, which affect 20% of the global population.

José Del. R. Millán, Defitech Chair, Ecole Polytechnique Fédérale de Lausanne



The brain's social and emotional functions are also informing AI, with one such effort led by Dr. Philip Alvelda, CEO and Founder of Brainworks, who is working to build trustworthy intelligent machines.

The main barrier to emotionally intelligent AI, according to Alvelda, is replicating the ability to make value judgements and have a sense of ethics. To build this artificially, Alvelda is working to integrate a richer storage of general knowledge (modelled on the frontal cortex), a predictive function (modelled on the cerebellum), and a capability to synthesise (modelled on the hippocampus). With enhanced capabilities in these areas, Alvelda sees automated 'nurses' as a critical first application for the technology.

Given demographic trends, Alvelda argued "Nursing is the single most important global challenge that humans cannot solve. There are not enough humans to care for the rest of us as we age.

Automation needs to happen, artificial humans have to happen." With trustworthy systems, this may just be possible.

Medical science appears poised to revolutionise not only what we know about the brain, but the limitations we think it has. Speakers at Ideas Abu Dhabi made clear that it is a question of when, and not if, futuristic developments like telepathy, brain-controlled devices, and brain healing will be available – begging the question: "what else may be on the horizon?"

Dr. Philip Alvelda, CEO and Founder of Brainworks



#3 MOONSHOT CYBER



The new battleground?

High-profile cases have shown just how vulnerable our online lives have made us.

Millions of people globally have seen their personal details go on sale on the dark web, while hackers have locked out entire hospital systems seeking ransom payment in bitcoin.

It is no surprise then that governments and cybersecurity advocates are focusing diligently on creating defences against these emerging threats.

With the exponential growth of internet-connected devices and data, cyber security poses new dangers to our personal and national security. It is no surprise then that governments and cybersecurity advocates are focusing diligently on creating defences against these emerging threats.

Kevin Mitnick, hacker and Founder of Mitnick Security, demonstrated just how easy it is to become the victim of a cyber attack. While many of us may be able to identify the most obvious forms of 'phishing', Mitnick described advanced 'social

engineering' techniques, which might make even the most sophisticated of us fall victim to a cyber attack. With just a click, Mitnick demonstrated how webcams can be turned on and password entries can be logged. He urged individuals and organisations to consider password managers, two-factor authentication, and regular tests of cyber defences to increase data defences.

Kevin Mitnick, hacker and Founder of Mitnick Security



The intersection between 'cyber' and 'security' is not only limited to cybersecurity, but increasingly has implications for cyber-warfare. Cassandra Kelly, Co-founder of Pottinger, described the ongoing development of lethal autonomous weapons systems, which independently decide whether or not to carry out force, based on programmable operating rules. But Kelly warned autonomous weapons systems will not be equipped for 'peacefare' as "We are not giving these robots enough data sets so they learn peace and de-escalation." To the question of whether missile systems should be truly autonomous and deploy force without human input, Betsy Cooper, Director of Tech Policy at

the Aspen Institute, drew a parallel with 'Hawk-Eye,' the line-calling system in tennis, which overrules a human line judge. In the case of war and peace, Cooper argued, **"I don't think we want a system where the human is overruled every time."**

To frame the discussion for how countries should respond to cyber threats, Toomas Ilves, former President of Estonia discussed how his country in 2007 experienced a Russian attempt to cripple the nation's financial system. Characterising the event, Ilves noted the attack was "the first time a cyber attack fit the von Clausewitz definition of war: "the continuation of policy by other means," referencing an existing dispute over Tallinn.

Toomas Ilves, Former President of Estonia
Nick Thompson, Editor, WIRED



While Estonia was a NATO ally during the 2007 attack, Antonio Missiroli, NATO's Assistant Secretary General for Emerging Security Challenges, noted that cyber attacks do not automatically trigger Article 5, NATO's common defence pact. When pressed for what NATO may consider an appropriate response, Missiroli noted: "We do not want to indicate a redline for two main reasons: you do not want to create a target that can be tested and create an issue of credibility if we don't live up to those commitments; and secondly, you don't want to say anything happening below that redline is, to some extent, tolerated."

With international standards and responses remaining opaque, questions on the future of cyber warfare still remain to be defined.

Toward this effort, Admiral Mike Rogers, former Director of the NSA, offered a novel reminder: "Don't forget the human element of cyber. Technical capability is developed, directed, and applied by man to achieve specific outcomes. Nation states use cyber as a tool to help them achieve desired outcomes as part of a broader strategy. Cyber doesn't exist by itself." With humans remaining a constant, Rogers dismissed the view that there is one technological 'silver bullet' that can put cyber fears to rest. While strategies like encryption standards, identity approaches, and multi-factor authentication are important, Rogers concluded "if it is designed by man, it can be defeated by man."

Admiral Mike Rogers, former Director of the NSA; Former Commander, US Cyber Command



The future of cyber will broadly take shape around answers to questions raised at Ideas Abu Dhabi.

How can individuals, corporations, or governments better protect themselves?

