Young Scientists Community

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Gerardo Adesso, Associate Professor, University of Nottingham, United Kingdom

Nicola Allen, Assistant Professor, Salk Institute for Biological Studies, USA

Jennifer Bizley, Reader in Auditory Neuroscience, University College London, United Kingdom

Stefanie Blain-Moraes, Assistant Professor, McGill University, Canada

Sergiy Bogomolov, Lecturer, Australian National University, Australia

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

Marta Cerruti, Associate Professor, McGill University, Canada

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

Karen Jacqueline Cloete, Researcher, iThemba Laboratory for Accelerator Based Sciences, National Research Foundation (NRF), South Africa

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

Fengyu Cong, Professor, Department of Biomedical Engineering, Dalian University of Technology, People's Republic of China

Laura Dabbish, Director, Connected Experience Lab, Carnegie Mellon University, USA

Ding Xianting, Professor, School of Biomedical Engineering, Shanghai Jiao Tong University, People's Republic of China

Yuval Elani, Research Fellow and Group Leader, Imperial College London, United Kingdom

Kyle Elliott, Assistant Professor, McGill University, Canada

Gregory Engel, Professor, University of Chicago, USA

Dylan Gee, Assistant Professor, Psychology, Yale University, USA

Maxim Gongalsky, Scientific Researcher, Moscow State University (Lomonosov), Russian Federation

Rafael Guido, Assistant Professor, University of São Paulo, Brazil

Alexander G. Hayes, Assistant Professor, Cornell University, USA

Heng Ji, Edward P. Hamilton Development Chair Associate Professor, Rensselaer Polytechnic Institute, USA

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

Mamadou Kaba, Senior Research Officer, University of Cape Town, South Africa

Yasuaki Kakehi, Associate Professor, Faculty of Environment and Information Studies, Keio University, Japan

Kang Lan, Professor, Dalian Medical University, People's Republic of China

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

Yoshihiro Kawahara, Associate Professor, University of Tokyo, Japan

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

Katherine Kinzler, Associate Professor, Cornell University, USA

Magdalena Krol, Professor, University of Warsaw, Poland

Andrey Kruglov, Senior Staff Scientist, Moscow State University (Lomonosov), Russian Federation

Hyunjoo Jenny Lee, Assistant Professor in School of Electrical Engineering, Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea

Sheng Li, Assistant Professor, Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea

Jodie L. Lutkenhaus, Associate Professor of Chemical Engineering, William and Ruth Neely Faculty Fellow, Texas A&M University, USA

Tammy Ma, X-Ray Analysis Group Lead for Inertial Confinement Fusion, Lawrence Livermore National Laboratory, USA

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

Louis-Philippe Morency, Assistant Professor, Language Technology Institute, School of Computer Science, Carnegie Mellon University, USA

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

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

Marianna Obrist, Reader in Interaction Design, University of Sussex, United Kingdom

Qi Liping, Associate Professor, Dalian University of Technology, People's Republic of China

Shi Yongyong, Distinguished Professor, Bio-X Institutes, Shanghai Jiao Tong University, People's Republic of China

Rebeccah Slater, Associate Professor of Paediatric Neuroimaging, University of Oxford, United Kingdom

Jizhou Song, Professor of Solid Mechanics, Zhejiang University, People's Republic of China

Maria-Elena Torres-Padilla, Director, Institute of Epigenetics and Stem Cells, Helmholtz Zentrum München, Germany

Timothy Verstynen, Assistant Professor, Carnegie Mellon University School of Computer Science, USA

Kirill Veselkov, Waters Lecturer in Computational Medicine, Imperial College London, United Kingdom

Liming Wang, Professor and Investigator, Zhejiang University, People's Republic of China

Vanessa Wood, Professor, Department of Information Technology and Electrical Engineering, ETH Zurich, Switzerland

Sahal Yacoob, Lecturer, University of Cape Town, South Africa

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

Yang Fan, Professor, Dalian Institute of Chemical Physics, People's Republic of China

Quantum science

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.

Neuroscience

Nicola Allen is Assistant Professor at the Salk Institute for Biological Studies, where she focuses on understanding the mechanisms by which neural networks are formed during development, and regulated during health and disease. Her research has implications for understanding neurodevelopmental disorders, including autism. Her findings could be applied to regenerating the brain following injury or degenerative disease, in particular stroke and Alzheimer's disease.

Neuroscience

Jennifer Bizley is Reader in Auditory Neuroscience at the University College London, where she seeks to understand the neural basis of listening. She looks into how the brain processes the information provided by the ear in order to compute the sources from which the sounds were emitted. While Bizley mainly focuses on the role of auditory cortex in listening, she also considers multiple brain areas including visual cortex, prefrontal cortex and parietal cortex.

