

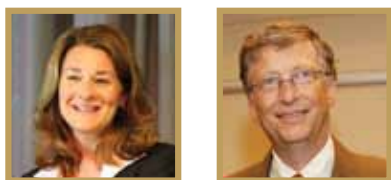


YEARBOOK **2018**



UNIVERSITY OF
CAMBRIDGE

PATRONS



In 2012, Bill and Melinda Gates generously agreed to become patrons of the Gates Cambridge Trust. The Trust is delighted to reinforce a direct link between the Gates Cambridge Scholarships and the Gates family and the Foundation.

ABOUT THE SCHOLARSHIPS

The Gates Cambridge Scholarship programme aims to build a global network of future leaders committed to improving the lives of others.

Gates Cambridge Scholarships are one of the most prestigious international scholarships in the world. The programme was established in October 2000 by a donation of US\$210m from the Bill and Melinda Gates Foundation to the University of Cambridge; this is the largest ever single donation to a UK university.

Scholarships are awarded to outstanding applicants from countries outside the UK to pursue a full-time postgraduate degree in any subject available at the University of Cambridge.

Scholars are selected on the basis of their outstanding intellectual ability, leadership potential, commitment to improving the lives of others and a good fit between their qualifications and aspirations and the postgraduate programme at Cambridge for which they are applying.

The Gates Cambridge Trust administers all aspects of the programme, including supporting the important work of the Scholars' Council and Alumni Association.

The first class of Scholars came in to residence in October 2001; since then the Trust has awarded 1,775 scholarships to citizens of 109 countries. There are usually 225 scholars in residence at any one time.

The class of 2018 consists of 92 outstanding Scholars from 28 countries who will be widely distributed amongst Cambridge's Colleges and Departments. The following pages highlight their achievements, activities and aspirations.

Full details about the Gates Cambridge Scholarships are available from www.gatescambridge.org.

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FOREWORD



Welcome to Cambridge and the Gates Scholar community! You have been exceptional during an intensely competitive application process and I give you my heartfelt congratulations. You will now begin what I very much hope will be a memorable period of postgraduate study that sets you firmly on the path to achieve your goals.

Cambridge University has had over 800 years to become an extraordinarily complex environment and one that you will perhaps not implicitly understand, but you will soon be able to navigate it. You have joined at least three communities: first, the vibrant community of Gates Cambridge Scholars; second, your University Department, Faculty, or Institute and, if you are a research Masters or PhD student, your supervisor's Research Group where you will conduct the majority of your original work; third, you are also members of thriving graduate communities (Middle Combination Rooms, or MCRs) in your Colleges and this, I suspect, will be the most difficult to understand aspect of your lives here, since the collegiate system in Cambridge, along with that in Oxford, is unique.

You should not feel that you are expected to know and understand everything immediately, far from it. But you should know that I, together with the staff of the Trust, as well as current Scholars, will do everything possible to help you to do so and to make the most of your hard won opportunity to be a graduate student in Cambridge. You will also find your College Graduate Tutors to be rich sources of advice and support.

The Gates Cambridge Guidelines for Scholars will provide you with much of the information you will need to guide you through your arrival here and will help to answer some of your administrative and financial questions. Do not hesitate to contact the staff of the Trust if you have any specific queries that are not addressed in the web pages. I also urge you, Ph.D. students especially, to read the University's Code of Practice for Research Students issued by the University and updated each year. Here the expectations and responsibilities of your Supervisor, Adviser and you as a graduate student are set out.

You will attend many events during the year, some organised by the Trust, but the great majority organised by the Scholars' Council and scholars. Some will be focused on your professional development (the excellent Learning for Purpose programme) and an increasing number that will bring you into contact with the Gates Cambridge Alumni Association and many alumni. While you should always place your academic research and study at the top of the list of your priorities, not least since the qualification you will gain in Cambridge is the passport to the next phase of your careers, you will also be able to take full advantage of these other opportunities and this, I am sure, will enrich your time in Cambridge.

The wonderful generosity of the gift to the University from the Bill and Melinda Gates Foundation has provided the Gates Cambridge Trust with an endowment, the income from which has provided you with a unique opportunity to study in Cambridge – but it is your achievements and excellence that have enabled you to grasp it. Eventually and all too quickly, you the Gates Cambridge Scholars of 2018 will graduate and join a growing and ambitious global network of leaders, having the responsibility and privilege to shape the future and fulfil your commitment to improving the lives of others. I wish you every success in doing so and welcome you most warmly to Cambridge.