To what extent will cyber technologies be used on the battlefield, either to revolutionise conventional warfare or constitute a growing theatre for conflict?

And more fundamentally, can cyber security ever be guaranteed with humans driving technological progress?

#4 MOONSHOT FASTER, FURTHER, FOR ALL?



The future of transport

Planes, trains, and automobiles (and how we use them) have remained relatively consistent in their fundamentals over the last few decades. But that seems likely to change. With developments in supersonic planes, hyperloop trains, and driverless or even flying cars, a transportation revolution is coming to make personal vehicles old fashioned and unnecessary.

Amin Tufani, CEO of T Labs and Chair of Finance and Economics at Singularity University, began the track by outlining a technological case for the exponential growth in transportation. "Four technological moments that we anticipate in the next decade will play a massive role in a transportation revolution: Quantum supremacy, Blockchain supremacy, Solar supremacy, and AI supremacy."

Toufani noted quantum supremacy will improve our ability to solve complex optimisation problems, enabling flying taxis. Blockchain supremacy will improve coordination, enabling nano-transactions to express individual preferences. Solar supremacy will dramatically reduce the cost of travel. AI supremacy, which has already started to reach the mass market, will allow cars to intervene to avert accidents.

However for these developments to occur, Toufani qualified that in addition to technical

feasibility, innovations also need to be commercially and politically feasible. Particularly in the case of political feasibility, Toufani warned this may be more difficult than we expect. Simply by moving to autonomous vehicles, Toufani estimated this will eliminate 5% of GDP (through decreased car purchases and economic activity related to car accidents) and eliminate 1% of jobs associated with drivers – likely to make autonomous vehicle policies a harder sell for politicians.



Amin Tufani, CEO of T Labs and Chair of Finance and Economics at Singularity University



Vik Kachoria, President and CEO of Spike Aerospace

Another domain for innovation, and speed, was the subject of talks on flight and rail. Vik Kachoria, President and CEO of Spike Aerospace, highlighted his company's efforts to restore supersonic flight. Spike's product aims to be quieter, more fuel efficient, and more affordable than its predecessor, enabling long haul flights to fall to just 4 hours of traveling time. Motivated by the role of travel in his personal life, Kachoria hoped reducing barriers to transport will allow people to "connect with others around the globe, to go out and build tolerance."

Josh Giegel, Co-founder and CTO of Virgin Hyperloop One, defined his company's efforts to take

"trains from the 18th century to the 21st century, to solve 21st century problems." Virgin Hyperloop One uses magnetic levitation technology to travel at the speed of an aircraft on the ground – through near-vacuum concrete tubes. Hyperloop's pods are autonomous, as Giegel argued that taking humans out of the loop enables the vehicles to run more efficiently. Particularly in the Arabian Gulf region, Giegel also noted that solar power would allow hyperloop to be internally powered, without connecting to the grid.

Anthony Geffen and Lucy Hawking, journalist, educator and philanthropist, shared their virtual reality project that takes audiences on a journey through a black hole with the late Stephen Hawking. Describing his vision for the project, Geffen said "You will come into a virtual reality dome, you will sit in a chair with haptics, and you will feel like you are on a journey going into space. You are travelling through it with Stephen Hawking as your guide, and you can control which direction you want to go." On what audiences might expect to experience during the journey, Lucy Hawking described it as giving viewers a sense of the "immensity, violence, and beauty of the universe."

Speaking about her father, Lucy Hawking said, "While Stephen Hawking is so instantly recognisable and well known, at the same time he is enigmatic and mysterious with many different parts to his personality."

Lucy hoped her father's narration would allow audiences to better know him, as they will experience the black hole from the perspective of one of the few people in the world who could understand the journey. Lucy also shared that one of Stephen Hawking's key aims was to reach young people and engage them with science, and that both she and her father saw VR as a natural platform for his legacy to reach wider audiences.

The coming revolutions in transportation promise a world in which we can get to our destinations more safely, quickly, and in environmentally conscious ways – addressing key challenges with today's technologies. In some cases, we may even be taken on virtual journeys not yet broached by humans.

Lucy Hawking, journalist, educator and philanthropist



While there will be technical, commercial, and political obstacles to the transportation revolution, the promise of delivering benefit to billions of people around the globe may help unlock the future of transportation technology.

But how far can the future of this technology be pushed? And can the coming change, as Amin Toufani, CEO of T Labs and Chair of Finance and Economics at Singularity University, envisioned, one day mean that "every human being will have access to transportation that is safe, timely, healthy, effortless, relaxing, affordable, and dignified?"

IMPACT



Across the diverse Forum sessions at this year's Ideas Abu Dhabi, many of the same themes emerged

How can new ideas and technology be harnessed to revolutionise life as we know it?

What role do humans and human agency play?

In what cases should humans slow technological progress, and in what cases are humans fundamentally counterproductive?

To what extent can solutions be developed independently, or are they doomed without broad collaboration?

Will we be able to shape the dominant trends of our time to our benefit, or will we lose control of them to our detriment?

