

Global Agenda

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# Convening Innovators from the Science and Technology Communities

Annual Meeting of the New Champions 2016

Tianjin, People's Republic of China 26-28 June

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W. Lee Howell  
Head of Global Programming  
Member of the Managing Board  
World Economic Forum

Discoveries in science and technology are arguably the greatest agent of change in the modern world. While never without risk, these technological innovations can lead to solutions for pressing global challenges such as providing safe drinking water and preventing antimicrobial resistance. But lack of investment, outmoded regulations and public misperceptions prevent many promising technologies from achieving their potential.

In this regard, the World Economic Forum has convened leaders from across the science and technology communities for our Annual Meeting of the New Champions 2016 – the foremost global gathering on science, technology and innovation. More than 1,700 leaders from business, government and research from over 90 countries will participate in 200-plus interactive sessions to:

- Foster strategic and technological agility to prepare organizations for the Fourth Industrial Revolution
- Connect with the next generation of research pioneers and business innovators addressing global challenges and disrupting industry models
- Spur scientific breakthroughs and technological innovations transforming economies and societies

By convening leaders from science and technology under the auspices of the Forum, we aim to:

- Raise awareness of the promise of scientific research and highlight the increasing importance of R&D efforts
- Inform government and industry leaders about what must be done to overcome regulatory and institutional roadblocks to innovation
- Identify and advocate new models of collaboration and partnership that will enable new technologies to address the world's most pressing challenges

We hope this document will help you contribute to these efforts by introducing to you the experts and innovators assembled in Tianjin and their fields of research.

# Overview

Here is a selection of some of the leaders from the global industry's most innovative companies registered before 23rd May 2016. For a comprehensive list of business champions for innovation, science and technology, please refer to the participant list.

## Business Champions

**Philip Abraham**, Senior Vice-President; Global Head, Research and Innovation, Veolia

**Joaquín Ancín**, Head of Technological Innovation, Acciona

**Atul Arya**, Senior Vice-President and Business Leader, Energy Insight, IHS

**Philippe Baptiste**, Senior Vice-President, Scientific Development, Total

**Jan Callewaert**, Founder and Executive Chairman, Option

**Chen Qiongzhou**, Chairman and General Manager, Hytera Communications

**Jørgen Mads Clausen**, Chairman, Danfoss

**Xiaoguo Clever**, Chief Technology and Data Officer, Ringier

**Hek Oktavian Erison**, Chief Technology Officer, UMG Myanmar

**Magnus Ewerbring**, Vice-President and Chief Technology Officer, Asia-Pacific, Ericsson

**Feng Zhiqiang**, Chief Technology Officer, Trina Solar

**Gao Jifan**, Chairman and Chief Executive Officer, Trina Solar

**Nenad Grmusa**, Head, Global Research and Development Finance, Takeda Pharmaceuticals International

**Vivake Gupta**, Chairman, Lab49

**Andy Ho**, Chief Executive Officer, Greater China, Royal Philips

**Tom Hsu**, Vice-President, HTC-VIA

**Ken Hu**, Deputy Chairman and Rotating Chief Executive Officer, Huawei Technologies

**Hu Bo**, Chairman, Ciming Medical Examination & Health Management Group

**George Huang**, Partner-in-Charge, Heidrick & Struggles

**Travis Kalanick**, Chief Executive Officer and Co-Founder, Uber

**Petra Laux**, Head, Global Public and Government Affairs, Novartis International

**Lei Jun**, Founder, Chairman and Chief Executive Officer, Xiaomi Corporation

**James Liang**, Founder, Chairman and Chief Executive Officer, Ctrip.com

**David Liu**, President and Chief Operating Officer, Knewton

**Liu Jiren**, Chairman and Chief Executive Officer, Neusoft Corporation

**Tianwen Liu**, Founder, Chairman and Chief Executive Officer, iSoftStone Group

**Ma Zhongwei**, Chairman, Magnetic Valley Technology

**Rod Makoske**, Senior Vice-President, Corporate Engineering, Technology and Operations, Lockheed Martin Corporation

**Carlos Moreira**, Chairman, Chief Executive Officer and Founder, WISEKey

**Miqdad Ali Nasser**, Chief Executive Officer, i3 Pathfinder Solutions

**Christophe Nicolas**, Group Chief Information Officer,

Kudelski Group; Senior Vice-President and Founder, Kudelski Security, Kudelski Group

**Yitzhak Peterburg**, Chairman, Teva Pharmaceutical Industries

**Gianluca Pettiti**, President, Greater China, Thermo Fisher Scientific (China)

**Ajit Sapre**, Group President, Research and Technology, Reliance Industries

**Dermot Shorten**, Senior Vice-President, Strategy, M&A and Ventures, Quest Diagnostics

**Nikita Shvetsov**, Chief Technology Officer, Kaspersky Lab

**Daljit Singh**, President, Fortis Healthcare

**Sun Pishu**, Chairman and Chief Executive Officer, Inspur Group

**Shiro Tanabe**, Chief Technology Officer and Global Center for Social Innovation Officer, Hitachi (China)

**Alan Tennenberg**, Chief Medical Officer, J&J Global Public Health, Johnson & Johnson

**Bernard J. Tyson**, Chairman and Chief Executive Officer, Kaiser Permanente

**Rangarajan Vellamore**, Chief Executive Officer, Infosys (China)

**Tom Werner**, Chief Executive Officer, SunPower Corporation

**Wu Changhua**, Director, China, TIR Consulting

**Xu Jinghong**, Chairman, Tsinghua Holdings

**Yao Jinbo**, Founder and Chief Executive Officer, 58.com

**Yan Xijun**, Chairman of the Board, Tasly Holding Group

**Ya-Qin Zhang**, President, Baidu.com

## Policy and University Leaders

**Navdeep Bains**, Minister of Innovation, Science and Economic Development of Canada  
**Jean-Pierre Bourguignon**, President, European Research Council  
**Cao Xiaohong**, Vice-Mayor of Tianjin  
**Hongbo Chen**, Vice-Dean, Tuspark Research Institute for Innovation, Tsinghua University  
**Pichet Durongkaveroj**, Minister of Science and Technology of Thailand  
**David Gann**, Vice-President, Innovation, Imperial College London  
**Gong Ke**, President, Nankai University  
**Elanor Huntington**, Dean, Australian National University  
**Shirley Ann Jackson**, President, Rensselaer Polytechnic Institute (RPI)  
**Jung Mooyoung**, President, Ulsan National Institute for Science and Technology (UNIST)  
**Sung-Mo Steve Kang**, President, Korea Advanced Institute of Science and Technology (KAIST)  
**John Kao**, Vice-President and Pro-Vice-Chancellor (Global), University of Hong Kong  
**Lee Xiaodong**, President and Chief Executive Officer, China Internet Network Information Center (CNNIC)  
**Bruce Lennox**, Dean of the Faculty of Science, McGill University  
**Dava Newman**, Deputy Administrator, National Aeronautics and Space Administration (NASA)  
**Ellis Rubinstein**, Chief Executive Officer, New York Academy of Sciences  
**Mart Saarma**, Vice-President, European Research Council  
**William H. Saito**, Special Adviser, Cabinet Office of Japan  
**Antonio Samaritani**, Director-General, The Agency for Digital Italy  
**Uttama Savanayana**, Minister of Information and Communication of Thailand  
**Tan Chorh Chuan**, President, National University of Singapore  
**Krishna Udayakumar**, Head of Global Innovation, Duke Health, Duke University Medical Center and Health System  
**Eden Woon Yi-Teng**, Vice-President, Institutional Advancement, Hong Kong University of Science and Technology  
**Wu Zhaohui**, President, Zhejiang University  
**Xu Ningsheng**, President, Fudan University  
**Zou Ji**, Deputy Director-General, National Center for Climate Change Strategy and International Cooperation (NCSC)

## Communication Experts

**Allison Aubrey**, Correspondent, National Public Radio  
**Nick Campbell**, Director, Greater China, Nature Research Group: Executive Editor, Springer Nature  
**Philip Campbell**, Editor-in-Chief, Nature  
**I-han Chou**, Senior Strategy Editor, Nature, Nature Publishing Group  
**Mariette DiChristina**, Editor-in-Chief, Scientific American  
**Ed Gerstner**, Executive Editor, Nature Journals, Greater China, Springer Nature  
**Fred Guterl**, Executive Editor, Scientific American  
**Charlotte Haug**, International Correspondent, The New England Journal of Medicine  
**Tony Juniper**, Fellow, University of Cambridge Institute for Sustainability Leadership  
**Gareth Mitchell**, Lecturer, Broadcast Communication, Imperial College London  
**Stephen Morrissey**, Managing Editor, New England Journal of Medicine  
**Vijay Vaitheeswaran**, China Business Editor and Shanghai Bureau Chief, The Economist  
**Wen Bo**, Member, Scientific Committee, Air and Water Conservation Fund, National Geographic Society  
**Gary Wong**, Editor, The New England Journal of Medicine  
**Rui-Ping Xiao**, Associate Editor, The New England Journal of Medicine

## Researchers

**Elena Bennett**, Associate Professor, Department of Natural Resource Sciences, McGill University

**Julie Bernhardt**, Director, Centre of Research Excellence in Stroke Rehabilitation & Recovery, The Florey Institute of Neuroscience and Mental Health

**Lisa Boulanger**, Assistant Professor, Princeton Neuroscience Institute, Princeton University

**Cong Cao**, Professor of Chinese Studies, Head of the School of Contemporary Chinese Studies, University of Nottingham Ningbo China

**Justine Cassell**, Associate Dean, Technology, Strategy and Impact, School of Computer Science, Carnegie Mellon University

**Mandar Chitre**, Assistant Professor, Electrical and Computer Engineering, National University of Singapore

**Howard Choset**, Professor, Robotics Institute, Carnegie Mellon University

**Matthew Cook**, Professor, Australian National University

**Ronald Dahl**, Director, Institute of Human Development, University of California, Berkeley

**Paolo Dario**, Director, The BioRobotics Institute, Scuola Superiore Sant'Anna Pisa

**Paul Dille**, Senior Research Programmer/Analyst, Carnegie Mellon University

**P. Murali Doraiswamy**, Professor of Psychiatry and Medicine; Director, Neurocognitive Disorders Program, Duke University Health System

**Jonathan Dordick**, Vice-President for Research and Howard P. Isermann Professor, Rensselaer Polytechnic Institute (RPI)

**Nita A. Farahany**, Professor, Law and Philosophy, Duke University

**Kevin Foster**, Professor of Evolutionary Biology, University of Oxford

**Martin Fussenegger**, Professor, ETH Zurich

**Stamatia Giannarou**, Royal Society University Research Fellow, Imperial College London, Hamlyn Centre for Robotic Surgery

**Karina Gin**, Associate Professor, Department of Civil and Environmental Engineering, National University of Singapore

**Andrew Gonzalez**, Professor, Canada Research Chair in Biodiversity Science and Director, Quebec Centre for Biodiversity Science, McGill University

**Epameinondas Gousopoulos**, PhD Researcher, ETH Zurich

**Andre Goy**, Chairman and Director; Chief of Lymphoma, John Theurer Cancer Center, Hackensack University Medical Center

**He Jianzhong**, Associate Professor, Department of Civil and Environmental Engineering, National University of Singapore

**Martial Hebert**, Director, Robotics Institute, Carnegie Mellon University

**Leslea Hlusko**, Associate Professor, University of California, Berkeley

**Allan Jones**, Chief Executive Officer, Allen Institute

**Kim Jong-Hwan**, Professor, Korea Advanced Institute of Science and Technology (KAIST)

**Tonni Agustiono Kurniawan**, Associate Professor, Xiamen University

**Sang Yup Lee**, Distinguished Professor, Korea Advanced Institute of Science and Technology (KAIST)

**Tai-Sing Lee**, Professor, Computer Science, Carnegie Mellon University

**Casey Lew-Williams**, Assistant Professor, Princeton University

**Li Zheng**, Head, Department of Thermal Engineering, Tsinghua University

**Graham MacDonald**, Assistant Professor, Department of Geography, McGill University

**Nergis Mavalvala**, Curtis and Kathleen Marble Professor of Astrophysics, Massachusetts Institute of Technology (MIT)

**Douglas McCauley**, Marine biologist and Assistant Professor, University of California, Santa Barbara

**William McDonough**, Consulting Professor of Civil and Environmental Engineering, Stanford University

**Suzan Murray**, Programme Director, Smithsonian Wildlife Health Programme, Smithsonian Institution

**Bradley Nelson**, Professor, ETH Zurich

**Wendy Perchick**, Senior Vice-President, Strategic Planning and Innovation, Memorial Sloan Kettering Cancer Center

**Qian Xu**, Professor and Chairwoman, Department of Maternal and Child Health, School of Public Health, Fudan University

**Carlo Ratti**, Director, SENSEable City Laboratory, MIT - Department of Urban Studies and Planning

**Junichi Rekimoto**, Professor, Interfaculty Initiative in Information Studies, University of Tokyo

**Randy Sargent**, Senior Systems Scientist, Carnegie Mellon University

**David Hyunchul Shim**, Associate Professor, Department of Aerospace Engineering, Korea Advanced Institute of Science and Technology (KAIST)

**Stephan Sieber**, Chair of Organic Chemistry II, Technical University of Munich

**Raymond K.Y. Tong**, Professor, Chinese University of Hong Kong

**Harold van Es**, Professor of Soil and Water Management, Cornell University

**Krystyn Van Vliet**, Professor of Materials Science and Engineering, Massachusetts Institute of Technology  
**Viola Vogel**, Professor, ETH Zurich  
**Wendell Wallach**, Scholar, Interdisciplinary Center for Bioethics, Yale University  
**Wang Haoyi**, Principle Investigator; Group Leader of Genome Engineering Technology, Institute of Zoology, Chinese Academy of Sciences  
**Wei Shaojun**, Professor, Tsinghua University  
**Scott Wing**, Curator of Fossil Plants, Smithsonian Institution  
Tobias Witting, Research Associate, Department of Physics, Imperial College London  
**Joshua Woodard**, Assistant Professor, Cornell University  
**Zhang Dabing**, Professor, School of Life Sciences and Biotechnology, Shanghai Jiao Tong University  
**Zhang Dongxiao**, Dean and Chair Professor, College of Engineering, Peking University  
**Zhang Yi**, Director, Joint Lab of Intelligent Transportation Systems, Tsinghua University