Professor Barry Everitt FRS
Provost

PEOPLE

TRUSTEES



Professor Stephen Toope
Vice-Chancellor of the University
of Cambridge (Chair)



Mr Timothy Harvey-Samuel
Bursar of Corpus Christi College,
Cambridge (Honorary Treasurer)



Professor Mary Sue Coleman
President of the Association of American
Universities and Former President of the
University of Michigan



Dr Mimi Gates
Former Director of the Seattle Art Museum
and Yale University Art Gallery



Dr Julia Li
Senior Vice President Commercial
Operations & Head of UK, Seven Bridges
Genomics; UK-China AMR Research and
Innovation Collaboration Advisory Panel
and Gates Cambridge Scholar (2008)



Leigh Morgan
Former Chief Operating Officer at the
Bill and Melinda Gates Foundation



Professor David Runciman
Head of the Department of Political
Science and International Studies at
the University of Cambridge and
Fellow of Trinity Hall, Cambridge



Professor Susan Smith FBA
Honorary Professor of Social and
Economic Geography at the University
of Cambridge and Mistress of Girton
College, Cambridge



Dame Barbara Stocking DBE
President of Murray Edwards College,
Cambridge and former Chief Executive
of Oxfam GB

STAFF



Professor Barry Everitt FRS FMedSci
Provost
Professor of Behavioural Neuroscience at
the University of Cambridge and former
Master of Downing College, Cambridge



Dr Regina Sachers
Secretary
Head of the Registry's Office,
University of Cambridge



Dr Jade Tran
Director of Finance



Jim Smith
Programme Director
Senior Member, Wolfson College, Cambridge



Celine Ophelders
Alumni & Events Officer



Luisa Clarke
Programme Manager



Colette Van den Hout
Programme Assistant



Usha Virdee
Accounts Officer



Mandy Garner
Communications Officer

GATES CAMBRIDGE SCHOLARS' COUNCIL 2018–2019

The Gates Cambridge Scholars' Council supports the aims of the Gates Cambridge Scholarship to create a network of responsible global leaders.



Margaret Comer
President & Chair
The President/Chair of the Scholars' Council oversees its activities and liaises with the Trust on behalf of Scholars.



Emma Glennon
Vice President and Secretary
The Vice President/Secretary works with the President to coordinate the Council's activities and to liaise with the Trust.



Ben Geytenbeek
Treasurer
The Treasurer oversees the finances of the Council.



Jacqueline Siu
Alumni Officer
The Alumni Officer works closely with the Gates Cambridge Alumni Association to connect the Scholar and Alumni communities.



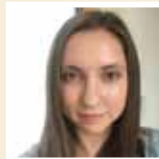
Marina Velickovic
Communications Officer
The Communications Officer is the conduit for assembling and distributing information to and about the Scholar community.



Parker Lawson
PR and Outreach Officer
The PR and Outreach Officer facilitates the scholar community's engagement with alumni, the wider Cambridge network, the public, and potential new applicants.



Harum Mukhayer
Community Officer
The Community Officer solicits ongoing feedback from Scholars and coordinates community service programming.



Rian Lawrence
External Community Officer
The External Community Officer promotes scholar involvement in the wider community.



Kevin Chew
Internal Officer
The Internal Officer oversees the Scholars' Common Room and organises Internal Symposia each term.



Luis Welbanks Camarena
Social Officer
The Social Officers plan a variety of events in Cambridge and trips further afield throughout the year.



Andrea Kusec
Social Officer
(February to November 2018)
The Social Officers plan a variety of events in Cambridge and trips further afield throughout the year.



Michael Pashkevich Jr.
Social Officer (November 2018 onwards)
The Social Officers plan a variety of events in Cambridge and trips further afield throughout the year.



Sahba Seddighi

Editor-in-Chief

The Editor-in-Chief is responsible for the production of the annual *The Scholar* magazine.



Andre Holzer

Technology Officer

The Technology Officer is responsible for maintaining the electronic hardware and software in the Scholars' Common Room.



Nora Martin

Technology Officer

The Technology Officer is responsible for maintaining the electronic hardware and software in the Scholars' Common Room.