Both Abu Dhabi and the Aspen Institute are committed to scanning the horizon, and to helping seeking solutions to the long-term, complex, multi-stakeholder issues that face all of us. Ideas Abu Dhabi, with L.E.K. Consulting as its Knowledge Partner, is a continuation of this spirit, recognising that through immersion in the issues, shared dialogue, and commitment to core values of progress and the greater good, we can help define our own futures.

FORUM SCHEDULE

Wednesday, 27 March 2019 | NYU Abu Dhabi, Saadiyat Island

09:00	Registration
09:30	Welcome Remarks Rima Al Mokarrab - Chairman , Tamkeen H.E. Sheikh Nahayan Mubarak Al Nahayan - UAE Minister of Tolerance
10:00	MOONSHOT #1 From New World Order to None: Evolution and crisis in global relations <i>Moderator:</i> Mina Al Oraibi Editor in Chief, The National
10:05	Session 1 - A Clash or Fusion of Civilisations? The state of our world Bill Emmott Author; Chairman, International Institute for Strategic Studies Kishore Mahbubani Professor in the Practice of Public Policy, National University of Singapore
10:40	Session 2 - Globalisation: What's next? Protectionism or cooperation? Rt. Hon. Gordon Brown UN Special Envoy for Global Education and Former Prime Minister of the United Kingdom
11:15	BREAK
11:35	Session 3 - Reformists v Populists: The dangers of difficult change Sen. Matteo Renzi Former Prime Minister of Italy
12:45	Session 4 - In conversation with H.E. Dr. Anwar Gargash UAE Minister of State for Foreign Affairs
12.45	LUNCH

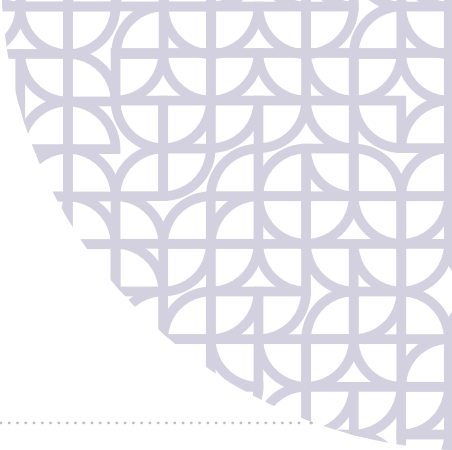
14:00	MOONSHOT #2 The Brain: Unfolding the mystery <i>Moderator:</i> Dr. Syed Hussain Chair of the Department of Neurology, Neurological Institute, Cleveland Clinic Abu Dhabi
14:05	Session 1 - Inside Story: Peering painlessly inside your brain Mary Lou Jepsen CEO and Founder, Openwater; Co founder of One Laptop per Child; Former Executive at Google and Facebook
14:40	Session 2 - Limitless: Lessons from an extraordinary mind Daniel Tammet Fellow, Royal Society of Arts, London
15.15	BREAK
15:35	Session 3 - Interface: Treating the brain with technology José Del. R. Millán Defitech Chair, Ecole Polytechnique Fédérale de Lausanne Anthony Geffen CEO and filmmaker, Atlantic Productions Dr. Harold Bursztajn Co Founder, Harvard Medical School's Psychiatry Program
16:10	Session 4 - Brain + AI: What the future holds Philip Alvela CEO, Brainworks
17:00	Reception at NYU Abu Dhabi Torch Club
17:00	Public Festival begins



FORUM SCHEDULE

Thursday, 28 March 2019 | NYU Abu Dhabi, Saadiyat Island

09:00	Registration
	Welcome Back Remarks
	Kitty Boone
09:30	Executive Director, Aspen Ideas Festival
	Andrew Hamilton
	President, New York University
	MOONSHOT #3
10:00	Cyber: The New Battleground?
	Moderator:
	Nick Thompson
	Editor, WIRED
	Session 1 - Hackers: The mayhem of malicious code
10:05	Kevin Mitnick
	'World's most famous hacker'; Founder, Mitnick Security
	Session 2 - Threats or Theatrics? From cyber warfare to peacefare
	Cassandra Kelly
10:40	EU Global Tech Panel; Co Founder Pottinger, CChange
	Betsy Cooper
	Director, Tech Policy Hub, Aspen Institute
11.15	BREAK
	Session 3 - National Cyber Strategies: Challenges and solutions
	Toomas Ilves
11:35	Former President of Estonia
	Dr. Antonio Missiroli
	Assistant Secretary General, Emerging Security Challenges, NATO
	Session 4 - : What is on the horizon
12:10	Admiral (ret.) Mike Rogers
	Former Director, US National Security Agency; Former Commander, US Cyber Command
12.45	LUNCH