## Pioneers and Innovators

**Kees Aarts**, Chief Executive Officer, Protix Biosystems  
**Yonatan Adiri**, Founder and Chief Executive Officer, Healthy.io  
**Michael Altendorf**, Co-Founder and Chief Executive Officer, Adtelligence  
**Maria Antonia Arroyo**, Chief Executive Officer, Hybridigm Consulting  
**Jaime I. Ayala**, Founder and Chief Executive Officer, Hybrid Social Solutions (HSSI)  
**Japman Bajaj**, Founder, Executive Director, Soshal  
**Brian Ballard**, Co-Founder and Chief Executive Officer, APX Labs  
**Brian Behlendorf**, Managing Director, Mithril Capital Management  
**Yobie Benjamin**, Co-Founder, Avegant Corporation  
**David Berry**, General Partner, Flagship Ventures  
**Sarindr Bhumiratana**, Chief Scientific Officer, EpiBone  
**Martin Bruncko**, Chief Strategy Officer and Chief Financial Officer, AeroMobil  
**Adam Bly**, Vice-President, Analytics, Spotify  
**Prateek Bumb**, Chief Technology Officer, Carbon Clean Solutions (CCSL)  
**Colin Calder**, Chief Executive Officer, PassivSystems  
**John Carrington**, Chief Executive Officer, Stem  
**Steve Davis**, President and Chief Executive Officer, PATH  
**Leslie Dewan**, Chief Executive Officer, Transatomic Power  
**Sean Duffy**, Co-Founder and Chief Executive Officer, Omada Health  
**Nathan Eagle**, Chief Executive Officer, Jana  
**Valerie Feldmann**, Vice-President, Product Innovation and Strategy, Ogin  
**Tim Fell**, Chief Executive Officer, Synthace  
**Alvaro Fernández Ibáñez**, Co-Founder and Chief Executive Officer, SharpBrains.com  
**Andrew Fursman**, Chief Executive Officer, 1QB Information Technologies  
**Dileep George**, Co-Founder and Chief Technology Officer, Vicarious  
**Robin Gilthorpe**, Chief Executive Officer, WaterSmart Software  
**Bob Goodson**, Founder, Quid  
**Ron Gutman**, Founder and Chief Executive Officer, HealthTap  
**Marjolein Helder**, Chief Executive Officer, Plant-e  
**Renat Heuberger**, Chief Executive Officer and Deputy Chairman, South Pole Carbon  
**Jacob Hsu**, Chief Executive Officer, Symbio  
**Arthur Huang**, Founder and Chief Executive Officer, Miniwiz  
**Jen Hyatt**, Founder, Big White Wall  
**Marianne Eve Jamme**, Founder and Chief Executive Officer, SpotOne Global Solutions  
**Richard Jefferson**, Founder and Chief Executive Officer, Cambia  
**Kevin Kawasaki**, Global Head, Business Development, Palantir Technologies  
**Jason Kelly**, Chief Executive Officer, Ginkgo Bioworks

**Corinna E. Lathan**, Chair of the Board and Chief Executive Officer, AnthroTronix

**Tan Le**, Founder and Chief Executive Officer, Emotiv Lifesciences

**Gene Lee**, Founder and Chairman, Avellino Labs

**Rob Leslie**, Chief Executive Officer, Sedicii

**Maxim Lobovsky**, Chief Executive Officer, Formlabs

**Anmol Madan**, Co-Founder and Chief Executive Officer, Ginger.io

**Hugh Martin**, Chief Executive Officer, Sensity Systems

**Shaffi Mather**, Founder and Chief Executive Officer, MUrgency

**John Mighton**, Founder, JUMP Math

**Justin Moore**, Chief Executive Officer, Axcient

**Amit Narayan**, Founder and Chief Executive Officer, AutoGrid Systems

**Patrick Nee**, Chief Executive Officer, Universal Bio Mining

**Tony Pan**, Chief Executive Officer, Modern Electron

**Richard Perl**, Chief Administrative Officer, TerraCycle

**Peter Platzer**, Founder and Chief Executive Officer, Spire

**Matthew Prince**, Chief Executive Officer, CloudFlare

**Jun Qin**, Chairman, JUNZI CAPITAL

**Ramesh Raman**, Senior Vice-President, Technology and Business Development, Adani North America, Adani Group

**Daan Roosegaarde**, Artist, Studio Roosegaarde

**Pablo Segura Parra**, Chief Technology Officer and Co-Founder, Poligone

**Matthew Silver**, Founder and Chief Executive Officer, Cambrian Innovation

**Nina Tandon**, President and Chief Executive Officer, EpiBone

**Andrew Thompson**, Co-Founder and Chief Executive Officer, Proteus Digital Health

**Wang Chunguang**, Chief Executive Officer, Co-Founder, Equota energy

**Wang Jun**, Founder and Chief Executive Officer, iCarbonX

**Throop Wilder**, President and Chief Executive Officer, 24M Technologies

**Philip Wilson**, Executive Director, Ecofiltro

**Hank C. K. Wuh**, Chairman, TruTag Technologies

**Xie Zida**, General Manager, ShenYang Lear Environmental Engineering

**Yuan Hui**, Founder and Chief Executive Officer, Shanghai Xiaoi Robot Technology

**Rositsa Zaimova**, Product Manager, Real Impact Analytics

## Young Scientists

**Gerardo Adesso**, Associate Professor, University of Nottingham

**Elissa Aminoff**, Faculty, Carnegie Mellon University

**Osman M. Bakr**, Associate Professor, Material Science and Engineering, King Abdullah University of Science and Technology

**Michael Bowen**, Biomedical Research Fellow, University of Sydney

**Julie Cairney**, Professor, Materials Characterisation, University of Sydney

**Kellie Charles**, Senior Lecturer, Research Group Leader of the Cancer Therapeutics Research Group, University of Sydney

**Cynthia Collins**, Associate Professor, Rensselaer Polytechnic Institute (RPI)

**Karen Davies**, Staff Scientist, Lawrence Berkeley National Laboratory

**Ding Qiurong**, Professor, Laboratory of Human Genetics and Metabolic Diseases, Institute for Nutritional Sciences, Chinese Academy of Sciences

**Amit Etkin**, Assistant Professor, Psychiatry and Behavioural Sciences, Stanford University

**Ben Glocker**, Lecturer in Medical Image Computing, Imperial College London

**Gong Jinlong**, Professor, Tianjin University

**Gabriela Hug**, Associate Professor, Information Technology and Electrical Engineering, ETH Zurich

**Ji Heng**, Edward P. Hamilton Development Chair Associate Professor, Rensselaer Polytechnic Institute (RPI)

**Jin Xianmin**, Professor; Founder, Laboratory of Quantum Integrated Photonics, Shanghai Jiao Tong University

**Nicole Joller**, Assistant Professor, Institute for Experimental Immunology, University of Zurich

**Yasuaki Takehi**, Associate Professor, Faculty of Environment and Information Studies, Keio University

**Sander Kasteren**, Assistant Professor, Faculty of Science, Leiden University

**Kim Ayoung**, Assistant Professor, Robotics, Korea Advanced Institute of Science and Technology (KAIST)

**Rob Knight**, Professor, University of California, San Diego (UCSD)

**Lee Seung-Hee**, Assistant Professor, Neuroscience, Korea Advanced Institute of Science and Technology (KAIST)

**Darren Lipomi**, Assistant Professor, Nano-Engineering, University of California, San Diego (UCSD)

**Kristen Marhaver**, Marine Biologist, Caribbean Research and Management of Biodiversity (CARMABI) Research Station

**Jackson Mohlopheni Marakalala**, Senior Lecturer and Group Leader, University of Cape Town

**Jenny Mortimer**, Director of Plant Systems Biology, Joint BioEnergy Institute, Lawrence Berkeley National Laboratory

**Mei Lin Neo**, Research Fellow, Tropical Marine Science Institute, National University of Singapore

**Tolu Oni**, Senior Lecturer, Division of Public Health Medicine, School of Public Health, University of Cape Town

**Amanda Randles**, Assistant Professor, Biomedical Engineering, Duke University

**Ozgur Sahin**, Associate Professor, Department of Biological Sciences and Department of Physics, Columbia University

**Johnson Samuel**, Assistant Professor, Mechanical Aerospace and Nuclear Engineering, Rensselaer Polytechnic Institute (RPI)

**Björn Schuller**, Reader, Imperial College London

**Gregory Schwartz**, Principal Investigator, Northwestern University

**Fabio Sciarrino**, Associate Professor, Physics Department, University of Rome La Sapienza

**Mahesh Srinivasan**, Assistant Professor, Department of Psychology, University of California, Berkeley

**Shi Qihui**, Professor, Shanghai Center for Systems Biomedicine, Shanghai Jiao Tong University

**Gabrielle Thomas**, Research Associate, Imperial College London

**Maria Elena Torres Padilla**, Group Leader and Director, University of Strasbourg

**Kirill Veselkov**, Waters Lecturer in Computational Medicine, Imperial College London

**Wang Yan**, Professor, Tianjin Medical University

**Komminist Weldermariam**, Manager and Research Scientist, IBM Research Africa

**Ning Yan**, Assistant Professor, Leader of Green Catalysis Lab, National University of Singapore

**Byron Yu**, Associate Professor, Electrical & Computer Engineering and Biomedical Engineering, Carnegie Mellon University

**Yu Kyoungsik**, Associate Professor, School of Electrical Engineering, Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea

# Business Champions

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## *Technology research and development*



**Philip Abraham** is Senior Vice-President and Global Head of Research and Innovation at Veolia. His team's research expertise includes biology and biotechnologies, health and environmental risk management, materials and information technologies. He has also worked in hazardous waste treatment.

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## *Renewable energies*



**Joaquín Ancín** is Head of Technological Innovation at Acciona, where he is primarily responsible for technological advances in the Renewable Energies Division and their application to the company's construction processes and activities. He previously focused on developments related to biofuels and hydrogen, as well as wind power.

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## *Energy technologies*



**Atul Arya** is Senior Vice-President and Business Leader, Energy Insight, at IHS. He has long-standing experience in energy markets analysis, oil and gas, renewable energies, energy technology strategies, climate change policies and solar energy, among others.

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## *Scientific development*



**Philippe Baptiste** is Senior Vice-President of Scientific Development at Total. He has led many R&D projects with software developers and industry-leading manufacturers. Previously, he was the Director of the CNRS Institute for Information Sciences and Technology, and Head of Research and Innovation strategy at the French Ministry of Research and Higher Education.

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## *Cloud solutions*



**Jan Callewaert** is Founder and Executive Chairman of Option, a company that has 25 years' experience in efficient, reliable and secure wireless solutions for business and industrial markets. The company partners with system integrators, value-added resellers, application platform providers, value-add distributors and network operators to bring tailor-made M2M solutions to end-customers.

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*Mobile radio communications*



**Chen Qiongzhou** is Chairman and General Manager of Hytera Communications, a leading designer and manufacturer of professional mobile radio communications equipment.

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*Energy-efficient solutions*



**Jørgen Mads Clausen** is Chairman of Danfoss, a global leader in energy-efficient solutions, with a special focus on air-conditioning, electrical motor control, building heating, mobile hydraulics and renewable energies.

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*Digital platforms*



**Xiaoqun Clever** is Chief Technology and Data Officer at Ringier, where she is responsible for innovating the entire technology stack across all product divisions to build digital capital as a growth engine for the entire group. She has a track record of building digital platforms by leveraging cutting-edge technology and big data.

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*Information technology*



**Hek Oktavian Erison** is Chief Technology Officer of UMG Myanmar. He has been involved in and led numerous projects related to IT strategy development, implementation of IT systems, change management, master data, system effectiveness reviews, systems integration and management of information systems.

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*Communication technologies*



**Magnus Ewerbring** is Vice-President and Chief Technology Officer, Asia-Pacific, of Ericsson. With a background in electrical engineering, he is responsible for driving technology alignment as well as long-term technology strategies in the region.

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*Solar power*



**Feng Zhiqiang** is Chief Technology Officer of Trina Solar, which produces ingots, wafers, solar cells and solar modules. Feng has over 25 years' experience in research and development of semiconductor process engineering technology along with a wealth of experience in crystalline silicon solar cell technology research and development, and solid technical expertise.

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*Photovoltaic innovation*



**Gao Jifan** is Chairman and Chief Executive Officer of Trina Solar, which produces ingots, wafers, solar cells and solar modules. Under his leadership, the company became a leader in the photovoltaic industry of China and created the first solar model room in the country. Gao has vigorously promoted the process of China's renewable energy and green economic development.

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*Innovative medicines*



**Nenad Grmusa** is Head of Global Research and Development Finance at Takeda Pharmaceuticals International. The company is committed to discovering, developing and delivering innovative medicines that can have an impact on patients worldwide. Takeda focuses on innovative medicines in gastroenterology, oncology, the central nervous system, cardiovascular and metabolic systems, as well as vaccines.

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*Open-source data*



**Vivake Gupta** is Chairman of Lab49. He is an expert in scientific parallel computing, complexity theory and parallelizing compilers. He has made extensive contributions to the open-source community, including involvement in the Mozilla project, contributions to the Linux kernel, and additions to the library of code available for the Python language in statistical processing, natural language and rich media.

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*Technology development*



**Andy Ho** is Chief Executive Officer, Greater China, Royal Philips. He has held a wide range of sales, technology and senior management roles across Greater China, Canada and the United States in a career spanning over 30 years. His latest roles touch on technology partnership and strategic alliances for Greater China.

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*PC processors*



**Tom Hsu** is Vice-President of HTC-VIA, HTC's x86 PC processor supplier. Hsu has a background in electrical engineering and 20 years of experience in the IT industry.

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*Mobile technology*



**Ken Hu** is Deputy Chairman and Rotating Chief Executive Officer of Huawei Technologies. With a technology background, Hu has been supporting the development of the company for more than 25 years, occupying a broad range of positions, from President of Global Sales to Chief Strategy and Marketing Officer to Chairman of the Corporate Global Cyber Security Committee.

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*Healthcare*



**Hu Bo** is Chairman of the Ciming Medical Examination & Health Management Group, the largest healthcare company in Asia. It develops products that include health check-ups, referrals for a second opinion on diagnosis, chronic disease management, healthy longevity and a physiological age test.

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*Technology leadership*



**George Huang** is Partner-in-Charge at Heidrick & Struggles China, where he leads the global Technology & Services Practice. He has spent more than 20 years in leadership roles in the technology and search industries, spanning a wide geographical area.

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*Public health*



**Petra Laux** is Head of Global Public and Government Affairs at Novartis International. With a strong scientific background, she is an expert in public health and health economics, and strives to identify global political risks for businesses and develop sound public-health strategies.

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*Technological innovation investments*



**Lei Jun** is the Founder, Chairman and Chief Executive Officer of Xiaomi Corporation. He is a renowned technology entrepreneur and angel investor focusing on technological innovation. Xiaomi Corporation is disrupting and reshaping the mobile internet smartphone and router industries. Lei also invested in companies to drive the new “Made in China” movement.

