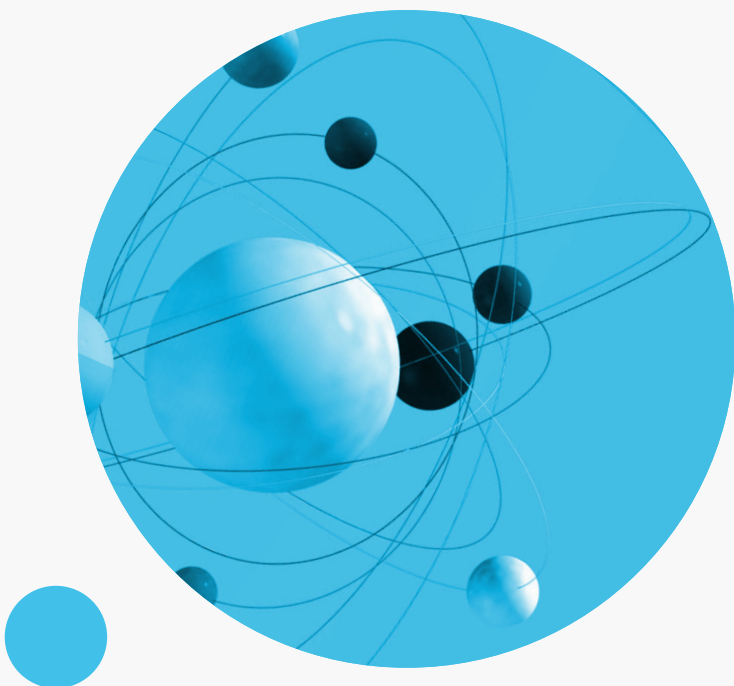


# Young Scientists

THE WORLD ECONOMIC FORUM'S  
2020 COMMUNITY OF YOUNG SCIENTISTS



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# The World Economic Forum's Young Scientists Community brings together the most forward-thinking and celebrated scientific minds in the world.

Each year the World Economic Forum selects a group of extraordinary scientists under the age of 40 for their contributions to advancing the frontiers of science and passion for integrating scientific knowledge into society for the public good.

Trusted to be the next-generation of science leaders from across academic disciplines and continents, they are joining a community and a three-year journey of growth and impact, committed to promoting a healthier, more sustainable, inclusive and equitable future.

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# Meet the 2020 Class of Young Scientists



## Celeste Carruth

Postdoctoral Researcher in Physics,  
ETH Zurich

Celeste is developing a new 2D ion trap experiment for quantum information processing that is expected to be more reliable and cheaper to scale up than competing technologies and aims to lead to breakthrough quantum computing results.

[#physics](#) [#quantumcomputing](#)



## Joseph Costantine

Associate Professor of Electrical and Computer Engineering,  
American University of Beirut

Joseph's research leverages electromagnetism to design a new generation of wireless communication systems, biomedical sensors and wirelessly powered devices through radio frequency energy harvesting.

[#electromagnetism](#) [#wirelesspower](#)



## Joanna Doummar

Assistant Professor of Geology,  
American University of Beirut

Joanna seeks to better understand complex underground drainage systems, known as karst aquifers, to better address and solve national water quality and quantity challenges.

[#geosciences](#) [#water](#)



### Sarah Fawcett

Senior Lecturer, Oceanography,  
University of Cape Town

Sarah researches the role of ocean chemistry and biology in climate, as well as the impacts of human activities on marine environments using measures of elements like carbon and nitrogen.

[#earthsystems](#) [#marinescience](#)



### Gao Wei

Assistant Professor of Medical Engineering,  
California Institute of Technology

Wei develops skin-interfaced wearable biosensors that will enable analytics through sweat rather than blood, leading to non-invasive and real-time analysis and timely medical intervention.

[#diagnostictools](#) [#wearabletech](#)



### Francisca Garay

Assistant Professor, Physics Faculty,  
Pontificia Universidad Catolica de Chile

Francisca is studying what the most basic building blocks of the universe are by developing technologies to accelerate and enhance the capabilities of particle accelerators.

[#particlephysics](#) [#understandingtheuniverse](#)



### Diego Garcia-Huidobro

Assistant Professor, Department of Family Medicine,  
Pontificia Universidad Catolica de Chile

Diego uses human-centred design methods to develop sustainable and scalable community-level health interventions in Chile.

[#monitoringevaluation](#) [#communityhealth](#)



### Nicola Gasparini

Independent Research Fellow,  
Imperial College London

Nicola is developing novel technologies to treat severe and incurable vision problems caused by degeneration of the retina, which affects almost 200 million people worldwide.