14:00	MOONSHOT #4
	Faster, Further, For All? The Future Of Transport
	Moderator:
	Jack Stewart - Journalist, 'Marketplace' Radio
	Session 1 - Entering The Exponential Era of Transport
14:05	Amin Toufani
	CEO, T Labs and Chair of Finance and Economics, Singularity University
	Session 2 - Supersonic Flight 2.0: A vision for sustainable , faster than sound travel
14:40	Vik Kachoria
	CEO, Spike Aerospace
15.15	BREAK
	Session 3 - Virtuous Loop: How Hyperloop will transform society
15:35	Josh Giegel
	Co Founder and CTO, Virgin Hyperloop One
	Session 4 - Stephen Hawking's Black Holes Immersive Experience
16:10	Lucy Hawking
	Author
	Anthony Geffen
	CEO and filmmaker, Atlantic Productions
17:00	Public Festival begins

SPEAKERS BIOGRAPHIES



H.E. Dr. Anwar Bin Mohammed Gargash

Cabinet Member and Minister of State
for Foreign Affairs

H.E. Dr. Anwar Mohammed Gargash is a member of the Federal Cabinet of the United Arab Emirates and has served as Minister of State for Foreign Affairs since 2008. Between 2006 and 2016, Dr Gargash was the Minister of State for Federal National Council Affairs.

In addition to his ministerial portfolio, Dr Gargash was Chairman of the National Elections Committee, overseeing the UAE's first elections which took place in 2006 and the subsequent elections in 2011 and 2015. He is also the Chairman of the National Committee to Combat Human Trafficking; the Chairman of the Board of Trustees of the Al Owais Cultural Foundation; Member of the Board of Trustees of the Emirates Diplomatic Academy; and leads the UAE team for the Human Rights Periodic Review.

Dr Gargash previously served in several other senior positions in both the state and federal government, including as a board member of the Emirates Media Establishment from 1999 to 2007, and was a board member of the Dubai Chamber of Commerce and Industry from 1997 to 2006.

Dr. Gargash received his Ph.D from King's College, Cambridge and holds Bachelor's and Master's Degrees in Political Science from George Washington University



Rt. Hon. Gordon Brown

UN Special Envoy for Global Education and
Former Prime Minister of the United Kingdom

Gordon Brown served as Prime Minister of the United Kingdom from 2007 to 2010, Chancellor of the Exchequer from 1997 to 2007 and as a Member of Parliament in his home county of Fife, Scotland, from 1983 to 2015.

He is the United Nations Special Envoy for Global Education and is a passionate advocate for the rights of children. He believes every girl and boy deserves the opportunity of a future through schooling. Gordon is Chair of the High Level Steering Group for the Education Cannot Wait fund for education in emergencies, Chair of the Inquiry on Protecting Children in Conflict and also serves as Chair of the International Commission on Financing Global Education Opportunity.

Gordon is the author of several books including *Beyond the Crash: Overcoming the First Crisis of Globalisation* and *My Life, Our Times*.



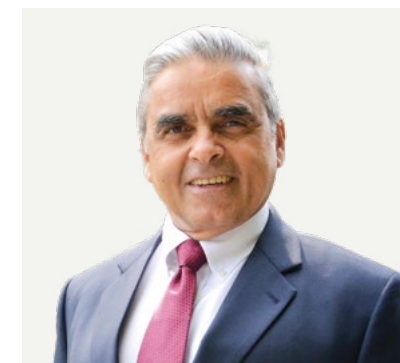
Sen. Matteo Renzi

Former Prime Minister of Italy

Renzi is the youngest person to serve as Italian Prime Minister and was the youngest leader in the G7. He was also the first serving Mayor to become Prime Minister.

In 2014, the American magazine *Fortune* ranked Renzi as the third most influential person under 40 in the world, and *Foreign Policy* listed him as one of the Top 100 Global Thinkers. Moreover, Renzi is nicknamed *il Rottamatore* (the Scrapper) due to his ambition of renovating the Italian political establishment. Renzi, who did not hold a seat in either house of Parliament during his tenure as Prime Minister, became a member of the Senate as a result of the 2018 general election. Following the 2018 election, Renzi announced his resignation as Secretary of the Democratic Party, effective 12 March 2018.

MOONSHOT #1



Kishore Mahbubani

Professor in the Practice of Public Policy,
National University of Singapore

Kishore Mahbubani is Professor in the Practice of Public Policy at the National University of Singapore, where he also served as the Founding Dean of the Lee Kuan Yew School of Public Policy from 2004 to 2017.

Before that, he served in the Singapore Foreign Service for 33 years, notably as Singapore's Ambassador to the UN and twice as President of the UN Security Council in January 2001 and May 2002. He has had postings in Cambodia, Malaysia, Washington DC and New York. He was Permanent Secretary at the Singapore Foreign Ministry from 1993 to 1998.

Prof Mahbubani has spoken and published globally. He has authored seven books. His latest book, *Has the West Lost it?*, was published in April 2018.