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*Sharing economy*



**Travis Kalanick** is Chief Executive Officer and Co-Founder of Uber, the mobile application that connects passengers with drivers of vehicles for hire and ride-sharing services. Uber operates in 58 countries and in more than 300 cities around the world.

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*Digital platforms*



**James Liang** is the Founder, Chairman and Chief Executive Officer of Ctrip.com, a leading online travel agency and one of the most successful internet companies in China. His research interests are in entrepreneurship, innovation and labour markets.

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*Digital platforms*



**David Liu** is President and Chief Operating Officer of Knewton. He oversaw the creation and launch of the Knewton platform and API through which the company distributes its industry-leading, adaptive-learning technology to education companies and institutions around the world. Liu holds a US patent for web-based content personalization.

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*Information technology-enabled solutions*



**Liu Jiren** is Chairman and Chief Executive Officer of Neusoft Corporation, which provides innovative information technology-enabled solutions and services to meet demands arising from social transformation, to shape new lifestyles for individuals and to create value for society.

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*Information technology innovation*



**Tianwen Liu** is the Founder, Chairman and Chief Executive Officer of iSoftStone Group, a leader in China's innovative IT services provider, smart city and internet development. Liu has over 20 years' management experience in the IT industry and technology innovation. He has won a number of awards, including Leader of the Year in China Software and Information Services Industry.

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*Magnetic clean technologies*



**Ma Zhongwei** is Chairman of Magnetic Valley Technology, which specializes in magnetic technology research and development, machinery manufacturing and energy-saving technologies for motors based on a permanent magnet "vortex" and flexible drive.

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*Innovative engineering*



**Rod Makoske** is Senior Vice-President of Corporate Engineering, Technology and Operations at Lockheed Martin. He is responsible for providing corporate leadership in the strategic areas of technology, engineering, production, supply chain, programme management and sustainment operations. As the principal engineering and operational leader for the corporation, Makoske ensures engineering, technical and operational excellence across the enterprise.

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*Data security*



**Carlos Moreira** is Chairman, Chief Executive Officer and Founder of WISEKey, a company that provides advanced security solutions for communications, identity and information using a variety of technologies customized to meet companies', governments' and individuals' security requirements.

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*IT systems integration*



**Miqdad Ali Nasser** is the Chief Executive Officer of i3PATHFINDER Solutions, a world-class premier IT systems integrator. The company provides strategic technology solutions for businesses in diverse industries, including financial services, telecommunications, logistics, oil and gas, and the public sector.

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*Cybersecurity*



**Christophe Nicolas** is Senior Vice-President and Founder of Kudelski Security, a cybersecurity division offering a range of security services and solutions for media, financial services, and the public and defence sectors. During his 20 years with the Kudelski Group, Nicolas has held various management positions in engineering.

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*Generic drugs*



**Yitzhak Peterburg** is Chairman of Teva Pharmaceutical Industries, which develops ethical and generic drugs, OTC pharmaceuticals, health-related products, hospital supplies, fine chemicals for the pharmaceutical industry, veterinary pharmaceuticals and vaccines, baking yeast and associated products.

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*Medical research provider*



**Gianluca Pettiti** is President, Greater China, of Thermo Fisher Scientific (China). The company enables its customers to make the world healthier, cleaner and safer by providing analytical instruments, equipment, reagents and consumables, software and services for research, analysis, discovery and diagnostics.

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*Energy and materials*



**Ajit Sapre** is Group President of Research and Technology at Reliance Industries. He has more than 30 years of experience in the petroleum refining and petrochemicals business and technology development, in the refining, petrochemicals, polyester, lubes and renewable-energy sectors.

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*Medical diagnostic insights*



**Dermot Shorten** is Senior Vice-President, Strategy, M&A and Ventures at Quest Diagnostics, which empowers people to take action to improve health outcomes. Derived from the world's largest database of clinical lab results, its diagnostic insights reveal new avenues to identify and treat disease, inspire healthy behaviours and improve healthcare management.

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*Cybersecurity technologies*



**Nikita Shvetsov** is Chief Technology Officer of the Kaspersky Lab, one of the world's fastest-growing cybersecurity companies. He oversees the technology and product strategy, drives all product and service development as well as engineering and research activities, and oversees R&D.

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*Healthcare delivery*



**Daljit Singh** is President of Fortis Healthcare, as well as Chairman of the Malar Hospitals and Board Member of Lanka Hospitals Corporation. He has over 40 years' management experience in healthcare delivery.

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*Cloud computing*



**Sun Pishu** is Chairman and Chief Executive Officer, Inspur Group, which he helped to become China's leading cloud computing and big data vendor, pushing forward China's server industry and providing cloud computing, big data products and services to over 102 countries worldwide.

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*Smart transport systems*



**Shiro Tanabe** is Chief Technology Officer and Global Center for Social Innovation Officer of Hitachi (China). He has been working on smart cities, information, material and healthcare and is now in charge of developing technologies in China.

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*Global public health*



**Alan Tennenberg** is Chief Medical Officer, Global Public Health, at Johnson & Johnson. Trained as an infectious diseases physician, he brings over 20 years' experience in the pharmaceutical industry, clinical medicine, public health and academia.

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*Affordable healthcare*



**Bernard J. Tyson** is Chairman and Chief Executive Officer of Kaiser Permanente, committed to shaping the future of healthcare. With over 30 years' experience, Tyson is an influential voice on healthcare equity, affordability and access to care and coverage for all.

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*Next-generation services*



**Rangarajan Vellamore** is Chief Executive Officer of Infosys (China), a global leader in consulting, technology and outsourcing and next-generation services. It provides enterprises with strategic insights on what lies ahead and helps them transform and thrive through strategic consulting, operational leadership and the co-creation of breakthrough solutions.

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*Solar power solutions*



**Tom Werner** is Chief Executive Officer of SunPower Corporation, a company that offers technologies and innovative solar solutions, with a cutting-edge approach to sustainability. Werner is an expert in industrial and electrical engineering.

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*Low-carbon solutions*



**Changhua Wu** is Director, China, of TIR Consulting. She has a long track record of establishing public and private partnership with technology providers, financial institutions and city and regional governments to scale up low-carbon solutions in China.

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*Technological innovation*



**Xu Jinghong** is Chairman of Tsinghua Holdings, which is committed to innovative enterprise incubation, focusing on technology and covering IT, energy, environmental protection, life and health, technology services and living environment. Xu also researches regional, enterprise and technological innovation.

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*Traditional Chinese medicine*



**Yan Xijun** is Chairman of Tasly Holding Group. The company focuses on innovations in standards and technologies to produce high-quality, stable and controllable traditional Chinese medicine, in particular for the treatment of cardiovascular and cerebral illnesses.

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*Internet classification*



**Yao Jinbo** is the Founder and Chief Executive Officer of 58.com, which is the largest supplier for internet classification information and localized life service provider in China.

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*Technology development*



**Ya-Qin Zhang** is President of Baidu.com. He has been granted more than 60 US patents in digital video, internet, multimedia, wireless and satellite communications, and many of the technologies he and his team developed have become the basis for start-up ventures, commercial products and international standards.

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# Policy and University Leaders

*Innovation and science leadership*



**Navdeep Bains** is Minister of Innovation, Science and Economic Development of Canada. Previously, Bains worked with the Juvenile Diabetes Research Foundation and served as an Ontario board member with the Heart and Stroke Foundation.

*Scientific excellence*



**Jean-Pierre Bourguignon** is President of the European Research Council (ERC), which is responsible for encouraging the highest quality research in Europe through competitive funding and supporting investigator-driven frontier research across all fields on the basis of scientific excellence. A mathematician by training, Bourguignon has received many awards and honours throughout his career.

*Biology and engineering*



**Cao Xiaohong** is the Vice-Mayor of Tianjin. She has a background in microbiology, agriculture and food engineering. Cao has occupied various high-level educational positions, such as President of the Tianjin University of Science and Technology.

*Scientific innovation*



**Hongbo Chen** is Vice-Dean of the Tuspark Research Institute for Innovation at Tsinghua University. He has more than 10 years of experience in planning, developing and operating Tsinghua University Science Park, particularly in setting up an innovation service system to help small and medium-sized high-tech enterprises.

*Science, technology and innovation*



**Pichet Durongkaveroj** is Minister of Science and Technology of Thailand, in charge of advancing policy and strategic planning for science, technology and innovation; and seeking its effective and substantive implementation, both in terms of research and development and creating cooperative mechanisms between all sectors, with a view to promoting economic benefits and enhancing quality of life.

*Innovation and technology*



**David Gann** is Vice-President, Innovation of Imperial College London, where he is responsible for shaping the vision, strategy and innovation agenda. Gann also holds the Chair in Innovation and Technology Management at Imperial College Business School.

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*Wireless communications*



**Gong Ke** is President of Nankai University. He has conducted research in wireless communication, access and equipment, and small-sized multi-antennas.

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*Quantum optics*



**Elanor Huntington** is Dean of the Australian National University. Her research interest is in experimental quantum optics, specializing in high-speed measurement, control and generation of non-classical states for quantum technological applications.

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*Theoretical physics*



**Shirley Ann Jackson** is President of the Rensselaer Polytechnic Institute. She conducted research in theoretical physics, solid state and quantum physics, and optical physics. She is best known for her work on the polaronic aspects of electrons in two-dimensional systems and was also the first African-American woman to receive a doctorate from MIT in any field.

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*Industrial engineering leadership*



**Jung Mooyoung** is President of the Ulsan National Institute for Science and Technology. He has a long-standing career in science leadership and industrial engineering, and his research interests are in smart factory systems, and energy management and storage.

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*Electrical engineering*



**Sung-Mo "Steve" Kang** is President of the Korea Advanced Institute of Science and Technology (KAIST). He is an electrical engineering scientist and has written extensively in the field of computer-aided design for electronic circuits and systems. He led the development of the world's first 32-bit microprocessor chips and designed satellite-based private communication networks. Kang holds 15 US patents and has won numerous awards for his groundbreaking achievements in electrical engineering.

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*Cancer therapeutics*



**John Kao** is Vice-President and Pro-Vice-Chancellor of the University of Hong Kong, where he contributes to the strengthening of its global networks of collaboration and technology transfer. His scientific research focuses on developing therapeutics for cancer and wound healing.

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*China internet network*



**Lee Xiaodong** is President and Chief Executive Officer of the China Internet Network Information Center, in charge of the national country code top-level domain of “.cn”, IP address allocation and internet surveys.

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*Nanomaterials*



**Bruce Lennox** is Dean of the Faculty of Science at McGill University. His research programme focuses on the design and synthesis of nanomaterials, with applications in biophysical devices, “smart” nanocomposites and biosensors. This research has led to a number of collaborations with biochemists, neuroscientists, pharmacologists, microbiologists, cell biologists, chemical, and electrical engineers and physicists.

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*Aeronautics*



**Dava Newman** is Deputy Administrator of NASA and Professor of Aeronautics and Astronautics and Engineering Systems at the Massachusetts Institute of Technology (MIT). She is best known for promoting the development of space activity suits, namely the Bio-Suit, which help astronauts move around more easily than with gas-filled suits.

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*Research and technology*



**Susil Premajayantha** is Minister of Science, Technology and Research of Sri Lanka, in charge of the formulation of policies related to implementation, regulation and growth of technology, research and atomic energy. He previously was Minister of Power and Energy, Minister of Petroleum Industries and Minister of Environment and Renewable Energy.

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*Scientific initiatives*



**Ellis Rubinstein** is Chief Executive Officer, New York Academy of Sciences, where he has created a series of initiatives powered by an extraordinary network of the world’s leading experts and academic and industry institutions. A former science journalist, he is the recipient of several awards.

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*Parkinson’s disease*



**Mart Saarma** is Vice-President of the European Research Council. His research is focused on the molecular and cellular mechanisms of programmed death in the neurons that are controlled by neurotrophic factors, as well as the role of neurotrophic factors in development and neurodegenerative diseases.

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*Innovative technology identification*



**William H. Saito** is Special Adviser of the Cabinet Office of Japan, as well as President and Chief Executive Officer of InTecur, a company that identifies innovative technologies and develops global talent. He is a leading expert in encryption, authentication and biometric technologies. Saito also advised the Fukushima Nuclear Accident Independent Investigation Commission.

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*Digital states*



**Antonio Samaritani** is Director-General of The Agency for Digital Italy, responsible for fostering a wide usage of ICT technologies in Italy, and enabling cooperation among information systems of governmental bodies and between these systems and the European Union. Samaritani has 25 years of experience in the IT industry.

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*Information and communication technologies*



**Uttama Savanayana** is Minister of Information and Communication of Thailand. With a background in electrical engineering and experience in science and technology development, Savanayana is now overseeing a number of ITC entities in the country.

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*Biomedical sciences*



**Tan Chorh-Chuan** is President of the National University of Singapore (NUS). He has had a long career as a renal physician. He joined NUS in 1987 and has since occupied many positions, from senior consultant to Professor of Medicine to Head of Department. He is a key leader in Singapore's Biomedical Sciences Initiative since its inception in 2000, for which he was awarded the National Science and Technology Medal in 2008.

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*Health innovation*



**Krishna Udayakumar** is Head of Global Innovation, Duke Health, Duke University Medical Center. He is responsible for the development of global partnerships across translational and clinical research, global health, education and training, healthcare delivery and healthcare management.

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*Science advancement*



**Eden Woon Yi-Teng** is Vice-President of Institutional Advancement at the Hong Kong University of Science and Technology. He is an expert in mathematics, which he has taught extensively.

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*Computer science*



**Wu Zhaohui** is President of Zhejiang University. He has dedicated his career to high-level research in and teaching computer science. Wu has received a number of prizes and awards.

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*Physics education*



**Xu Ningsheng** is President of Fudan University. He is an expert in physics education and an academician of the Chinese Academy of Sciences.

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*Climate mitigation*



**Zou Ji** is Deputy Director-General, National Center for Climate Change Strategy and International Cooperation. He has a track record of experience within international organizations in environmental quality, low-carbon urban planning, and studies on medium and long-term targets for climate mitigation. Previously, Zou was the Deputy Dean of the School of Environment and Natural Resources at Renmin University.

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# Communication Experts

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## *Food and nutrition*



**Allison Aubrey** is a Correspondent for National Public Radio, where she covers food and nutrition issues. She has investigated the nutritional and taste differences between grass- and corn-fed beef. Aubrey looked into the hype behind the claims of antioxidants in berries and the claim that honey is a cure-all for allergies.