[#chemistry](#) [#bioelectronics](#)



### Joe Grove

Sir Henry Dale Fellow,  
University College London

Joe investigates how viruses enter human cells and evade the immune system to reveal new biology and inform the design of future vaccines.

[#immunology](#) [#viruses](#)



### Lee Sue-Hyun

Assistant Professor,  
Korea Advanced Institute of Science and Technology

Sue-Hyun researches how memories are recalled and updated, and how emotional processes affect human memory, to inform therapeutic interventions for mental disorders.

[#neuroscience](#) [#mentalhealth](#)



### Salome Maswime

Associate Professor,  
University of Cape Town

Salome seeks to understand surgical health systems and causes of maternal death during caesarean section in poorly resourced areas to improve surgical care across populations.

[#healthsystems](#) [#caesarean](#)



### Meng Ke

Associate Professor,  
Tsinghua University

Ke seeks to understand the socio-economic causes of population ageing and declining fertility rates to suggest what public policy measures and innovations can be used to address them.

[#socioeconomics](#) [#ageing](#)



### Philip Moll

Assistant Professor,  
Ecole Polytechnique Fédérale de Lausanne

Philip is developing new methods to make micro-scale modifications to material structures with the potential to improve quantum computing.

[#quantumcomputing](#) [#materialscience](#)



### Mine Orlu

Associate Professor of Pharmaceutics,  
University College London

Mine is designing patient-tailored pharmaceutical and healthcare technologies that contribute to healthy and independent ageing, from birth to old-age.

[#publichealth](#) [#ageing](#)



### Jennifer Ronholm

Assistant Professor,  
McGill University

Jennifer is working to strengthen the microbiome of agricultural animals to resist infections in the absence of antibiotics, with the aim of reducing the spread of antimicrobial resistance.

[#microbiome](#) [#amr](#)



### Michael Saliba

Professor and Director,  
University of Stuttgart

Michael is developing inexpensive, stable and highly efficient perovskite solar cells that will enable the acceleration of sustainable energy technology.

[#novelmaterials](#) [#perovskites](#)



### Shi Ling

Associate Professor,  
Hong Kong University of Science and Technology

Ling researches the vulnerability of cyber-physical systems to protect safety-critical infrastructures – such as power utilities and water transportation systems – from attacks.

[#electronicengineering](#) [#cybersecurity](#)



### Stefanie Sydlik

Assistant Professor,  
Carnegie Mellon University

Stefanie designs new materials that stimulate the body's healing response to enable the regeneration of natural bone as an alternative to metal implants currently used to heal bone injuries.

[#novelmaterials](#) [#boneregeneration](#)



### Andy Tay

1851 Royal Commission Brunel Research Fellow,  
Imperial College London

Andy is developing new technology and materials to engineer immune cells, tissues and systems, with the aim of preventing and treating cancer.

[#immunology](#) [#cancer](#)



### Zeynep Temel

Assistant Professor,  
Carnegie Mellon University

Zeynep uses analytical models and physical prototypes to test and explore biologically inspired designs, leading to the development of small-scale robots and robotic components.

[#mathematicalmodelling](#) [#microrobotics](#)



### Sho Tsuji

Assistant Professor and Principal Investigator,  
University of Tokyo

Sho seeks to understand how an infant's social environment affects language acquisition – a key predictor of future literacy – to inform culturally sensitive, science-based societal interventions.

[#psychology](#) [#language](#)



### Jan Dirk Wegner

Senior Scientist and Lecturer,  
ETH Zurich

Jan develops novel artificial intelligence methods to analyse large-scale environmental data and accelerate humanity's ability to solve ecological problems.

[#artificialintelligence](#) [#climatechange](#)



### Wu Dan

Research Professor,  
Zhejiang University

Dan is researching technological advances in MRI techniques to improve its ability to detect tumours and stroke, as well as monitor foetal brain development.

[#diagnostictools](#) [#MRI](#)





### Yi Li

Assistant Professor,  
Peking University

Li researches social-communicative impairments in children with autism in China to develop more precise screening and diagnosis, as well as innovative treatment approaches in the country.

[#psychology](#) [#autism](#)



### Ying Xu

Researcher,  
Chinese Academy of Sciences

Xu's research focuses on enhancing China's low-orbit Beidou navigation satellite system, which could lead to advances in the commercial aerospace industry.

[#systemsengineering](#) [#satellites](#)



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IMPROVING THE STATE  
OF THE WORLD

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

The Forum engages the foremost political, business and other leaders of society to shape global, regional and industry agendas.

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