He was selected as one of *Prospect* magazine's top 50 world thinkers in 2014 and as one of *Foreign Policy*'s Top Global Thinkers in 2010 and 2011. In March 2009, he was listed by the *Financial Times* among the Top 50 individuals who would shape the debate on the future of capitalism, and in 2011 was described by *Foreign Policy* as "the muse of the Asian century"



Bill Emmott

Author; Chairman,
International Institute for Strategic Studies

Bill Emmott is a writer and consultant best known for his 13 years as editor in chief of The Economist in 1993-2006, a publication he first joined in 1980. In 2017-18 he was a Visiting Fellow at All Souls College, Oxford, and is an honorary fellow of Magdalen College, Oxford. He is now chair of the board of Trinity College's Long Room Hub for Arts & Humanities, chair of the Japan Society of the UK, and chair of the trustees of the International Institute for Strategic Studies in London.

Bill is the author of 13 books variously on Japan, Asia, the 20th century and Italy, the latest of which, "The Fate of the West – the battle to save the world's most successful political idea", was published in 2017.

He was also presenter and co-author of a documentary about Italy, "Girlfriend in a Coma" (2013) and executive producer of "The Great European Disaster Movie" (2015), both shown on the BBC, following which he co-founded The Wake Up Foundation to use films for educational purposes. His next book, due to be published in May 2019, will be about how women will shape the future of Japan. A member of Tokyo University's Global Advisory Board, he is also an adviser to Swiss Re, Lansdowne Partners and Critical Resource, a board director of EU Observer, and a regular contributor to La Stampa, Nikkei Business, Mainichi Shimbun and Project Syndicate.



Mina Al-Oraibi

Editor in Chief of The National

Mina Al-Oraibi is the Editor in Chief of The National, a daily English language regional newspaper based in Abu Dhabi. An Iraqi-British journalist, Mina has over 15 years of experience covering Middle Eastern, European and American affairs. Prior to assuming her role at The National, Mina was a Senior Fellow at the Institute for State Effectiveness (ISE) and a Yale World Fellow. At ISE, Mina is working on developing policy recommendations for improved governance in the Arab world, with a focus on Iraq and Syria.

Before starting her fellowship at Yale, Mina was the Assistant Editor-in-Chief of Asharq Alawsat, the international Arab-language daily newspaper 2011-2015. She has written extensively on US and European policies in the Middle East, in addition to conducting several high profile interviews including with US Secretary of State Mike Pompeo, Iraqi President Barham Salih, and UNHCR High Commissioner Filippo Grandi.

Mina is an Advisor to the Global Dignity Day Movement and a trustee of the American University in Iraq – Sulaimani. Mina was named as a Young Global Leader by the World Economic Forum.



Philip Alvelda

Co-Founder and CEO, Brainworks

Phillip Alvelda is the co-founder and CEO of Brainworks, established in July 2017 to develop and apply next-generation neuroscience-enabled artificial intelligence systems. Dr. Alvelda was a program manager at DARPA's Biological Technologies Office where he developed international R&D programs and technologies.

Dr. Alvelda was the founding CEO of MOBIV, which launched the first live mobile-TV television experience. Before MOBIV, Dr. Alvelda founded The MicroDisplay Corporation, a manufacturer of miniature displays for low-cost HDTVs and VR headsets.

Prior to MicroDisplay, Dr. Alvelda developed spacecraft hardware and computing architectures at NASA's Jet Propulsion Laboratory where he designed and built sensors that flew on the Space Shuttle as well as the Galileo and Magellan interplanetary spacecraft. Dr. Alvelda holds over 30 patents and a technical Emmy Award.

Dr. Alvelda earned a Bachelor's degree in Physics from Cornell University, and Masters and PhD degrees in Computer Science and Electrical Engineering from MIT.



Anthony Geffen

CEO and filmmaker,
Atlantic Productions

Anthony Geffen is one of the world's leading documentary filmmakers and a pioneer in immersive storytelling.

WIRED Magazine recently said he is "behind some of the most exciting advancements in VR/3D/AR and AI storytelling."

He has won 4 British Academy Awards (BAFTAs) and 8 American Emmy Awards. He followed Ang Lee and James Cameron to be presented in Hollywood with the Charles Wheatston Award for his outstanding contribution to Film and Television. In 2017, he received the first British Academy Award (BAFTA) for VR storytelling.

His diverse films include; 11 projects with Sir David Attenborough, 'The Coronation' with the Queen of England, 'My Passion for Trees' with Judi Dench, the theatrical film 'The Wildest Dream: Conquest of Everest', a film with the late Stephen Hawking and the series 'Deep Planet', following five dives to the deepest points of the world's oceans. His award winning immersive projects include; 'Space Decent', 'The Munguruku', an AI Health APP with Harvard Medical School and Stephen Hawking's 'Black Holes'. Anthony is a fellow at St Cross College, Oxford University and a Professor at NYUAD.



Mary Lou Jepsen

CEO and Founder, Openwater;
Co founder of One Laptop per Child;
Former Executive at Google and Facebook

Before founding Openwater a company creating a portable MRI, Dr. Jepsen was an engineering executive at Facebook, Oculus, Google and Intel.

She has founded four startups, including One Laptop per Child where she was CTO, chief architect and delivered to mass production the \$100 laptop. She was a professor at MIT and is an inventor of over 250 published or issued patents. She has designed and shipped billions of dollars worth of consumer electronics at the edge of what physics allows. She has been recognized with many awards including TIME magazine's "Time 100" as one of the 100 most influential people in the world, as a CNN top 10 thinker, and in the Forbes 2018 inaugural listing of the Top 50 Women in Tech.