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## *Science communication*



**Nick Campbell** is the Executive Editor of Nature and oversees its partnerships and supplements programme. He spent a decade as a research geneticist before joining the Nature Publishing Group, where he has held a variety of editorial positions since 2001.

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## *Science communication*



**Philip Campbell** is the editor-in-chief of science journal Nature. He heads a team of about 90 editorial staff around the world and takes direct responsibility for the content of Nature editorials, contributing to its writing. He also sits on the executive board of the parent company, Nature Publishing Group.

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## *Science communication*



**I-han Chou** is Senior Editor of Biology at Nature. Her areas of responsibility include sensory and motor systems, decision-making, executive functions, psychiatric disease and neuroscience in general.

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## *Science communication*



**Mariette DiChristina** is Editor-in-Chief at Scientific American. She is the first woman to assume this top position. DiChristina is a frequent lecturer and has appeared at the New York Academy of Sciences, California Academy of Sciences, Yale University and New York University, among others. She is the recipient of many awards.

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## *Chinese research promotion*



**Ed Gerstner** is Executive Editor at Nature Journals. He has over a decade of experience working for Nature Journals as an editor for Nature, Nature Physics, Nature Materials and Nature Communications. He has been responsible for building Nature's editorial presence in China, forging closer links with the Chinese research community, championing the benefits of open research, and helping Chinese scientists publish their research in the world's best journals.

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*Science publication*



**Fred Guterl** is Executive Editor at Scientific American. With a background in electrical engineering, he has been writing about science for more than 25 years. He won the Journalism Award from the American Association for the Advancement of Science, and led Scientific American to its first General Excellence Award from the National Society of Magazine editors in 2011.

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*Healthcare innovation*



**Charlotte Haug** is International Correspondent for the New England Journal of Medicine. She writes, speaks and consults on innovations in healthcare, scholarly communication and scientific publishing. She has also worked in clinical medicine and research, and on the supervision of healthcare systems.

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*Environmental advocacy*



**Tony Juniper** is Fellow at the University of Cambridge Institute for Sustainability Leadership. A strong campaigner for environmental issues, he is also an independent sustainability and environment adviser, including Special Adviser with the Prince's Charities International Sustainability Unit and President of the Society for the Environment.

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*Technology communication*



**Gareth Mitchell** is Lecturer in Broadcast Communication at Imperial College London as well as an active science journalist, presenting a weekly technology programme for the BBC World Service. He reports regularly for science programmes for BBC Radio 4 and writes for BBC Focus Magazine as the technology expert on the Q&A pages.

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*Medical analysis*



**Stephen Morrissey** is Managing Editor of the New England Journal of Medicine, where he is responsible for the day-to-day operations and assists the editor-in-chief in setting journal policy. He is also responsible for commentaries and analysis of articles and other topics of importance to the medical community.

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*Science communication*



**Vijay Vaitheeswaran** is China Business Editor and Shanghai Bureau Chief at The Economist. With a scientific background, he has been environment and energy correspondent, global health, biotechnology and innovation correspondent, as well as China business, finance and technology editor.

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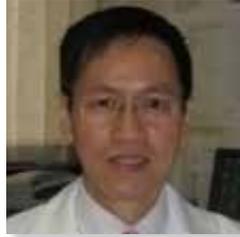
*Environment  
communication*



**Wen Bo** is a member of the Scientific Committee of the Air and Water Conservation Fund at the National Geographic Society. He is a former journalist for China Environment News, where he reported on China's environmental problems. He has studied, lived and worked in China, the Republic of Korea and Japan, and has a comparative understanding of environmental problems, activism and governance in these countries.

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*Allergic and  
autoimmune diseases*



**Gary Wong** is Editor for the New England Journal of Medicine and Professor in the Department of Paediatrics at the Chinese University of Hong Kong. Wong has strong interests in different aspects of allergic and autoimmune diseases, particularly in the epidemiology and environmental determinants of asthma and related allergic disorders.

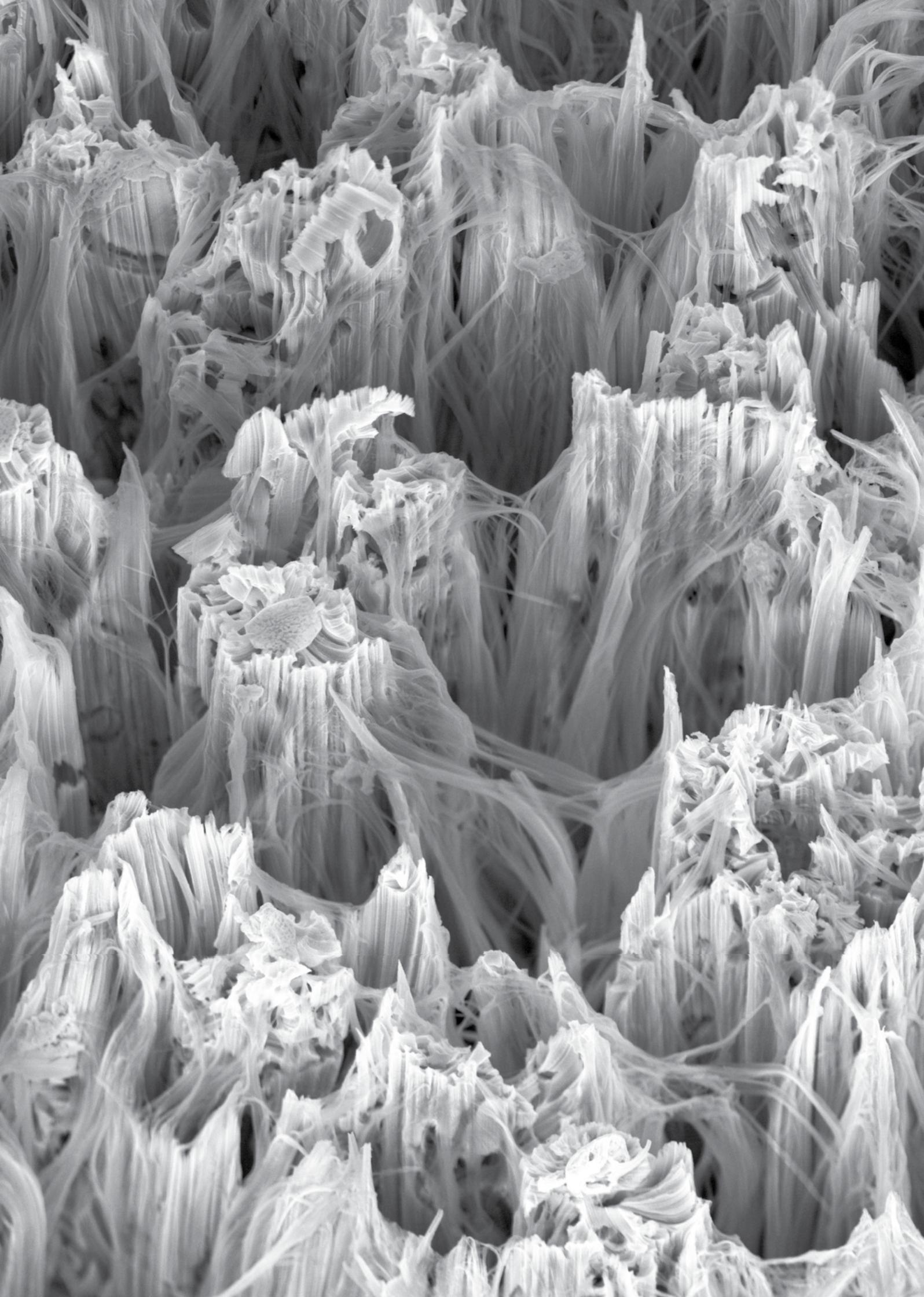
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*Cardiovascular and  
metabolic diseases*



**Rui-Ping Xiao** is Editor for the New England Journal of Medicine and an Associate Editor of the Journal of Molecular Medicine. Xiao's research has been focused on cardiovascular and metabolic diseases, with an emphasis on taking bench discoveries into clinically relevant situations. Ongoing research includes signalling pathways involved in metabolic syndrome and associated cardiovascular complications.

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# Researchers

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## *Agriculture and ecosystems*



**Elena Bennett** is Associate Professor in the Department of Natural Resource Sciences at McGill University. She focuses on agricultural landscape management for multiple ecosystems, the human impact on the biogeochemical cycle of phosphorous, and interactions among ecosystem services, biodiversity and food production.

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## *Stroke rehabilitation*



**Julie Bernhardt** is Director of the Centre of Research Excellence in Stroke Rehabilitation & Recovery at the Florey Institute of Neuroscience and Mental Health. As Australia's leading stroke rehabilitation trialist, she focuses on the development and testing of new exercise and rehabilitation interventions that aim to reduce the burden of stroke-related disability.

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## *Brain plasticity*



**Lisa Boulanger** is Assistant Professor in the Neuroscience Institute at Princeton University, where she focuses on how proteins of the immune system participate in normal brain development and synaptic plasticity, using electrophysiology, biochemistry, molecular genetics, behavioural analysis and microscopic imaging techniques.

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## *Sociology of science*



**Cong Cao** is Head of the School of Contemporary Chinese Studies at the University of Nottingham Ningbo. He has conducted a study on Chinese scientists holding the elite membership in the Chinese Academy of Sciences, and addressed critical issues surrounding the quality, quantity and effective use of China's human resources in science and technology.

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## *Human-computer interaction*



**Justine Cassell** is Associate Dean, Technology, Strategy and Impact of the School of Computer Science at Carnegie Mellon University. She has 20 years of experience in developing technologies that preserve and showcase the most human and humane of our capabilities, and in communicating the risks and opportunities technologies that ignore these guidelines pose to society.

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## *Underwater communication*



**Mandar Chitre** is Assistant Professor in Electrical and Computer Engineering at the National University of Singapore. An expert on oceans, his research interests and expertise range from acoustic underwater communication to signal processing, and from ambient noise imaging to autonomous underwater vehicles to complex dynamic systems and emergent behaviour.

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*Biorobotics*



**Howard Choset** is Professor at the Robotics Institute at Carnegie Mellon University. Motivated by applications in confined spaces, he has created a comprehensive programme in snake robots, which has led to basic research in mechanism design, path planning, motion planning and estimation. He also co-founded Medrobotics, a company that manufactures small surgical snake robots for minimally invasive surgery.

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*Immunology*



**Matthew Cook** is Professor of Immunology at the Australian National University, where he focuses on the genetic and cellular basis of human immune deficiency in order to reduce patient mortality through better understanding of their autoimmune disease.

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*Behavioural and emotional disorders*



**Ronald Dahl** is the Director of the Institute of Human Development at the University of California, Berkeley, where he also serves as Professor in the School of Public Health and the Joint Medical Program. He is a paediatrician and developmental scientist with long-standing research interests in the development of sleep/arousal regulation and how it affects the development of behavioural and emotional disorders in children and adolescents.

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*Biorobotics*



**Paolo Dario** is the Director of the BioRobotics Institute at Scuola Superiore Sant'Anna Pisa, where he teaches biomedical engineering. He works on theoretical models, design methods, precision technologies for the fabrication of novel components and integrated systems, machines and robots. Dario has contributed to the foundation of cross-field research such as micro and biomechatronics, biorobotics and neuro-robotics.

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*Robotics and empowerment*



**Paul Dille** is Senior Research Programmer and Analyst at Carnegie Mellon University, where he works on the CREATE project, which aims at empowering communities in the use of robotic technologies to understand their own environments.

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*Cognitive and emotional health*



**P. Murali Doraiswamy** is Professor of Psychiatry and Medicine and Director of the Neurocognitive Disorders Program at Duke University Health System. He focuses on understanding mechanisms of cognitive and emotional health, and on developing novel personal diagnostic tools and therapeutics for neurocognitive enhancement, with applications for clinical depression and Alzheimer's disease.

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*Chemical and biological engineering*



**Jonathan Dordick** is Vice-President for Research and Professor of Chemical and Biological Engineering at the Rensselaer Polytechnic Institute. His research groups are focused on gaining a quantitative understanding of biological principles and applying them to advance bioengineering, nanobiotechnology, drug discovery and biomanufacturing.

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*Bioethics*



**Nita A. Farahany** is Professor of Law and Philosophy at Duke University, where she works on the ethical, legal and social implications of biosciences and emerging technologies, particularly those related to neuroscience and behavioural genetics.

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*Evolutionary biology*



**Kevin Foster** is Professor of Evolutionary Biology at the University of Oxford, where he studies social evolution in a diverse range of systems, including insects, humans and sperm. He is particularly interested in the cooperation between organisms.

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*Biotechnology and Bioengineering*



**Martin Fussenegger** is Professor of Biotechnology and Bioengineering at ETH Zurich. He is an expert in molecular biology, genetics, medical microbiology, pathogen interactions and mammalian cell engineering. He is an editor, co-inventor of several patents and the co-founder of biotechnology start-up companies.

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*Robotic surgery*



**Stamatia Giannarou** is Research Fellow at the Hamlyn Centre for Robotic Surgery of Imperial College London. She focuses on the development of an imaging toolbox for the most delicate cancer and neurological operations, using real-time, multi-scale imaging to precisely identify tissues and protect critical organs.

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*Water quality*



**Karina Gin** is Associate Professor in the Department of Civil and Environmental Engineering at the National University of Singapore, where she researches water quality and the transport of emerging contaminants and ecosystem processes.

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*Biodiversity loss*



**Andrew Gonzalez** is Professor and Canada Research Chair in Biodiversity Science at McGill University, where his research is broadly focused on the causes and consequences of biodiversity loss and the stability and functioning of ecosystems. The aim is to gain a better understanding of how the impacts of anthropogenic environmental change can be mitigated.

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*Regenerative medicine*



**Epameinondas Gousopoulos** is PhD Researcher at ETH Zurich, where he focuses on regenerative medicine and tissue engineering for lymphedema treatment, which is very often caused by cancer treatment.

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*Lymphoma treatment*



**Andre Goy** is Chief of Lymphoma at the John Theurer Cancer Center of Hackensack University Medical Center. He specializes in the treatment of lymphomas, leukaemia and autoimmune disorders. Goy is also the author of more than 100 peer-reviewed articles for scientific journals.

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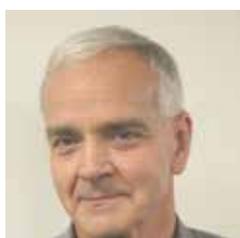
*Bioremediation*



**He Jianzhong** is Associate Professor in the Department of Civil and Environmental Engineering of the National University of Singapore, where she focuses on discovering novel microorganisms to transform and detoxify environmental contaminants, enhance biodegradation and convert biomass to biofuels.