Patricia Andrews Fearon

Learning for Purpose Co-Director

The Learning for Purpose Directors lead and organise a series of workshops aimed at skills development for Scholars.



Akhila Denduluri

Learning for Purpose Co-Director

The Learning for Purpose Directors lead and organise a series of workshops aimed at skills development for Scholars.



Lily Bentley

Orientation Co-Director

The Orientation Directors lead the Orientation committee, which organises Induction and Orientation activities for the new Scholars.



Anna Nti-Asare-Tubbs

Orientation Co-Director

The Orientation Directors lead the Orientation committee, which organises Induction and Orientation activities for the new Scholars.

GATES CAMBRIDGE ALUMNI ASSOCIATION (GCAA)

The Gates Cambridge Alumni Association (GCAA) aims to develop an international network of Gates Cambridge Scholars, to promote the Gates Cambridge Scholarship and to engage Alumni through the exchange of knowledge, academic ideas, and professional development. For details about the full Board and its work see www.gatescambridge.org



Anna Kendrick (2011)

Co-Chair

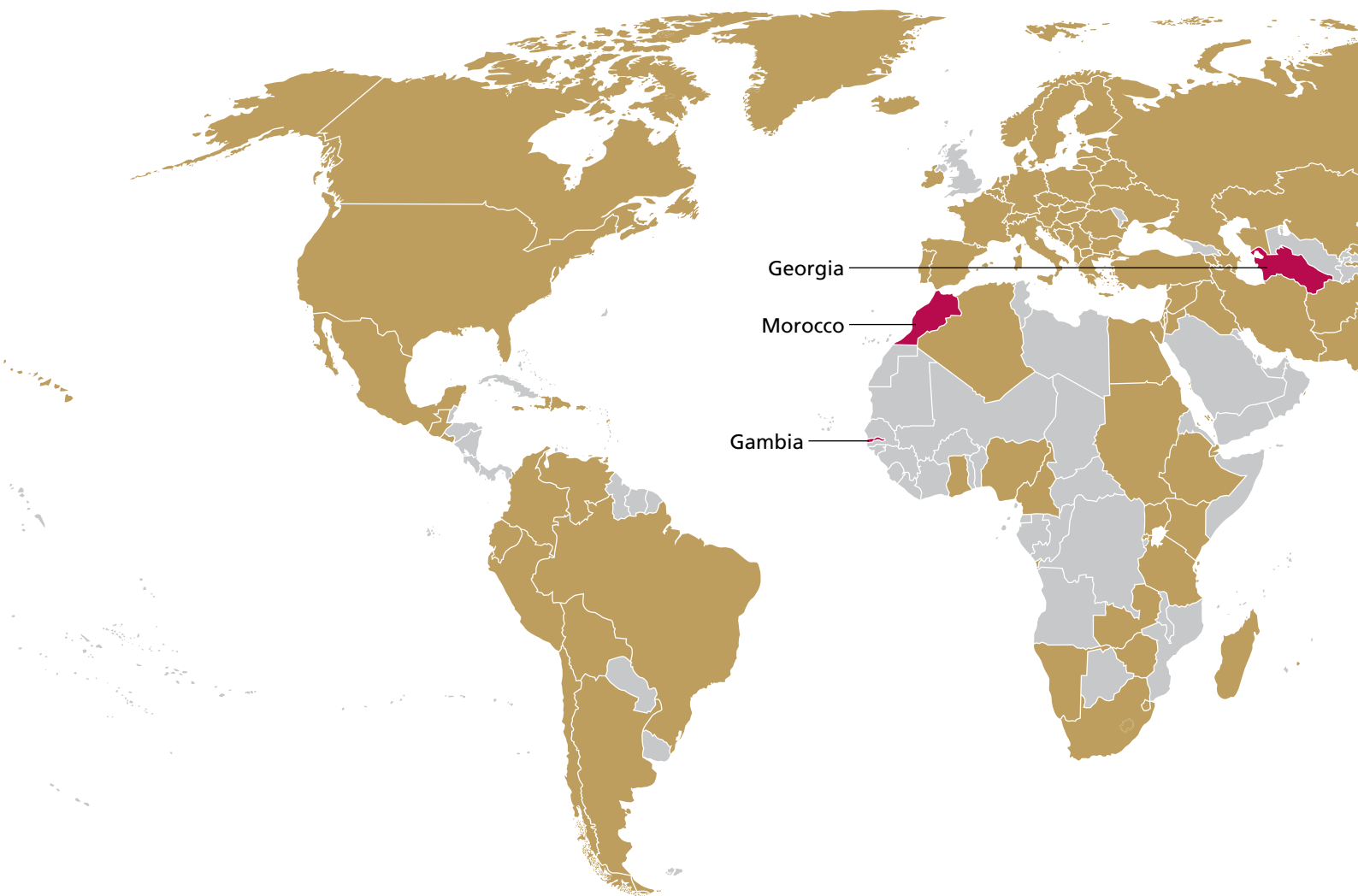


Devinn Lambert (2013)

Co-Chair

BUILDING A GLOBAL NETWORK

This year we welcome our first Scholars from Gambia, Georgia and Morocco, which expands the global reach of the Gates Cambridge programme to 109 countries.



Class of 2018 by Primary Citizenship

Argentina	1	Georgia	1	Kenya	1	Republic of Serbia	1
Australia	7	Germany	4	Morocco	1	Singapore	1
Belgium	1	Iceland	1	Netherlands	4	South Africa	2
Canada	3	India	6	New Zealand	1	Sweden	1
Czech Republic	1	Israel	2	Nigeria	1	UK	2
Ethiopia	1	Italy	1	Peru	1	USA	42
Gambia	1	Japan	1	Portugal	1	Zimbabwe	2

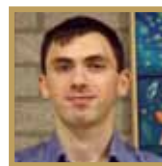


Gambia

Papa Momodou Jack

PhD Geography
Churchill College