José Del. R. Millán

Defitech Chair,
Ecole Polytechnique Fédérale de Lausanne

Dr. José del R. Millán joined École Polytechnique Fédérale de Lausanne (EPFL) in 2009 to help establish the Center for Neuroprosthetics. He holds the Defitech Foundation Chair and directs the Brain-Machine Interface Laboratory.

Dr. Millán has made several seminal contributions to the field of brain-machine interfaces (BMI), especially based on electroencephalogram (EEG) signals. Most of his achievements revolve around the design of brain-controlled robots. He has received several recognitions for these seminal and pioneering achievements, notably the IEEE-SMC Nobert Wiener Award in 2011 and elevation to IEEE Fellow in 2017. During the last years Dr. Millán is prioritizing the translation of BMI to end-users suffering from motor disabilities. Together with his team, he is also designing BMI technology to offer new interaction modalities for able-bodied people.



Dr. Harold Bursztajn

Co Founder,
Harvard Medical School's Psychiatry Program

Dr. Harold J. Bursztajn, M.D., a graduate of Princeton University and Harvard Medical School, and has served as senior Harvard Medical School faculty for over 25 years.

He has been honored with Harvard Medical School's highest award for medical-faculty mentorship, awards for psychiatric research, and national recognition via the Abraham Flexner Distinguished Medical Education Lectureship at the Vanderbilt School of Medicine. Internationally, Dr. Bursztajn's service includes the Presidency of the American Unit of the UNESCO Bioethics Chair. Dr. Bursztajn, a Founder of the Harvard Medical School Program in Psychiatry and the Law, practices nationally and internationally as a clinical and forensic neuropsychiatrist, psychoanalyst, risk manager, and advisor on artificial intelligence-empowered complex decision making under conditions of uncertainty. He has authored 5 books and over 80 scholarly journal articles.

Dr. Bursztajn continues to confidentially advise the risk management, virtual reality, and arts communities. He served as a founding investor in S2 Security Systems and consults to officers and boards of both established enterprises and start-ups.



Daniel Tammet

Fellow , Royal Society of Arts, London

Formerly an autistic child whose mother tongue was numbers, Daniel Tammet is the author of a rich and much-translated body of work, including memoirs, essays, literary reportage, poetry and fiction. His international bestsellers include Born On A Blue Day and Thinking in Numbers, and his distinctive, eloquent prose has been praised by such luminaries as Oliver Sacks, Nobel Prize laureate J. M. Coetzee and Amy Tan.

Like Nabokov before him, Tammet perceives words, and numbers, as colours, shapes, emotions. In 2004, he recited from memory the first 22,514 decimals of the mathematical constant Pi, describing it as "the Iliad of numbers".

His cognitive abilities have been the subject of numerous internationally peer-reviewed scientific papers.

Tammet is Fellow of the Royal Society of Arts (Great Britain). He lives in Paris.



Syed Irteza Hussain

Chair of the Department of Neurology in the Neurological Institute at Cleveland

Syed Irteza Hussain, MD is the Chair of the Department of Neurology in the Neurological Institute at Cleveland Clinic Abu Dhabi. Dr. Hussain is a Consultant Neurologist with 17 years of experience.

After completing his medical degree from the prestigious Aga Khan University he underwent extensive post graduate training in the US. He is American Board certified in Neurology, Vascular neurology, Neurocritical Care and Neuroendovascular surgery. He has been involved in setting up clinical and training programs related to disorders of circulation of the Nervous system in the United States.

He has been working at Cleveland Clinic Abu Dhabi since 2016. His research interests are related to stroke and acute neurological illnesses. He has special interest in the historical depiction of neurological conditions in history, literature and the arts.



Toomas Ilves

Former President of Estonia

Toomas Ilves served as President of Estonia from 2006 to 2016. In this post, he was key in driving the initiatives in e-government and cyber security for which the country has been acknowledged as a world-leader. Educated in the United States, President Ilves graduated from Columbia University in New York City in 1976 and received his Master's degree in Psychology from the University of Pennsylvania in 1978. From 2002 to 2004, Ilves was a Member of the Estonian Parliament; in 2004 he was elected a Member of the European Parliament.

During his presidency, Toomas Ilves was appointed to serve in several high positions including chair of World Economic Forum's Global Agenda Council on Cyber Security. Since November 2016, Ilves has co-chaired The Global Futures Council on Blockchain Technology, a working group set up by the World Economic Forum focusing on how blockchain technology can be used to improve the security of the internet.



Admiral (ret.) Mike Rogers

Former Director, US National Security Agency, Former Commander, US Cyber Command

Admiral Michael Rogers is the former director of the National Security Agency (NSA), the former chief of Central Security Service, and the former commander of US Cyber Command. He served under both Presidents Trump and Obama and oversaw the NSA and Cyber Command responses to both the Snowden leaks and Russian interference in the 2016 US Presidential election.