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*Perception data*



**Martial Hebert** is Director of the Robotics Institute at Carnegie Mellon University, where he focuses on computer vision and the interpretation of perception data for autonomous 2D and 3D systems. This includes scene analysis, interpretation and reconstruction as well as motion analysis and detection, tracking and prediction in dynamic environments.

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*Mammalian skeletal evolution*



**Leslea Hlusko** is Associate Professor in the Biology Department of the University of California, Berkeley. She studies the genetic and developmental basis of mammalian skeletal evolution and variation by looking at primate dentition, which enables her to model statistically the role genes play in morphological evolution.

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*Neuroscience*



**Allan Jones** is Chief Executive Officer of the Allen Institute, which is dedicated to understanding the complexity of bioscience and accelerating research worldwide. The institute is a recognized leader in large-scale research with a commitment to an open science model within its research institutes.

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*Intelligence technologies*



**Kim Jong-Hwan** is Professor at Korea Advanced Institute of Science and Technology, where his research focuses on intelligence technologies, intelligence super-agent and intelligence operating architecture for robots.

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*Water purification*



**Tonni Kurniawan** is Associate Professor at the Xiamen University. He focuses on waste-water treatment and water purification, specifically the applications of technologies such as low-cost absorbents to remove heavy metals from contaminated water, restoring it to near drinking-water quality.

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*Bioengineering and biotechnology*



**Sang Yup Lee** is Distinguished Professor of the Korea Advanced Institute of Science and Technology (KAIST). He is one of the world's leading experts in bioengineering and biotechnology. His research has focused on metabolic and biochemical engineering, industrial biotechnology and biorefineries, systems and synthetic biology, nanobiotechnology and disease diagnostics. He has published more than 500 journal papers and holds 580 patents.

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*Computational neuroscience*



**Tai-Sing Lee** is Professor of Computer Science at Carnegie Mellon University. He focuses on computational neuroscience, computational vision, neurophysiology of the primate visual systems, active and adaptive vision, hierarchical coding and inference, mid-level vision, development of infant vision, learning and adaptation, and structure of neural codes.

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*Learning mechanisms*



**Casey Lew-Williams** is Assistant Professor at Princeton University, where he studies learning mechanisms and features of language environments to understand the beginnings and consequences of learning through experience. He combines methods from the fields of psychology, linguistics and communication.

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*Thermal engineering*



**Li Zheng** is Head of the Department of Thermal Engineering at Tsinghua University. He is an expert in energy efficiency, strategy and system analysis. He also works in the modelling and evaluation of coal gasification polygeneration systems and is active in the promotion of this new type of energy system into implementation.

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*Agricultural land use*



**Graham MacDonald** is Assistant Professor in the Department of Geography at McGill University, where he researches the dimensions of agricultural land use and management. His interests are at the intersection of farm management, agricultural production and the socioeconomic factors for food consumption.

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*Gravitational waves*



**Nergis Mavalvala** is Professor of Astrophysics at the Massachusetts Institute of Technology, where she researches interferometric gravitational waves and quantum measurement, which has the potential of providing a radically different view of the universe.

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*Marine biology*



**Douglas McCauley** is a Marine Biologist and Assistant Professor at the University of California, Santa Barbara. His research aims at understanding how marine community structures influence ecosystem dynamics, determining how ecosystems are interactively and energetically coupled to one another and quantifying how humans perturb these dynamics and shape patterns of biodiversity.

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*Beneficial footprint*



**William McDonough** is Consulting Professor of Civil and Environmental Engineering at Stanford University. He has focused his career on creating a beneficial footprint, believing that we can design materials, systems, companies, products, buildings and communities that continuously improve over time. He has also created the Cradle to Cradle Products Innovation Institute.

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*Wildlife health*



**Suzan Murray** is Programme Director of the Smithsonian Wildlife Health Program, which addresses animal diseases and conservation medicine. Murray is the principal investigator on a prestigious USAID Emerging Pandemic Threats programme, which combines wildlife surveillance and international training in the quest to prevent emerging pandemics.

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*Microbotics and nanorobotics*



**Bradley Nelson** is Professor of Robotics and Intelligent Systems at ETH Zurich, where he focuses on microrobotics and nanorobotics. Fundamentally, he is interested in reducing the size of tiny intelligent machines from millimetres to nanometres.

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*Cancer care access*



**Wendy Perchick** is Senior Vice-President of Strategic Planning and Innovation at the Memorial Sloan Kettering Cancer Center. She is in charge of several initiatives that aim to expand access to leading cancer care, relying on decades of experience managing major shifts in the delivery of clinical care for cancer patients.

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*Maternal and child health*



**Qian Xu** is Professor and Chairwoman of the Department of Maternal and Child Health at Fudan University. Her main research areas cover safe motherhood programme evaluation, adolescent reproductive health and care, evidence-based healthcare, maternal health policy and system research.

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*New cities*



**Carlo Ratti** is Director of the SENSEable City Laboratory at the Massachusetts Institute of Technology (MIT). His research group explores how new technologies are changing the way we understand, design and ultimately live in cities – from street grids to plumbing and garbage systems – using new kinds of sensors and hand-held electronics. Ratti uses the human face of urban technologies to promote bottom-up social empowerment.

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*Human-computer interaction*



**Junichi Rekimoto** is Professor in Information Studies at the University of Tokyo. His research interests include human-computer interaction, computer-augmented environments and computer augmented humans. Rekimoto has invented various innovative interactive systems and sensing technologies.

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*Earth time-lapse*



**Randy Sargent** is Senior Systems Scientist at Carnegie Mellon University, where he researches for the Explorables project, developing ways to interactively explore and understand large datasets and complex systems, including air and water quality, personal health, and employment and economic trends. As Visiting Scientist in Google's Earth Engine team, Sargent also helps to research and develop time-lapse explorable maps.

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*Unmanned aerial vehicles*



**David Hyunchul Shim** is Associate Professor in the Department of Aerospace Engineering at the Korea Advanced Institute of Science and Technology (KAIST), where he leads efforts on flight control, unmanned systems and robotic systems, and in developing autonomous unmanned aerial vehicles.

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*Bio-organic chemistry*



**Stephan Sieber** is Chair of Organic Chemistry at the Technical University of Munich, where he researches bio-organic chemistry. The aim of his work is to develop new drugs for multi-drug-resistant bacteria. His research is based on methods that combine synthetic chemistry, functional proteomics, cell biology and mass spectrometry. This approach enables the discovery of new active substances.

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*Rehabilitation robot system*



**Raymond K.Y. Tong** is Professor of Biomedical Engineering at the Chinese University of Hong Kong. He is well known for his innovative work on a rehabilitation robot system called the “Hand of Hope”, which combines robotics and neuroscience to enable stroke survivors to restore movement to a partially paralysed hand.

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*Soil health management*



**Harold van Es** is Professor of Soil and Water Management at Cornell University. He works on approaches to precision soil management, with current emphases on a holistic soil health management framework and a computational tool for precision nitrogen management.

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*Material chemomechanics*



**Krystyn Van Vliet** is Professor of Materials Science and Engineering at the Massachusetts Institute of Technology (MIT), where she studies material chemomechanics – material behaviour at the interface of mechanics, chemistry, physics and biology. She focuses on cell interfaces and environments relevant to the healing of wounds and inflammation, cancer and stem/precursor cell development.

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*Biochemical signals*

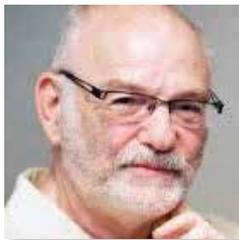


**Viola Vogel** is Head of the Laboratory of Applied Mechanobiology at ETH Zurich, which deciphers how bacteria and cells sense mechanical stimuli and convert them into biochemical signals that can switch cell functions. This includes asking how bacteria and cells employ the stretching of proteins to switch biochemical functions and how such insights can be exploited for biomedical applications.

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*Technology ethics*



**Wendell Wallach** is a Scholar of the Interdisciplinary Center for Bioethics at Yale University. He is an expert on the ethical and governance concerns posed by emerging technologies, particularly artificial intelligence and neuroscience. Wallach has chaired a working research group on technology and ethics for the past 10 years and is a member of other research groups on end-of-life issues and neuroethics.

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*Genome and epigenome editing*



**Wang Haoyi** is Group Leader of Genome Engineering Technology at the Institute of Zoology of the Chinese Academy of Sciences. His lab focuses on the development of novel technologies to achieve more efficient and specific genome and epigenome editing.

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*Computer technology development*



**Wei Shaojun** is Professor at Tsinghua University, where he focuses on microelectronics, mobile computing, high-end chips, high-level synthesis of digital system, embedded system design and reconfigurable computing technology.

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*Fossil plants*



**Scott Wing** is Curator of Fossil Plants at the Smithsonian Institution. He studies fossils because they provide a long-term record of evolutionary, ecological and environmental changes, and he uses fossil plants to reconstruct past climates and local environments.

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*Laser pulse generation*



**Tobias Witting** is Research Associate in the Department of Physics at Imperial College London, where he researches quantum optics and laser science, and more specifically ultrafast laser pulse generation.

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*Data analysis*



**Joshua Woodard** is Assistant Professor at Cornell University, where he focuses on agricultural finance with special emphases on empirical applications, spatial data analysis, weather risk and large-scale data analysis. He is also the founder of Ag-Analytics.org, an open source data integration and automation platform.

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*Genetically modified organisms*



**Zhang Dabing** is Professor at the School of Life Sciences and Biotechnology of Shanghai Jiao Tong University. His research focuses on the key regulators of rice to understand its reproductive development. He is also developing GMO analysis methods and a GMO database.

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*Earth science*



**Zhang Dongxiao** is Dean and Chair Professor at the College of Engineering of Peking University. He is an expert in groundwater hydrology, unconventional oil and gas production, and geological carbon sequestration, with major achievements in stochastic modelling, numerical simulation and inverse modelling.

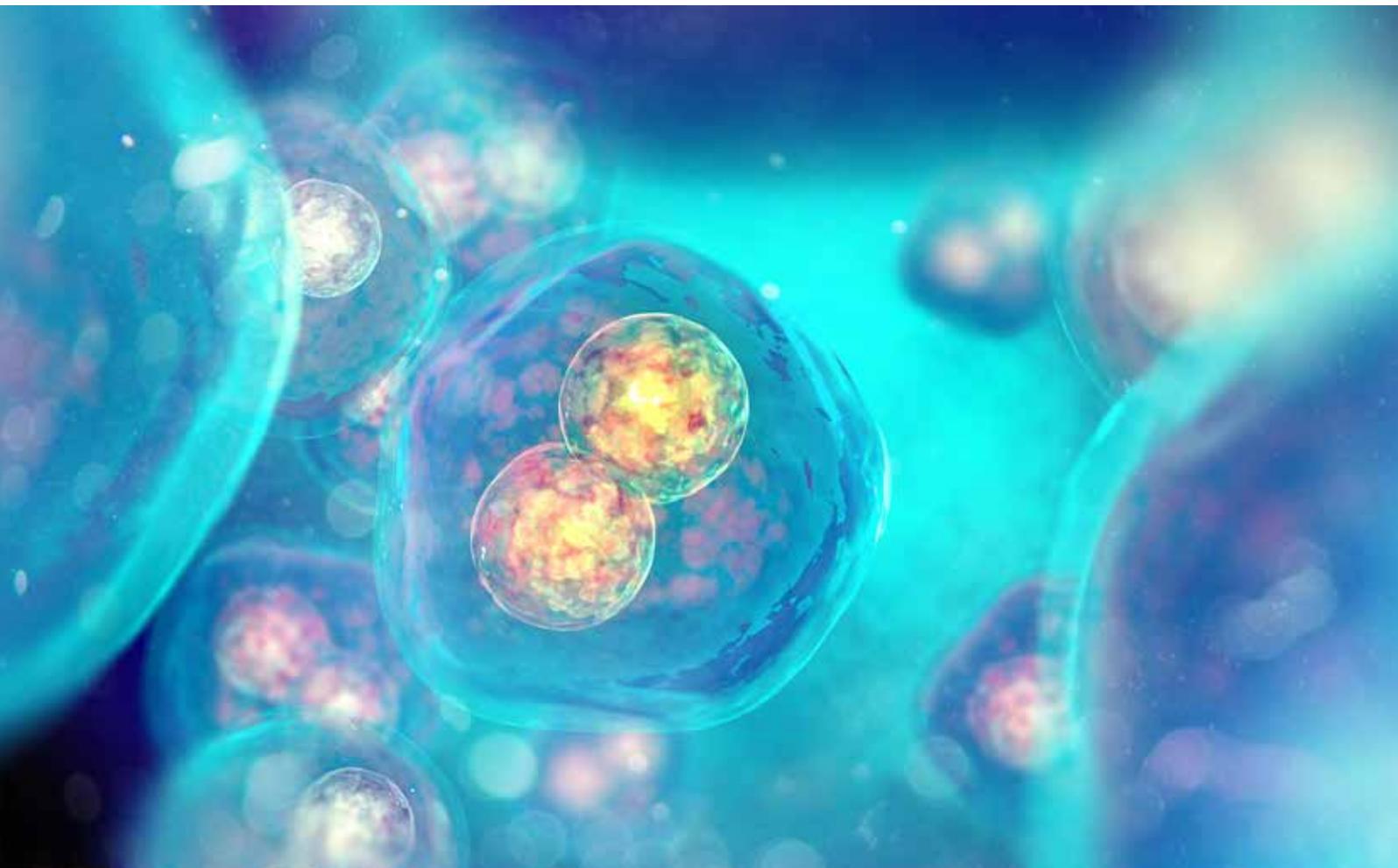
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*Intelligent transportation systems*



**Zhang Yi** is Director of the Joint Lab of Intelligent Transportation Systems at Tsinghua University. He conducts research on intelligent transportation systems such as intelligent vehicle-infrastructure cooperative systems, analysis of urban transportation systems, urban road network management, traffic data fusion and dissemination, and urban traffic control.

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# Pioneers and Innovators

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## *Insect products*



**Kees Aarts** is the Founder and Chief Executive Officer of Protix Biosystems, a company that produces, processes and supplies high-quality insect products as part of the solution to the protein crisis. Aarts' passion for biology and technology sparked the idea for Protix Biosystems.

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## *Medical scanner smartphones*



**Yonatan Adiri** is Founder and Chief Executive Officer of Healthy.io, a technology company that turns smartphones into clinical-grade medical scanners, driven by the vision of turning everyday smartphone images into powerful medical devices. Adiri was the first Chief Technology Officer of Israel, where he devised a creative policy of technological diplomacy, forging a set of global collaborations in the water, space, agro and biomedical fields.