Coming from the smallest country on mainland Africa, I am deeply honoured and grateful to have been selected for such a prestigious scholarship scheme. This truly life-changing opportunity will go a long way in supporting my goal of contributing to the sustainable development of my home country, The Gambia. I hope my experience will inspire other Gambian scholars, who seek to make a difference in their communities and across Africa, to pursue their academic goals to the highest levels.



Georgia

Levan Bokeria

PhD Biological Science (MRC Cognition
and Brain Sciences Unit)
Hughes Hall

I am extremely grateful and honoured to be the first Georgian to become part of the Gates Cambridge Scholar community. I hope that in the coming years, many talented Georgian students will join the community and help spread awareness about our country and our culture. The Gates Cambridge Scholarship provides an amazing platform for having a meaningful impact on the world, and I hope that with my work at Cambridge I can set a positive example for future applicants.



Morocco

Salma Daoudi

MPhil International Relations & Politics
Lucy Cavendish College

It is a great honour for me to become the first Gates Cambridge Scholar from Morocco, and eventually pave the way for other students from my country to study in one of the most prestigious universities worldwide. Morocco has a potential for intellectual excellence that can most certainly thrive under the academic, financial, and social support provided by Gates Cambridge. I believe with such a great honour comes also a great responsibility to set a positive example and encourage other Moroccans to believe in their competencies and ambitions.

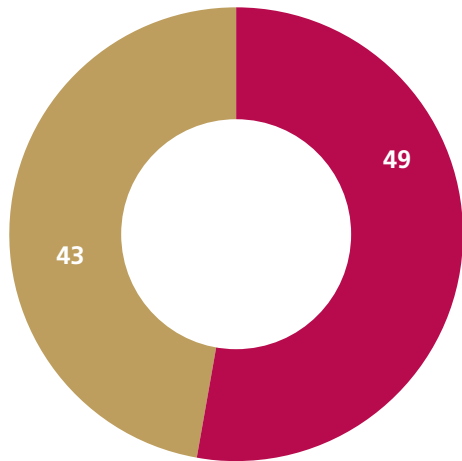
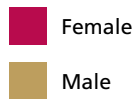


KEY

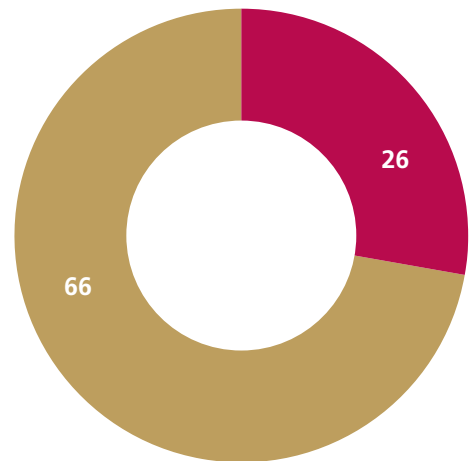
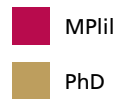
-  Countries represented to date
-  Countries not yet represented
-  New countries in class of 2018