Previously, Rogers was a surface warfare officer, a fleet information operations officer and fleet cryptologist. He has led direct support missions focused on signals intelligence aboard U.S. submarines and surface units in the Arabian Gulf and Mediterranean.

Rogers is an Auburn University graduate, he is also a distinguished graduate of the National War College and a graduate of highest distinction from the Naval War College. He is a Massachusetts Institute of Technology Seminar XXI fellow; Harvard Senior Executive in National Security alum; and holds a Master of Science in National Security Strategy.



Kevin Mitnick

'World's most famous hacker'; Founder, Mitnick Security

Kevin Mitnick is the world's most famous hacker, bestselling author, and the top cybersecurity keynote speaker.

Once one of the FBI's Most Wanted because he hacked into 40 major corporations just for the challenge, Kevin is now a trusted security consultant to the Fortune 500 and governments worldwide. Kevin and The Global Ghost Team™ now maintain a 100 percent successful track record of being able to penetrate the security of any system they are paid to hack into using a combination of technical exploits and social engineering. As a one-of-a-kind, public speaker, Kevin's presentations are akin to "technology magic shows", which include live demonstrations of the latest hacking techniques that educate while keeping people on the edge of their seats to help raise "security awareness" of individuals and organizations worldwide.



Dr. Antonio Missiroli

Assistant Secretary General,
Emerging Security Challenges, NATO

Dr. Antonio Missiroli is the Assistant Secretary General for Emerging Security Challenges. Prior to joining NATO, Dr. Antonio Missiroli was the Director of the European Union Institute for Security Studies (EUISS) in Paris (2012-17).

Previously, he was Adviser at the Bureau of European Policy Advisers (BEPA) of the European Commission (2010-2012); Director of Studies at the European Policy Centre in Brussels (2005-2010), and Senior Research Fellow at the W/EU Institute for Security Studies in Paris (1998-2005). He was also Head of European Studies at CeSPI in Rome (1994-97) and a Visiting Fellow at St Antony's College, Oxford (1996-97). As well as being a professional journalist, he has also taught at Bath and Trento as well as Boston University, SAIS/Johns Hopkins, at the College of Europe (Bruges) and Sciences Po (Paris). Dr. Missiroli holds a PhD degree in Contemporary History from the Scuola Normale Superiore (Pisa) and a Master's degree in International Public Policy from SAIS/Johns Hopkins University.



Nicholas Thompson

Editor-in-chief of Wired

As the editor-in-chief of Wired, Nicholas Thompson is staking out a bold, optimistic vision for covering, and responding to, the changing realm of digital culture. From artificial intelligence to entertainment, privacy to social media, ethics to war, Thompson leads the news cycle.

Thompson served previously as a senior editor at Wired from 2005–2010. Thompson has also played a pivotal role with The New Yorker—first as senior editor, then as editor of the magazine's digital platform.

Earlier in his career, Thompson worked as a Senior Editor at Legal Affairs, an editor at the Washington Monthly, and co-founded The Atavist, the National Magazine Award-winning publishing company. He earned the 21st Century Leader Award from The National Committee on American Foreign Policy, was a Future Tense Fellow at the New America Foundation, and is a member of the Council on Foreign Relations. Thompson graduated from Stanford University, where he was a United States Truman Scholar.



Cassandra Kelly

EU Global Tech Panel;
Co Founder Pottinger, CChange

Cassandra Kelly is a global thought leader, speaker and coach to leaders who dare: corporate and political. A tech entrepreneur and former CEO, Cassandra has served as advisor, board director and chair for some of the world's most influential organizations.

She has worked in most of the world's continents. She co-founded the multiple award-winning global corporate advisory firm, Pottinger, and subsequently CChange. Pottinger works with leaders to help them solve their most complex problems through creating destination-led strategyTM and assisting on inorganic growth. CChange accelerates meaningful outcomes by working with influencers and leaders to make change happen quickly.

Cassandra's ability to compel organizations to embrace new opportunities, challenge the status quo and seize opportunities has resulted in numerous accolades.

She works with the B20/G20, was appointed as an international expert advisor to China's One Belt One Road initiative and is a member of the European Union's Global Tech Panel.



Betsy Cooper

Director, Tech Policy Hub, Aspen Institute

Betsy Cooper is the founding Director of the Aspen Tech Policy Hub. A cybersecurity expert, Ms. Cooper joined Aspen's Cybersecurity & Technology Program after serving as the Executive Director of the Berkeley Center for Long-Term Cybersecurity at the University of California, Berkeley.

Previously, she served at the U.S. Department of Homeland Security as an attorney advisor to the Deputy General Counsel and as a policy counselor in the Office of Policy. She has worked for over a decade in homeland security consulting, managing projects for Atlantic Philanthropies in Dublin, the Prime Minister's Strategy Unit in London, and the World Bank, and other organizations. Ms. Cooper has written more than twenty manuscripts and articles on U.S. and European homeland security policy. She is also a Senior Advisor at Albright Stonebridge Group. Ms. Cooper earned a J.D. from Yale University, a D.Phil. in Politics from Oxford University, an M.Sc. in Forced Migration from Oxford University, and a B.A. in Industrial and Labor Relations from Cornell University.