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## *eCommerce*



**Michael Altendorf** is the Chief Executive Officer and Co-Founder of Adtelligence, an e-commerce marketing technology company. He is a lecturer at business schools and universities for internet business and entrepreneurship. Altendorf is the author of several papers on internet business models, technology and social media. He is a specialist in technology and social web innovation and monetization.

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## *Technology commercialization*



**Maria Antonia Arroyo** is the Founder and Chief Executive Officer of Hybridigm Consulting, a company that helps innovators commercialize their technologies. Arroyo has received several awards for her achievements in this field.

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## *Solar-powered tools*



**Jaime I. Ayala** is Founder and Chief Executive Officer of Hybrid Social Solutions (HSSi). The company distributes a large selection of durable, warranty-protected solar-powered lights, with mobile phone charging capabilities, to provide a source of light and communication to off-grid communities.

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## *Digital innovation*



**Japman Bajaj** is Founder and Executive Director of Soshal, an award-winning user experience and digital innovation agency. It specializes in the development of engaging and successful web, mobile and software products, and blends data, marketing and design for modern businesses.

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*Smart glasses and wearables*



**Brian Ballard** is Co-Founder and Chief Executive Officer of APX Labs, where he is working on the next industrial revolution, using smart glasses to create powerful ways for the workforce to interact with the digital and physical world. From manufacturing and field service to logistics and transport, Ballard envisions that wearables will empower deskless workers across all industries.

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*Open source*



**Brian Behlendorf** is Managing Director of Mithril Capital Management. He is a technology adviser and entrepreneur focused on open systems, open standards and open-source software development tools and methodologies for enterprise environments.

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*Wearable technology*



**Yobie Benjamin** is Co-Founder and Chief Operating Officer of Avegant Corporation, a virtual reality and wearable technology start-up. Benjamin's experience ranges from start-ups to mega companies. He seeks to push the boundaries of computer science, design and new digital experiences. Personal projects include compliant e-currencies, payments, indigenous games and reinventing music and search.

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*Life sciences and sustainability*



**David Berry** is General Partner of Flagship Ventures, where he focuses on innovating, entrepreneuring and investing in new ventures in life sciences and sustainability. He has a background in Biological Engineering and serves on the Leadership Council of the United Nations Sustainable Development Solutions Network.

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*Bone reconstruction*



**Sarindr Bhumiratana** is Chief Scientific Officer, EpiBone, a revolutionary bone-reconstruction company that allows patients to grow bone without the complications of foreign body implantation. Bhumiratana is currently advancing the company's innovation towards clinical use.

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*Advanced analytics*



**Adam Bly** is Vice-President of Analytics at Spotify, where he is responsible for global data and analytics strategy. Bly is a scientist, entrepreneur and thought leader who has spent the past 15 years innovating at the nexus of science and society. He previously founded Seed Scientific, an advanced analytics and data innovation firm, later acquired by Spotify.

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### *Flying cars*



**Martin Bruncko** is Chief Strategy Officer and Chief Financial Officer of AeroMobil, a flying car manufacturer. He is a technology entrepreneur and investor, and was previously a public-policy leader. He holds management, board and advisory positions in several globally innovative deep-technology companies in Europe, covering such areas as engineering, biotech and fintech.

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### *Carbon-clean solutions*



**Prateek Bumb** is Co-Founder and Chief Technology Officer of Carbon Clean Solutions, which provides innovative technology solutions to power plants, steel, cement, fertilizer, chemical and petrochemical industries for reducing CO2 emissions. Bumb is responsible for the company's research and development, and is an expert in CO2 capture processes and solvents.

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### *Energy optimization*



**John Carrington** is Chief Executive Officer of Stem, a leading provider of energy optimization services. He has over 25 years' experience in a variety of fields, such as global innovation, healthcare, electronics, business equipment, transport and aviation, solar, wind, defence, telecommunications and security.

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### *Software development*



**Colin Calder** is the Founder and Chief Executive Officer of PassivSystems, a software developer for monitoring and optimizing equipment in the home and for managing and reducing domestic heating energy costs and consumption. Calder has 30 years of experience in the software and technology sectors, with a significant proportion of his career involved in bringing together mobile and the internet.

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### *Health innovation*



**Steve Davis** is President and Chief Executive Officer of PATH, an international organization that drives transformative innovation to save lives and improve health. It accelerates innovation across five platforms: vaccines, drugs, diagnostics, devices, and system and service innovations. Davis combines his extensive experience as a technology business leader, global health advocate and social innovator to help bring lifesaving solutions to scale.

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### *Nuclear waste*



**Leslie Dewan** is Chief Executive Officer of Transatomic Power, a company designing and developing a molten salt reactor that converts nuclear waste into electric power. Dewan was recognized in the "35 Innovators Under 35" by the MIT Technology Review.

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*Digital behavioural medicine*



**Sean Duffy** is the Co-Founder and Chief Executive Officer of Omada Health, a digital behavioural medicine company that inspires and enables people to change the habits that put them most at risk for serious but largely preventable chronic conditions like heart disease and type 2 diabetes. Duffy is passionate about designing web technology for disease prevention and management.

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*Free unrestricted internet*



**Nathan Eagle** is the Co-Founder and Chief Executive Officer of Jana, the largest provider of free unrestricted internet access in emerging markets. Eagle is also an Adjunct Assistant Professor at Harvard University. His PhD from the MIT Media Laboratory on reality mining was declared one of the “10 technologies most likely to change the way we live” by the MIT Technology Review.

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*Energy strategy*



**Valerie Feldmann** is Vice-President of Product Innovation and Strategy at Ogin. She leads the product innovation, distinctive technology and intellectual property of the company’s distributed energy solutions. She has published six books and numerous articles on technology strategy and policy.

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*Synthetic biology*



**Tim Fell** is Chief Executive Officer of Synthace, a company that engineers biology for health, food, energy and manufacturing. Fell is a technology entrepreneur with an R&D background in both physical and life sciences, having worked in epigenetics drug discovery and therapeutics.

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*Neuroscience*



**Alvaro Fernández Ibáñez** is Co-Founder and Chief Executive Officer of SharpBrains, a leading market research firm that tracks the applications of brain science in education, health and well-being. Fernandez has published on brain health and performance, and he also focuses on technologies to assess, monitor and enhance brain function and cognition.

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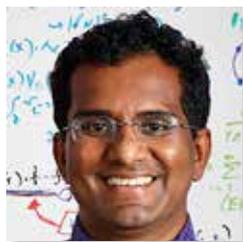
*Quantum processors*



**Andrew Fursman** is Chief Executive Officer and Co-Founder of 1QB Information Technologies, a company that applies computational techniques to solve world challenges by creating software for quantum processors. He researches quantum computation and the practical applications of microbiology.

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*Artificial intelligence*



**Dileep George** is Co-Founder and Chief Technology Officer of Vicarious, a company that builds unified algorithmic architectures to achieve human-level intelligence in vision, language and motor control. He has authored 22 patents and several influential papers on the mathematics of brain circuits and conducted research on hierarchical models of the brain.

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*Smart water usage*



**Robin Gilthorpe** is Chief Executive Officer of WaterSmart Software, which combines behavioural psychology, big data analytics and cloud computing to improve global water-use efficiency. By allowing water utilities to benefit from best practices in data science, user experience design and customer engagement, it is changing the way the world uses water.

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*Next-generation information software*



**Bob Goodson** is the Founder of Quid, a Silicon Valley company that builds next-generation information software. He is a recognized leader and strategist in technology and innovation. Goodson has advised senior executives at some of the world's largest semiconductor and consumer electronics companies.

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*Digital health innovation*



**Ron Gutman** is Founder and Chief Executive Officer of HealthTap, a company that seeks to reinvent the way people take care of their health and well-being. A thought leader in digital health and innovation, Gutman has been developing mobile and online health applications serving hundreds of millions of people worldwide.

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*Bio-energy*



**Marjolein Helder** is Chief Executive Officer of Plant-e, a company that uses electrodes to harvest electricity from live plants grown in a bed of activated carbon and water, offering new opportunities for multiple land use, combining energy with food or nature on the same surface area.

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*Sustainable development*



**Renat Heuberger** is Chief Executive Officer and Deputy Chairman of South Pole Carbon, which combines local commitment to sustainable development in emerging and developing countries with solutions for global climate change. The company has enabled over 250 projects worldwide, ranging from renewable energy to waste treatment and forestry, thereby reducing millions of tonnes of CO<sub>2</sub> and creating thousands of jobs.

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*Software*



**Jacob Hsu** is Chief Executive Officer of Symbio, a leading innovator of software product co-creation solutions worldwide. Combining domain expertise in converging technologies with advanced engineering and proven user experiences, Symbio develops mobile, embedded, web and enterprise software for global technology companies.

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*Recycling applications*



**Arthur Huang** is Founder and Chief Executive Officer of Miniwiz, an upcycling technology and manufacturing company that makes closed-loop economy applications possible. Huang specializes in post-consumer garbage recycling applications and has built, engineered and designed closed-loop infrastructures from recycled e-waste, food waste, car waste, packaging waste, etc.

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*Data analytics and mental health*



**Jen Hyatt** is the Founder of Big White Wall, a company that uses digital technology and data analytics to transform the mental health journey into one of personalized support and recovery that is available immediately and anonymously 24/7. Hyatt is widely recognized for her achievements in the fields of social entrepreneurship and digital technology.

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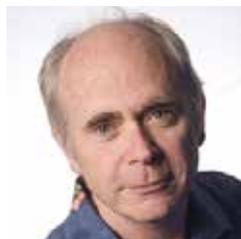
*Technology activism*



**Marianne Eve Jamme** is the Founder and Chief Executive Officer of SpotOne Global Solutions, which helps technology companies to get a foothold in Africa, Europe, the Middle East and Asia. Jamme is also Advisory Board Member of Data Pop Alliance, a global coalition promoting a people-centred big data revolution. She conducts activism work in empowering young women through creative learning, entrepreneurship, science, technology, engineering, art, design and mathematics.

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*Innovation democratization*



**Richard Jefferson** is Founder and Chief Executive Officer of Cambia, an independent non-profit institute creating new technologies, tools and paradigms to promote change and enable innovation. He developed the GUS reporter gene system, which is now the most widely used tool in plant molecular biology, and initiated and managed the world's first field release of a transgenic food crop. Jefferson now focuses on microbial population genomics through the lens of the hologenome theory of evolution and its impact on health, environment and agriculture.

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*Data challenges*



**Kevin Kawasaki** is Global Head of Business Development at Palantir Technologies, a company that solves critical data challenges. Its engineering teams combine expertise in distributed systems infrastructure, big data processing and analytics, user experience design, data science and information security.

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*Organism engineering*



**Jason Kelly** is Chief Executive Officer of Ginkgo Bioworks, an organism-engineering company, which has developed a technology using yeast as a source for all sorts of substances. It opens the door to using new biochemical foundations for perfume, cosmetics and even sweeteners.

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*Human-centred technology*



**Corinna E. Lathan** is Founder and Chief Executive Officer of AnthroTronix, an engineering research and development company that produces human-centred technology. She is involved in educational outreach programmes promoting STEM education, including the FIRST and VEX robotics programmes. She is also on the Board of Engineering World Health, which supports the emergence of healthcare technology in the developing world.

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*Crowdsourced brain research*



**Tan Le** is Founder and Chief Executive Officer of Emotiv Lifesciences, a bio-informatics company offering a platform for crowdsourced brain research. It enables organizations to rapidly collect brain data on the precise characteristics of a target demographic, leveraging the talent of multidisciplinary researchers across mathematics, statistics, signal processing, artificial intelligence, data mining, image processing, biology and medicine to analyse data and provide meaningful analysis and discoveries.

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*Avellino corneal dystrophy*



**Gene Lee** is Founder and Chief Executive Officer of Avellino Lab, a company specializing in the genetic mapping of the human genome. Lee commercialized a rapid and inexpensive screening system to protect people from blindness while providing information to patients carrying the ACD gene mutation. He has more than 20 years of experience leading pharmaceutical, healthcare and genetic diagnostics teams.

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*Password security*



**Rob Leslie** is Chief Executive Officer and Founder of Sedicii, a company that solves the problem of internet password overload by eliminating the need for passwords to be transmitted or stored anywhere except in the user's head, thus increasing the security of a person's online identity. Leslie is also an investor in various technology and biomed start-up companies.

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*Affordable 3D printing*



**Maxim Lobovsky** is Chief Executive Officer of Formlabs, which designs and manufactures affordable 3D-printing systems for engineers, designers and artists. Lobovsky also led the efforts at Fab@Home, one of the industry's earliest open-source 3D-printing projects, which led to setting up labs in schools worldwide.

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*Patient health monitoring*



**Anmol Madan** is Co-Founder and Chief Executive Officer of Ginger.io, a company that provides a mobile and web platform to help providers, healthcare organizations and other stakeholders stay connected to patients between office visits. Madan has an extensive research experience in modelling large-scale human behaviour data using statistical models and pattern recognition technology.

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*Energy-efficient LED lighting*



**Hugh Martin** is Chairman and Chief Executive Officer of Sensity Systems, a company that uses energy-efficient LED to reduce energy costs and implement a variety of applications and services. Martin has a 35-year track record as an entrepreneurial leader of cutting-edge technology companies, new ventures and high-growth businesses, founding and leading companies specializing in third-generation DNA sequencing and high-speed optical telecommunications systems

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*Health emergency response*



**Shaffi Mather** is Founder and Chief Executive Officer of MUrgency, a global emergency response network on mobile phones. Previously, Mather founded a pioneering emergency ambulance service in India, which is the largest for-profit ambulance company in the developing world.

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*Mathematics education*



**John Mighton** is Founder of JUMP Math, an innovative research-based programme designed for teachers to foster a deep understanding and love of maths in their students. Mighton is a mathematician and a Fellow of the Fields Institute for Research in Mathematical Sciences.

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*Cloud platform*



**Justin Moore** is Chief Executive Officer of Axcient, a company that solves complicated technology problems to help businesses run at their full potential without interruption. He has led the transformation of the data back-up and business continuity industry to end data loss and IT downtime. He has more than a decade of experience growing successful technology companies.

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*Energy data platform*



**Amit Narayan** is Founder and Chief Executive Officer of AutoGrid, an energy-data platform. Previously, he was the Director of Smart Grid Research in Modeling and Simulation at Stanford University, where he continues to lead an interdisciplinary project related to modelling, optimization and control of the electricity grid and associated electricity markets.