Computer science

Stefanie Blain-Moraes is Assistant Professor at McGill University, where she focuses on developing assistive technologies to enhance the assessment of and interaction with individuals who are behaviourally unresponsive. Blain-Moraes also worked on the development of brain-computer interfaces for individuals with severe disabilities, and studied the neural correlates of consciousness through anaesthetic-induced unconsciousness.

Computer science

Sergiy Bogomolov is Lecturer at the Australian National University, where he focuses on the verification and synthesis techniques for cyber-physical systems and their applications in artificial intelligence and systems biology. Bogomolov aims at finding solutions to design safe and secure cyber-physical systems, with applications such as autonomous cars and robotics.

Neuroscience

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.

Bioengineering

Marta Cerruti is Associate Professor at McGill University, where she studies the process of bone formation. She focuses on the biointerface formed by the scaffold, serum and cells, and tries to understand how the protein regulators work, and how the minerals nucleate and grow. She then makes modified synthetic polymers that mimic the bone in order to help its regeneration. Cerruti also uses molecules that mimic inhibiting proteins as drugs to prevent calcification in soft tissues, and uses nanoparticles that activate drug release when hit with light to deliver these drugs.

*Health - Cancer therapeutics*

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 to design and evaluate new cancer therapeutic agents.

Biology

Karen Jacqueline Cloete is Researcher at the South African National Research Foundation where she focuses on the biomedical applications of ion beam techniques, which she applies to the analysis of hair tissue and its chemical content in terms of pharmaceuticals, illegal drugs, volatile organic compounds and toxic metals, as well as understanding the chemical content of mummified hair linked to ancient disease.

Health - Microbiome
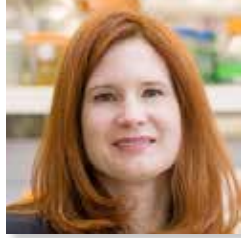
Cynthia Collins is Associate Professor at the Rensselaer Polytechnic Institute, where she focuses on using interdisciplinary approaches, from synthetic biology to microbial genomics and big data, to both understand and engineer microbial community form and function. She is fascinated by communities of microorganisms found everywhere in nature and the built environment, and how they play important roles in processes that directly impact human health and the environment.

Neuroscience

Fengyu Cong is Professor in the Department of Biomedical Engineering at Dalian University of Technology. His research interests include brain signal processing for cognitive neuroscience, tensor decomposition and anomaly detection in machine learning. In particular, he focuses on functional brain imaging and the development of powerful big data tools to help patients who suffer from depression, autism and Alzheimer's disease.

Computer science

Laura Dabbish is Director of the Connected Experience Lab at Carnegie Mellon University, a research group that addresses social, technical and policy issues emerging around new forms of technology-supported work, communication and creative collaboration. Projects include digital footprint, social coding and algorithmic management.

Health - Diagnostics

Ding Xianting is Professor of Biomedical Engineering at Shanghai Jiao Tong University, where his research focuses on disease multi-targeting diagnostics and therapeutics. He has been working on different disease models, from infectious disease, cancers and organ transplants to stem-cell differentiation, parasite control and bone regeneration.

Bioengineering

Yuval Elani is Research Fellow and Group Leader at Imperial College London, where his research focuses on the construction of artificial cells, including synthetic structures that resemble real biological cells in form and function. He is investigating how these artificial cells can be interfaced with living biological systems for the construction of "bionic cells" that are composed of living and synthetic components.

Environment - Arctic

Kyle Elliott is Assistant Professor at McGill University, where he studies Arctic seabirds, what they tell us about climate change, and how we can pursue policies that minimize the impact of climate change on Arctic wildlife. He is focused on providing practical solutions and designing marine policy that benefits wildlife to ensure the sustainability of food, water and environment of Arctic communities.

Quantum science

Gregory Engel is Professor at the University of Chicago, where he focuses on chemical physics and quantum dynamics in biological systems. Engel seeks to understand how nature exploits quantum mechanical phenomena and is gaining insight into how biological systems function, how biology has evolved to exploit quantum mechanics, and how improved solar cells might be developed.

Neuroscience

Dylan Gee is an Assistant Professor in the department of Psychology at Yale University, where she focuses on developmental psychopathology, with primary goals of delineating typical and atypical brain development, elucidating how early environments and genetic factors influence sensitive periods in neurodevelopment, and translating knowledge of brain development to optimize clinical interventions for children and adolescents with mental health disorders.

Physics - Silicon nanoparticle

Maxim Gongalsky is Scientific Researcher at Moscow State University (Lomonosov), where his research focuses on nanobiotechnology, nanomedicine and nanophysics. Working with light, ultrasound, radiowaves and silicon nanoparticles, Gongalsky is looking into personalized nanomedicine, which could lead to solutions to cure major diseases such as cancer.