Josh Giegel

Co Founder and CTO, Virgin Hyperloop One

Josh Giegel is the CTO and Co-Founder of Virgin Hyperloop One, leading a world-class team of engineers making Hyperloop a reality.

Josh's background is unmatched in thermodynamics, heat transfer, compressible fluid mechanics, power cycles, turbomachinery, nonlinear structural analysis, and hardware-based development. He leads the design, analysis, and innovation for thermodynamic elements of the Hyperloop system.

Previously, Josh led research activities at Echogen Power Systems. Josh was the sole inventor of four novel supercritical CO2 power cycles. He developed custom multi-objective, nonlinear optimization software, drastically reducing engineering man-hours.

Prior to Echogen, Josh worked at SpaceX as lead analyst on six successfully tested rocket engines including Merlin 1D and Super Draco. Josh's analysis was critical to the success of the Dragon spacecraft where microgravity propulsion systems are an integral piece in docking and deorbiting from the International Space Station. He received an "Ass-Kicker" award for identifying and replicating the Falcon 9 first flight anomaly.



Amin Toufani

CEO, T Labs and Chair of Finance and Economics, Singularity University

Amin is the CEO of T Labs. He was formerly the director of strategy and Vice President of Strategic Relations at Singularity University. He brings a unique set of technological, entrepreneurial and policy perspectives to the dialogue of innovation on campus.

Before Singularity, Amin founded for-profit and social impact organizations in a range of domains including: artificial intelligence, peer to peer lending, bitcoin, human rights, international development, carbon offsetting, and solar energy.

Google Search ranks him as the world's best guitar player – a title he readily rejects. In addition to his work at Singularity, he is building the World's first hedge fund for the poor, as well as Reversopedia – a reverse encyclopedia composed of things we know we don't know.

Amin has a degree in artificial intelligence from the University of British Columbia, an MBA from Stanford, and an MPA in economic policy from Harvard. He attended Harvard and Stanford concurrently and graduated an Arjay Miller Scholar.



Lucy Hawking

Author

Author Lucy Hawking uses story-telling to make science accessible and entertaining through her 'George' book series of six adventure novels based on real science for young readers. In 2018, Lucy launched 'Mission to Mars', her new interactive book for primary school students, written in collaboration with the UK Space Agency, the European Space Agency and Curved House Kids.

In 2008, Lucy won the Sappio Prize for Popularizing Science and in 2015, the UNSW medal for Outstanding Science Communication. In July 2015, Lucy was awarded an honorary doctorate in science by Queen Mary University London for her work in STEM education. In 2017, Lucy was a judge on the Royal Society's Young Science Book of the year as well as a judge at BAFTA for the children's drama category.

Lucy has also made a virtual reality film, The Party, about the experiences of a teenage girl with autism. It has since won several VR awards. Lucy is the chair of the Stephen Hawking Foundation.



Jack Stewart

senior reporter at Marketplace, an American Public Media radio show

Jack Stewart is a senior reporter at Marketplace, an American Public Media radio show heard by 14.8 million people across the US, and available by podcast around the world.

Based in Los Angeles, he covers transportation and sustainability, examining how new modes of mobility will impact our lives, cities, and wider environment.

Previously Jack was a senior transportation writer at WIRED. He has a degree in engineering which makes him a good fit to report on autonomous and electric vehicles.

Before WIRED, Jack spent 15 years working for the BBC, initially in London, from where he was sent to Baghdad and Basra in 2003 to cover the conflict in Iraq. In 2006 he was asked to become the host of Science in Action, the longest running program on BBC World Service radio.

Jack's been a speaker and moderator at SXSW, The Aspen Ideas Festival, The Atlantic's Big Science Summit, and the BBC's World Changing Ideas Summit. He is a co-author on a scientific paper "On the future of transportation in an era of automated and autonomous vehicles," published by the Proceedings of the National Academy of Sciences.

MOONSHOT #4



Vik Kachoria

CEO, Spike Aerospace

Vik Kachoria, President and CEO of Spike Aerospace, is leading the development of the world's first QUIET supersonic business jet, the Spike S-512. The luxurious, state-of-the-art aircraft cuts travel times in 1/2 so passengers can enjoy more destinations. Mr. Kachoria is a seasoned executive with over 35 years international business experience as a successful entrepreneur and in corporate development, general management and mergers & acquisitions with Fortune 50 and high growth ventures.

Mr. Kachoria launched Computer Connection in the late 80s, selling CAD systems and installing computer networks. The company was successfully sold and led to his second venture, International Solutions, developing and selling sales force automation software to the petroleum industry.

In addition to leading Spike Aerospace, Mr. Kachoria serves as an advisor in several early stage technology companies.

Kachoria studied at MIT Sloan School of Management and Boston University, has an MBA and a BA in Physics and Mathematics.