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*Cleaner mineral extraction*



**Patrick Nee** is Chief Executive Officer of Universal Bio Mining, a company that is improving the efficiency of mineral extraction and reducing the impact of mining on the environment. He is a versatile and innovative entrepreneur, focusing on technologies and biology.

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*Affordable electricity generation*



**Tony Pan** is Chief Executive Officer of Modern Electron, which develops technologies to make electricity generation cheaper and more universally available. Pan has more than 100 patents spanning areas such as energy, nanotechnology and biomedical devices.

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*Easy recycling*



**Richard Perl** is Chief Administrative Officer of TerraCycle, a green company that develops collection locations for post-consumer packaging waste. It is creating easy-to-use collection systems and proprietary recycling processes that allow people to recycle materials that would otherwise go to landfill.

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*Satellites*



**Peter Platzer** is Co-Founder and Chief Executive Officer of Spire, a company providing satellite-powered data from any location on Earth. Platzer is regarded as one of the pioneers in launching small form factor satellites into space. He has been widely recognized for his visionary leadership and was named a White House Champion of Change in 2013.

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*Smarter websites*



**Matthew Prince** is Chief Executive Officer of CloudFlare, a company that helps create websites much faster, protect them from attacks and facilitate their maintenance. Its technology supercharges websites regardless of size or platform, with no need to add hardware, install software or change a line of code. The community gets stronger as it grows, every new website making the network smarter.

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*Science incubator*



**Jun Qin** is Chairman, of Junzi Capital. She has devoted 15 years to regional innovation and entrepreneurial incubation, the construction and operation of a local science park and creatively exploring the development of ecological industry systems as well as entrepreneurial ecosphere. She previously worked as assessor of incubators for state science enterprises and entrepreneurial talent platforms.

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*Innovative technologies*



**Ramesh Raman** is Senior Vice-President of Technology and Business Development at Adani North America. He has spent his career developing disruptive technologies in fields ranging from the internet of things to the synthetic biology industry to supply chain software.

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*Social design and technology*



**Daan Roosegaarde** is the artist behind Studio Roosegaarde. He is internationally known for creating social designs exploring the relation between people, technology and space. With projects ranging from fashion to architecture, his interactive designs are tactile high-tech environments in which viewer and space become one. This connection between ideology and technology results in what Roosegaarde calls “techno-poetry”.

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*Crowdsourcing platform*



**Pablo Segura Parra** is Chief Technology Officer and Co-Founder of Poligone, a crowdsourcing platform that analyses people’s perceptions on homeland security based on positive psychology. Segura is an enthusiast of data science, system dynamics and sustainable development.

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*Clean energy and water*



**Matthew Silver** is Founder and Chief Executive Officer of Cambrian Innovation, a company that delivers advanced biotechnology, cost-effective clean water and energy from wastewater. Silver brings over 15 years of experience in technology commercialization, innovation strategy and engineering design to the firm.

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*Bone reconstruction*



**Nina Tandon** is Chief Executive Officer and President of EpiBone, a revolutionary bone reconstruction company that allows patients to “grow their own bone” without the complications of foreign body implantation. She is a Senior Fellow and Adjunct Professor of Electrical Engineering at the Cooper Union and was a Staff Associate Postdoctoral Researcher in the Laboratory for Stem Cells and Tissue Engineering at Columbia University.

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### *Digital medicine*



**Andrew Thompson** is Co-Founder and Chief Executive Officer of Proteus Digital Health, offering a new model of therapy: digital medicine. It includes drugs that communicate when they have been taken, wearable sensors that capture physiological responses, applications that support patient self-care and physician decision-making, and data analytics to serve the needs of doctors and health systems.

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### *Energy optimization*



**Wang Chunguang** is Chief Executive Officer and Co-Founder of Equota energy, a company that combines data analytics, energy optimization and carbon services to help its users reduce energy costs, minimize energy-decision risks and take advantage of the newly developed Chinese carbon trading market.

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### *Genome and big data*



**Wang Jun** is Founder and Chief Executive Officer of iCarbonX, aiming to establish a health-focused multi-omics big data platform, develop an artificial intelligence engine to mine and interpret the data, as well as enable individuals to better manage their health.

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### *Efficient energy storage*



**Throop Wilder** is President and Chief Executive Officer of 24M Technologies, a company that answers the need for affordable energy storage by enabling a new, more cost-effective solution – semi-solid lithium-ion battery technology. By reinventing the design of the battery cell, as well as the manufacturing method, 24M solves the critical, decades-old challenge associated with the world's preferred energy storage chemistry, reducing its high cost while bettering its performance.

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### *Water filters*



**Philip Wilson** is Executive Director of Ecofiltro. The company aims to solve the acute and growing water crisis in developing countries in an efficient and sustainable manner by selling water filters that are manufactured from locally sourced materials like clay, sawdust and colloidal silver, a natural antibacterial.

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### *Anti-counterfeiting data*



**Hank C. K. Wuh** is Chairman of TruTag Technologies, a data-rich security platform for the authentication and anti-counterfeiting of food, medicine and industrial components. He is also a surgeon, inventor and entrepreneur. He has led the development of over 20 biomedical innovations. He was the Chief Executive Officer of SKAI Ventures, a global venture accelerator focused on transforming ideas into disruptive technologies, and Chairman of Eyegenix, developing an artificial cornea to treat blindness.

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*Water treatment*



**Xie Zida** is General Manager at ShenYang Lear Environmental Engineering, which specializes in water treatment engineering, construction and renovation, commissioning of water treatment equipment and development of water treatment chemicals.

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*Intelligent robots*



**Yuan Hui** is Founder and Chief Executive Officer of Shanghai Xiaoi Robot Technology, a company engaged in Chinese natural language processing. It also develops intelligent services technologies that can be delivered by robots. The company also explores human-computer interaction.

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*Previsional data analytics*



**Rositsa Zaimova** is Product Manager at Real Impact Analytics, where she is working on a data-for-good project that leverages telecom data to build applications for development agencies to allow data-driven decisions. Her focus is on developing analytics tools that map epidemiological risk flows, predict food crises and help manage urban planning.

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# Young Scientists

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## *Quantum information*



**Gerardo Adesso** is Associate Professor at the University of Nottingham, where he focuses on the identification and quantification of quantum resources for efficient quantum information technology. He has also contributed significantly to the development of quantum information theory with Gaussian states of continuous variable systems.

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## *Artificial vision models*



**Elissa Aminoff** is Research Scientist at the Center for the Neural Basis of Cognition at Carnegie Mellon University. She uses neuroimaging methods to examine how high-level vision is resolved in the human mind and brain. She has applied artificial vision models to help explain the code used by the brain to process and represent the rich visual world in which we live.

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## *Advanced materials*



**Osman M. Bakr** is Associate Professor of Material Science and Engineering at the King Abdullah University of Science and Technology, Saudi Arabia, where he aims to fabricate advanced materials that promise to become building blocks for solar cells, batteries, photonic and opto-electronic devices.

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## *Central nervous system drugs*



**Michael Bowen** is Biomedical Research Fellow at the University of Sydney, where he applies cutting-edge cellular and pre-clinical research techniques to central nervous system drug discovery and drug development. Some of his most important work to date has been co-inventing a novel drug treatment for alcohol-use disorders and a novel series of compounds targeting social deficits in psychiatric and neurological disorders, such as autism.

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## *New microscopy techniques*



**Julie Cairney** is Professor of Materials Characterisation at the University of Sydney. She focuses on the relationship between the atomic scale structure and properties of materials, with an emphasis on the application and development of new microscopy techniques.

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*Malignant and immune cells*



**Kellie Charles** is Senior Lecturer and Research Group Leader of the Cancer Therapeutics Research Group of the University of Sydney. She investigates the interactions between malignant and immune cells that regulate tumour progression in order to design and evaluate new cancer therapeutic agents.

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*Microbiome predictive models*



**Cynthia Collins** is Associate Professor at the Rensselaer Polytechnic Institute, where her research focuses on microbiome dynamics and behaviour and increasing the ability to understand and manipulate microbial communities in different environments, from the human body to bioreactors to the built environment. Her key insights into microbiomes are essential for addressing key societal issues, from obesity to early childhood development.

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*Bioenergetics*



**Karen Davies** is Staff Scientist at the Lawrence Berkeley National Laboratory, where she focuses on the transformation of energy in living organisms. Davies is trying to understand the structure of cellular structures engaged in bioenergetic activities to gain insight into their functions. Her lab studies the biogenesis of bioenergetic compartments and how the structure of these specific areas changes in response to environmental conditions.

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*Genome editing*



**Ding Qiurong** is Professor of Human Genetics and Metabolic Diseases at the Institute for Nutritional Sciences of the Chinese Academy of Sciences. Ding uses novel genetic findings and genome editing tools to develop new therapies for human metabolic diseases.

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*Emotional disorders*



**Amit Etkin** is Assistant Professor of Psychiatry and Behavioral Science at Stanford University. His lab aims to understand the neural basis of emotional disorders and their treatment, and to leverage this knowledge to develop novel treatment interventions. Etkin also directs NeuroCircuit, an initiative that brings together various scientific fields to establish a new intellectual, scientific and clinical paradigm for understanding human brain circuits and treat psychiatric disease.

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*Medical image computing*



**Ben Glocker** is Lecturer in Medical Image Computing at Imperial College London. His research is in biomedical image computing and medical computer vision, with a focus on semantic understanding of images using machine learning.

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*Chemical engineering*



**Gong Jinlong** is Professor and Deputy Dean of the School of Chemical Engineering of Tianjin University, where he focuses on green synthesis. His research interests span catalysis and kinetics, surface science, materials science, micro and nanotechnology, and environmental engineering.

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*Optimized energy production*



**Gabriela Hug** is Associate Professor of Information Technology and Electrical Engineering at ETH Zurich. She focuses on control and optimized operation of electric power systems, the variability and intermittency of renewable energy generation, and how to optimally integrate and use storage devices in the power system.

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*Cross-source information extraction*



**Ji Heng** is Associate Professor at Rensselaer Polytechnic Institute. Her research focuses on cross-source information extraction on a massive scale. She aims to create the next generation of information access in which humans can communicate with computers in natural languages, beyond keyword search, and computers can discover accurate, concise and trustable information from these heterogeneous data sources.

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*Quantum-integrated photonics*



**Jin Xianmin** is Professor and Founder of the Laboratory of Quantum Integrated Photonics at Shanghai Jiao Tong University. He is developing quantum-integrated photonics, an elegant way to find a solution to the limitation of the computational power of human beings. He is also leading a project on developing an on-chip quantum terminal, which, for the first time, would facilitate quantum communication that ensures the unconditional security of private communication.

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*Immunology*



**Nicole Joller** is Assistant Professor at the Institute for Experimental Immunology at the University of Zurich, where she studies the mechanisms that lead the immune system's decision to initiate a harmful or beneficial response.

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*Digital interactions*



**Yasuaki Kakehi** is Associate Professor in the Faculty of Environment and Information Studies at Keio University, where he explores the interaction between new media, the environment and human beings. He is trying to bridge the physical world in which we exist with the digital world that is constructed by computers, developing interactive media and tools that affect the properties of physical materials.

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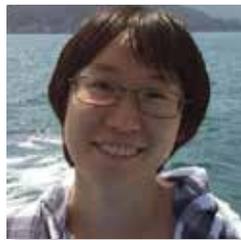
*Immunology*



**Sander Kasteren** is Assistant Professor in the Faculty of Science at Leiden University, where he focuses on developing new chemical tricks to study and manipulate the immune system. His research may well contribute to the development of more effective vaccines against cancer as he researches whether some sugar patterns activate the immune system against cancer better than others.

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*Robot automated navigation*



**Kim Ayoung** is Assistant Professor of Robotics at the Korea Advanced Institute of Science and Technology (KAIST), where she researches robot perception and automated navigation. To achieve robots' full autonomous mobility, she focuses on localization and mapping.

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*Human microbiome*



**Rob Knight** is Associate Professor of Chemistry, Biochemistry and Computer Science at the University of Colorado, Boulder, where he focuses on genomics, molecular evolution and the microbiome. He researches how the human microbiome develops and how variation in the microbiome affects health and disease. His research combines computational and experimental techniques to ask questions about the evolution of the composition of biomolecules, genomes and communities.

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*Brain circuits*



**Lee Seung-Hee** is Assistant Professor of Neuroscience at the Korea Advanced Institute of Science and Technology, where she leads a research group to unravel brain circuits that are critical for dynamic modulation and processing of sensory information in the brain. She also focuses on molecular, cellular and behavioural neuroscience.

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*Nano-engineering*



**Darren Lipomi** is Assistant Professor of Nano-Engineering at the University of California, San Diego. He researches the mechanical properties of semiconducting polymers, the design and synthesis of stretchable semiconductors, green nanofabrication, green chemistry and organic photovoltaics. Lipomi has also conducted work on electronic skin.

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*Ocean preservation*



**Kristen Marhaver** is Marine Biologist at the Caribbean Research and Management of Biodiversity Research Station, where she is developing assisted reproduction methods for threatened coral species. Marhaver strives to raise awareness on marine biology and research needs for ocean preservation.

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*Tuberculosis*



**Jackson Mohlopheni Marakalala** is Senior Lecturer and Group Leader at the University of Cape Town. His research focuses on molecules that can inhibit growth of tuberculosis-causing bacteria by targeting particular genes of the bacteria.

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*Sugar assembly*



**Jenny Mortimer** is Director of Plant Systems Biology at the Joint BioEnergy Institute of the Lawrence Berkeley National Laboratory. Her research focuses on the mechanisms that drive sugar assembly, which is one of the fundamental building blocks of life that can cause serious pathologies when the process goes wrong in an organism. Mortimer studies how these processes are regulated, which is also essential to engineer biomass and produce the fuels and materials that we will require in the future.

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*Ocean conservation*



**Mei Lin Neo** is a Research Fellow at the Tropical Marine Science Institute of the National University of Singapore, where she studies a group of critically endangered marine species, the giant clams, which play a significant role in the coral reef ecosystems as providers of food, shelter and calcium. Her study provides key information to support a giant clam restocking programme, as well as help designate conservation priorities for local populations.

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*Epidemiology*



**Tolu Oni** is Senior Lecturer in the Division of Public Health Medicine of the School of Public Health at the University of Cape Town. Her research focuses on epidemiology, tuberculosis diagnostics, treatment, co-infections and associated diseases, as well as changing patterns of disease in Africa.

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*Large-scale applications*



**Amanda Randles** is Assistant Professor in Biomedical Engineering at Duke University. Her work focuses on the design of large-scale parallel applications targeting problems in areas like physics, medicine or communication. Her research goals are to investigate fundamental questions related to fluid dynamics and to extend the multiscale models developed in her thesis to study cancer metastasis.