Biology - Drug discovery

Rafael Guido is Assistant Professor at the University of São Paulo where he focuses on the discovery and development of new, safe and efficacious alternatives for the treatment of infectious diseases, with emphasis on malaria and Zika. He also specializes in agrochemicals for human and plants disease and is a specialist in the integration of computational and experimental methods.

Space

Alexander G. Hayes is Assistant Professor of Astronomy at Cornell University and Director of the Spacecraft Planetary Imaging Facility. He focuses on comparative planetology and solar system exploration, with an emphasis on Mars and the satellites of the outer solar system. Solar system exploration stands on a precipice, with the opportunity to discover the signs of life in one or more of the ocean worlds of the outer solar system within the next few decades.

*Computer science -
Information extraction*

Heng Ji 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.

Health - 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 a beneficial response.

Biology - Microbiome

Mamadou Kaba is Senior Research Officer at the University of Cape Town where he leads a newly established African Microbiome and Epidemiology Research Initiative. He has more than 10 years of biomedical research experience, with substantial exposure to a broad range of molecular biology techniques and associated bioinformatics tools.

*Design and
Technology*

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.

Genetics - Stem Cell

Kang Lan is Professor at the Dalian Medical University, working on induced pluripotent stem cell, early embryo development and regenerative medicine. Kang is passionate about personalized therapies and how they could can improve patients' outcomes.

Health - 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.

Computer science - Electronics

Yoshihiro Kawahara is Associate Professor at the University of Tokyo where he has focused on machine learning technology for smart home controllers, activity monitoring schemes for smartphone, paper-based disposable wireless sensor and instant inkjet circuits, which make it possible to print electrical circuits using consumer-grade inkjet printers. A low-cost soil moisture sensor for agriculture was invented using the printed electronics technology.

Computer science - Robot 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 specifically on localization and mapping.

Neuroscience

Katherine Kinzler is Associate Professor of Psychology at Cornell University, where her research uses methods from cognitive development to understand children's thinking about the social world, with the goal of elucidating how early thinking lays the foundation for adult reasoning. Much of her research focuses on the origins of prejudice and ingroup/outgroup thinking, with an emphasis on understanding how language and accent mark social groups.

Health - Cancer therapeutics

Magdalena Krol is Professor at the University of Warsaw, where she seeks to open a new research front within the field of drug delivery to hypoxic regions of solid tumours. She has discovered a new physiological mechanism by which immune cells efficiently uptake box-like natural proteins and transfer them to cancer cells when they meet them. Król loads these protein boxes with anticancer agents and administers them to immune cells that deliver the drugs to the tumours.

Biology - Microbiome

Andrey Kruglov is Senior Staff Scientist at Moscow State University (Lomonosov) where he focuses on dissecting the mechanisms of microbiota control by the immune system and the contribution of various constituents of microbiota in the development of autoimmunity. He is also developing tools which will help target such microbes.

Neuroscience

Hyunjoo Jenny Lee is Assistant Professor at the School of Electrical Engineering of the Korea Advanced Institute of Science and Technology (KAIST). Her research focuses on neuroengineering in the broad field of biomedical research on disability. Her expertise lies in manufacturing extremely small functional devices with high accuracy and reliability through micromachining technology.

Materials science
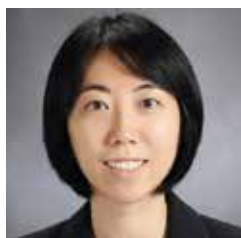
Sheng Li is Assistant Professor at the Korea Advanced Institute of Science and Technology (KAIST) where she focuses on polymer physics. She links natural and synthetic materials into one system to create hybrid materials capable of self-assembling. She also develops eco-friendly polymers with superior material properties and combines DNA with synthetic polymers to generate DNA block copolymers for medical applications.

Energy

Jodie L. Lutkenhaus is Associate Professor of Chemical Engineering at the Texas A&M University, where she focuses on polyelectrolytes, electroactive polymers, energy storage and anti-corrosion coatings. She has developed spray-on batteries that integrate energy and power into surfaces and are able to maintain their functionality and charge storage, even when incorporated into fabrics and cotton textiles.

Physics

Tammy Ma is X-Ray Analysis Group Lead at the Lawrence Livermore National Laboratory. She is an experimental plasma physicist in inertial confinement fusion and high energy density physics, and leads a number of the fusion experiments. She is strongly committed to education and scientific outreach, and was awarded the Presidential Early Career Award for Science and Engineering.

Environment - Ocean

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.

Computer science - Human behaviour

Louis-Philippe Morency is Assistant Professor at the Language Technology Institute of Carnegie Mellon University. His research focuses on building the computational foundations to enable computers to analyse, recognize and predict subtle human communicative behaviours during social interactions. He addresses four key computational challenges: behavioural dynamic; multimodal dynamic; interpersonal dynamic; and societal dynamic. This multidisciplinary research has applications in areas as diverse as medicine, robotics and education.