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*Biological systems*



**Ozgur Sahin** is Associate Professor in the Department of Biological Sciences and Department of Physics at Columbia University. His research investigates biological systems that function under physical extremes like short timescales, confinement to nanoscale regions of space and high mechanical forces. He encounters interesting phenomena in these biological systems that he applies to medical, environmental and energy-related problems.

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*Advanced material systems*



**Johnson Samuel** is Assistant Professor of Mechanical Aerospace and Nuclear Engineering at the Rensselaer Polytechnic Institute. His research aims to achieve a fundamental understanding of the manufacturability of advanced material systems, with an eye towards the design and realization of products for societal needs. Samuel has a decade of research experience in areas spanning advanced composites, additive manufacturing, and materials and manufacturing for healthcare.

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*Speech-processing technology*



**Björn Schuller** is Reader at Imperial College London, where he focuses on speech-processing technology. He uses novel techniques for multitask and semi-supervised learning to deliver intelligent, holistic and evolving analysis in real-life conditions of universal speaker characteristics.

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*Sensory computation*



**Gregory Schwartz** is Principal Investigator at Northwestern University, where he focuses on the circuit mechanisms underlying sensory computation. He uses mouse retina to uncover new circuits and discover their role in visual processing. Schwartz's method includes electrophysiology, computational modelling and circuit tracing.

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*Quantum information protocols*



**Fabio Sciarrino** is Associate Professor in the Physics Department at Sapienza University, Rome. His research has been devoted mainly to the experimental realization of quantum information protocols by exploiting the methods of quantum optics. He has developed innovative experimental techniques based on non-linear optics, ultra-fast lasers and detection methods, as well as on new theoretical insights.

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*Psycholinguistics*



**Mahesh Srinivasan** is Assistant Professor in the Department of Psychology at the University of California, Berkeley. Using empirical methods from developmental psychology and psycholinguistics, his lab's research explores how linguistic, cognitive and social abilities arise and interact with one another during human development and across different cultures.

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*Protein profiling*



**Shi Qihui** is Professor at the Shanghai Center for Systems Biomedicine and School of Biomedical Engineering of Shanghai Jiao Tong University. He has developed automatic, microfluidic-based, single-cell proteomic chips (SCPCs) for quantitatively profiling tens of proteins associated with multiple signal transduction pathways in a single tumour or immune cells.

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*Planetary spectrometry*



**Gabrielle Thomas** is Research Associate at Imperial College London, where she works on lab-based spectrometry technique to understand the chemical composition and structure of matter. She is applying spectrometry to a planetary scale for remote monitoring and better land management, and to support government and humanitarian efforts to manage and conserve resources across the globe.

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*Embryonic development*



**Maria Elena Torres Padilla** is Group Leader and Director at the University of Strasbourg, where she is devoted to understanding how the structure of the chromatin is established at the beginning of embryonic development and how it supports totipotency. Her work will provide new insight into the biology of the pluripotent stem cells, in particular their origin and development.

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*Computational medicine*



**Kirill Veselkov** is Lecturer in Computational Medicine at Imperial College London. He is an expert in computational medicine and is committed to developing and validating translational computational solutions for application in human disease personalization. The techniques developed by Veselkov and his team could have major implications for next-generation cancer diagnostic, prognostic and therapeutic approaches.

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*Epigenetics*



**Wang Yan** is Professor of the School of Basic Medicine at Tianjin Medical University. Her research interests range from breast cancer cells to neurodegeneration to epigenetic control. She is an awardee of the Tianjin Innovation Program.

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*Technology education*



**Komminist Weldermariam** is Manager and Research Scientist at IBM Research Africa. He is an expert in software systems, security and education technologies and focuses on creating innovative solutions that impact lives. He is developing evidence-based solutions that aim to transform education in Africa by individualizing its delivery to each child.

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*Biomass waste transformation*



**Ning Yan** is Assistant Professor and Leader of the Green Catalysis Lab at the National University of Singapore. He works on the development of efficient and atom-economic processes converting various biomass wastes into platform chemicals and fuels in environmentally benign solvents such as water.

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*Brain-machine interfaces*



**Byron Yu** is an Associate Professor of Electrical and Computer Engineering and Biomedical Engineering at Carnegie Mellon University. He is a leader in the field of brain-machine interfaces (BMI), designed to help paralysed patients and amputees regain movement. He uses BMI to study how the brain changes during learning and how learning can be accelerated.

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*Opto-electronics*



**Yu Kyoungsik** is Associate Professor at the School of Electrical Engineering of the Korea Advanced Institute of Science and Technology (KAIST). He focuses on integrated opto-electronic devices and systems for generation, manipulation and acquisition of optical and electromagnetic signals. His research is meant to enable innovations in many aspects of information technologies.

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## Related Communities

In addition to the distinguished innovators who shape the Science and Technology agenda at the Annual Meeting of the New Champions, much of the interaction is tied to Forum communities, which convene around a common interest in addressing global challenges. Some of these communities at the Annual Meeting of the New Champions are listed below.

**The Network of Global Agenda Councils** comprises over 1,500 leaders from academia, business, government, international organizations and society. Grouped in more than 80 councils, they commit their extensive expertise and passion to jointly shape the global, regional and industry agendas. The councils address the most pressing issues of our time and aim to provide new thinking and solutions.

Science and technology councils include:

- Artificial Intelligence & Robotics
- Brain Research
- Data-Driven Development
- Economics of Innovation
- Nanotechnology
- Space

<http://www.weforum.org/communities/global-agenda-councils>

**The Young Scientists** community brings together the world's most forward-thinking and advanced young scientific minds. They are selected from all regions and a wide range of disciplines, and have a track record of advancing the frontiers of science, engineering or technology in areas of high societal impact. In their work, they exhibit exceptional creativity, thought leadership and high growth potential. Aged under 40, these individuals have demonstrated their commitment to public service and actively play a transformational role in integrating scientific knowledge into society for the public good.

<http://www.weforum.org/communities/young-scientists>

**The Technology Pioneers** community reunites information technology and new media, energy and environment, and life sciences and health companies from around the world that are involved in the design, development and deployment of new technologies, and which promise to significantly impact the way business and society operate.

<http://www.weforum.org/communities/technology-pioneer>

**The Global University Leaders Forum (GULF)** community of the presidents of top universities provides a non-competitive platform for high-level dialogue on issues of higher education and research with other sectors and fosters collaboration between universities in areas of significance for global policy. Initiatives that have been facilitated by GULF include the Society for the Advancement of Science and Technology in the Arab World and the Réseau d'excellence des sciences de l'ingénieur de la francophonie.

<http://www.weforum.org/communities/academic-policy-and-research-networks>

**The Forum of Young Global Leaders** is a community of exceptional young leaders who share a commitment to making the world a better place. Each year, the World Economic Forum identifies 200-300 extraordinary individuals worldwide. Together, they form a powerful international community that can dramatically impact the global future.

<http://www.weforum.org/communities/forum-young-global-leaders>

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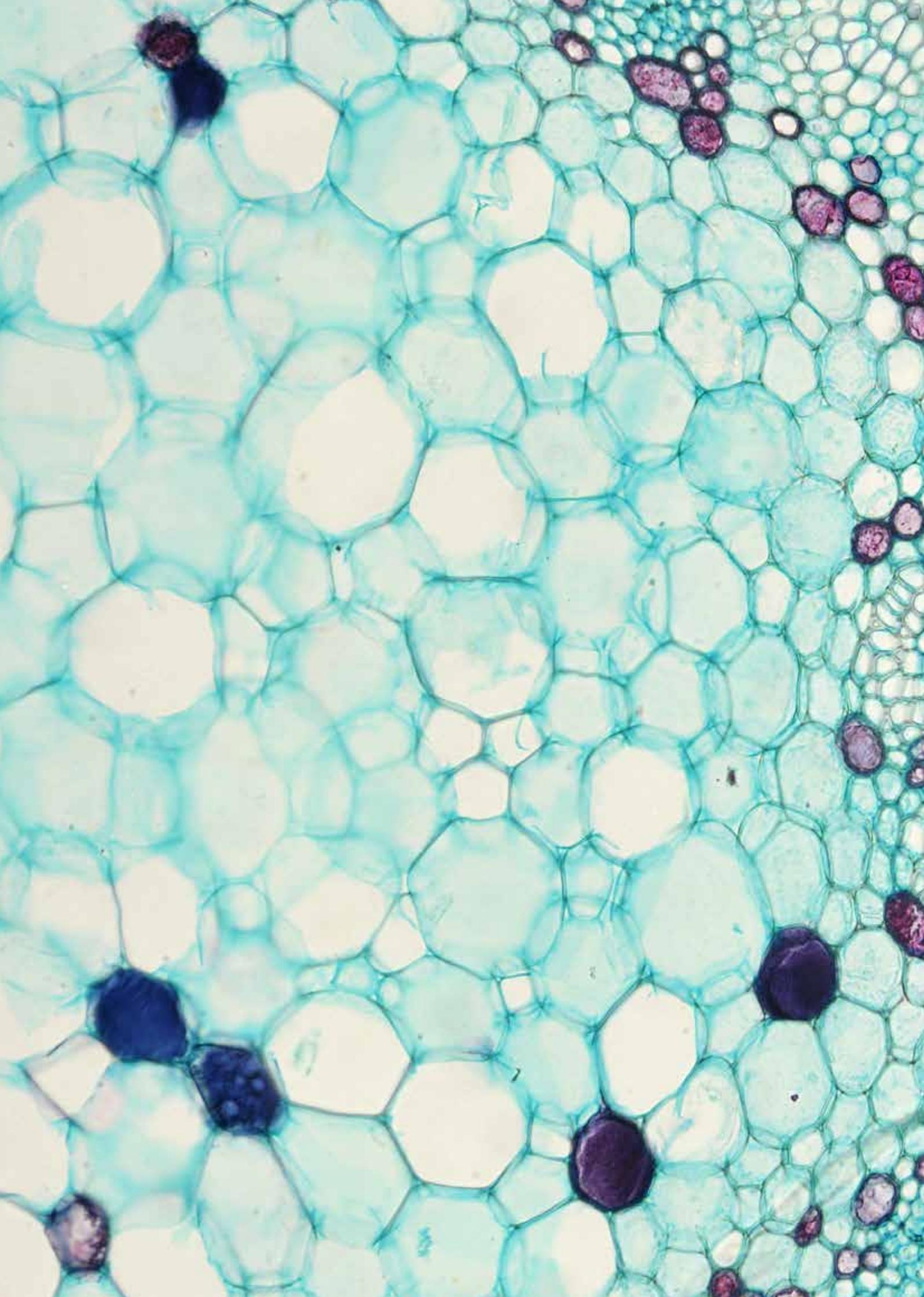
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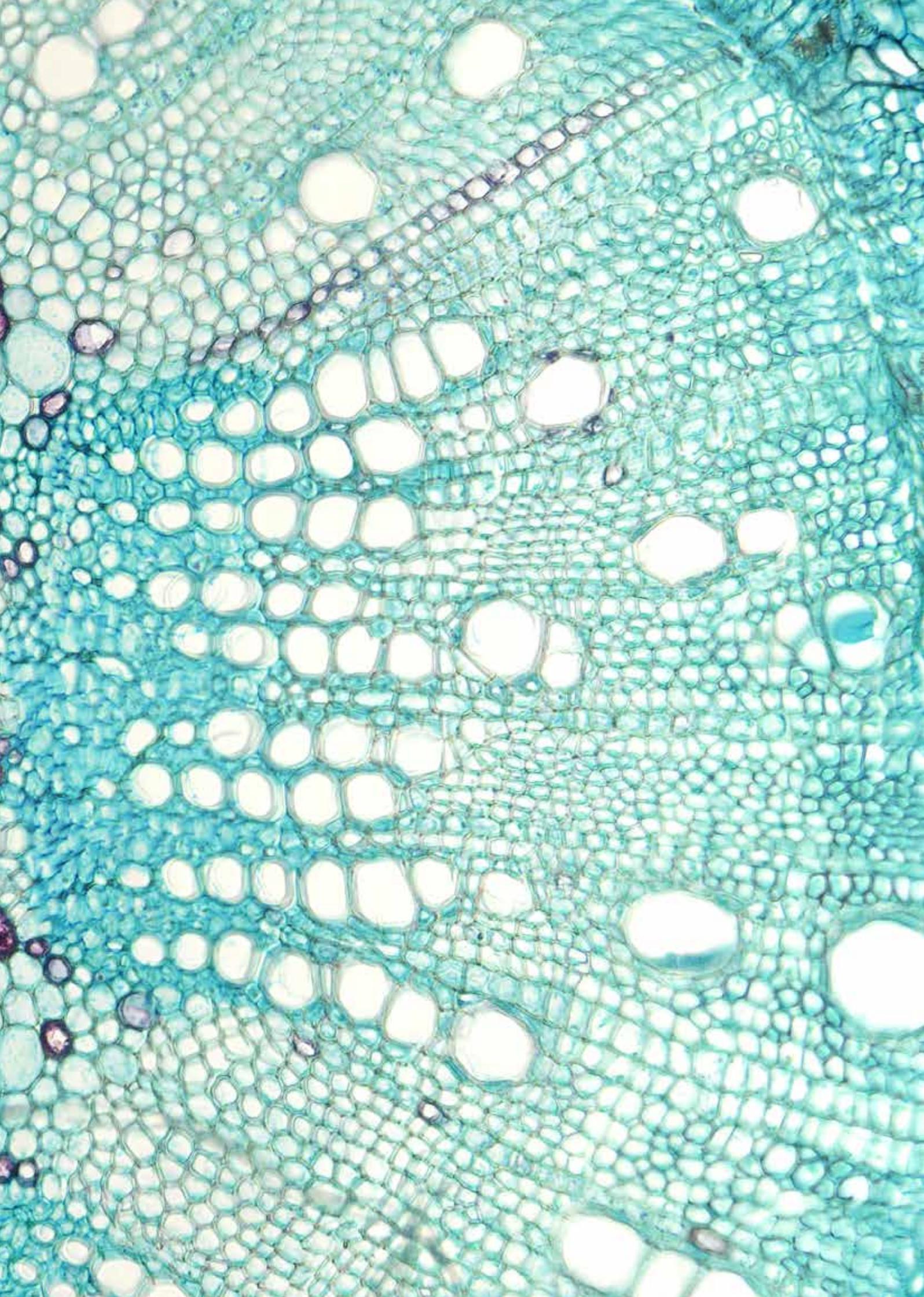
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The World Economic Forum, committed to improving the state of the world, is the International Organization for Public-Private Cooperation.

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