Energy

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.

Environment - Ocean

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.

Computer science - Multisensory interaction

Marianna Obrist is Reader in Interaction Design at the University of Sussex, where she focuses on Human-Computer Interaction, particularly on multisensory (tactile, gustatory and olfactory) experiences as novel interaction modalities.

Health

Qi Liping is Associate Professor at the Dalian University of Technology, where she conducts high-quality scientific research on sports and medicine in order to help the general public maintain and improve their health. She focuses on physiology, sports biomechanics and rehabilitation medicine.

Health - Genetics

Shi Yongyong is Distinguished Professor at the Bio-X Institutes of Shanghai Jiao Tong University. He is an expert in genetic research of complex disorders. He has developed new analytical tools for genetic studies, and has led his research group to discover new genetic mechanisms of cancers, mental disorders, heart diseases and endocrine diseases. His group has validated the sensitivity and safety of a series of new drug development researches, and is developing the correlated minimally invasive diagnosis for target therapies.

Health - Pain management

Rebeccah Slater is Associate Professor of Paediatric Neuroimaging at the University of Oxford. Her research focuses on understanding the development of human pain in newborn infants, and she has shown that infant pain-related brain activity is remarkably similar to that observed when adults experience pain. She uses brain imaging tools to explore the development of pain in early infancy and to improve analgesic pain treatment in infants.

Materials science

Jizhou Song is Professor of Solid Mechanics at Zhejiang University where he researches mechanics of thin film and stretchable electronics, nano-mechanics and thermo-mechanical behaviour of materials. Application examples range from surgical and diagnostic tools that merge with the human body to provide advanced therapeutic capabilities, to electronic eye cameras that use biologically inspired design to achieve superior performance, to energy harvesting fabrics, flexible and stretchable lighting, sensory skins for robotics and wearable communication devices.

Health - Genetics

Maria-Elena Torres-Padilla is Director of the Institute of Epigenetics and Stem Cells at the Helmholtz Zentrum München. Her research focuses on understanding how epigenetic information regulates transitions in cell identity and cellular reprogramming, which is essential in understanding the biology of the pluripotent stem cells, in particular on their origin and development. From a broader perspective, her work is expected to help in the understanding of early aspects of embryonic development, human reproduction, fertility and stem cell biology. Padilla is Co-Chair of the Annual Meeting of the New Champions 2017.

Neuroscience – Decision-making

Timothy Verstynen is Assistant Professor at Carnegie Mellon University where he works on mapping the architecture of brain circuits and understanding how the wiring of these circuits gives rise to adaptive decision-making and complex skill-learning. His research spans many disciplines, including cognitive science, neuroscience, engineering, statistics and machine learning. Verstynen is also very active in science outreach through podcasts, books and public lectures designed to make cognitive neuroscience more accessible to broad audiences.

Health - Cancer therapeutics

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.

Neuroscience - Nutrition

Liming Wang is Professor and Investigator at Zhejiang University, where he focuses on biological science, neuroscience and nutrition, eating disorders, obesity, and type II diabetes. He uses behavioural, genetic, biochemical and imaging techniques to identify genes and neural circuits, which underlie the regulation of body energy and nutrient intake. He is also passionate about science education.

Energy

Vanessa Wood is Professor in the Department of Information Technology and Electrical Engineering at ETH Zurich, where she develops advanced characterization techniques to understand how charge, heat and light are transported and interact with materials inside devices ranging from lithium ion batteries, thermoelectrics, sensors, solar cells and LEDs. The technological applications could enable batteries to charge twice as fast as they do now.

Physics

Sahal Yacoob is Lecturer at the University of Cape Town and researcher in high energy particle physics working in the ATLAS Collaboration at CERN. He focuses on measurements that further decipher the fundamental interactions of nature.

Environment - Sustainability

Yan Ning is Assistant Professor and Leader of the Green Catalysis Lab at the National University of Singapore, where he works on the development of efficient and atom-economic processes converting waste biomass, including cellulose, lignin and chitin, into platform chemicals and fuels in environmentally benign solvents such as water. He is also developing the concept of "waste-shell-refinery" to transform waste into wealth by transforming fractionated waste shells into chemicals and materials.

Energy - Catalysis

Yang Fan is Professor at the Dalian Institute of Chemical Physics where his research aims to achieve atom-economy for chemical synthesis and to reduce energy costs and waste for the chemical industry. In particular, he works on heterogeneous catalysts for highly efficient conversion of energy-intensive molecules. He is an expert in using and developing surface science approach to access, examine and discover the fundamental principles of nano and interfacial catalysis.