STATISTICAL SUMMARY: CLASS OF 2018

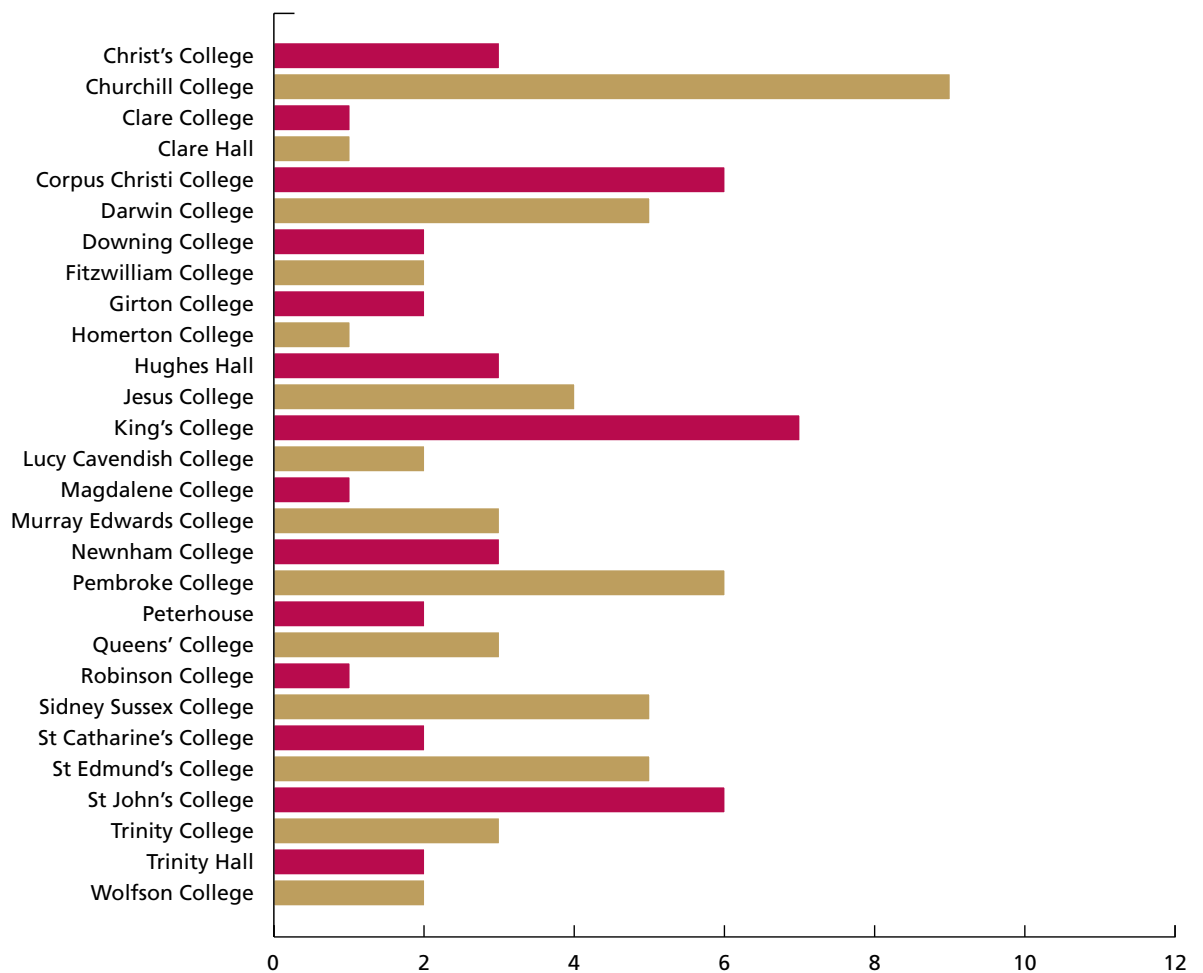
Gender



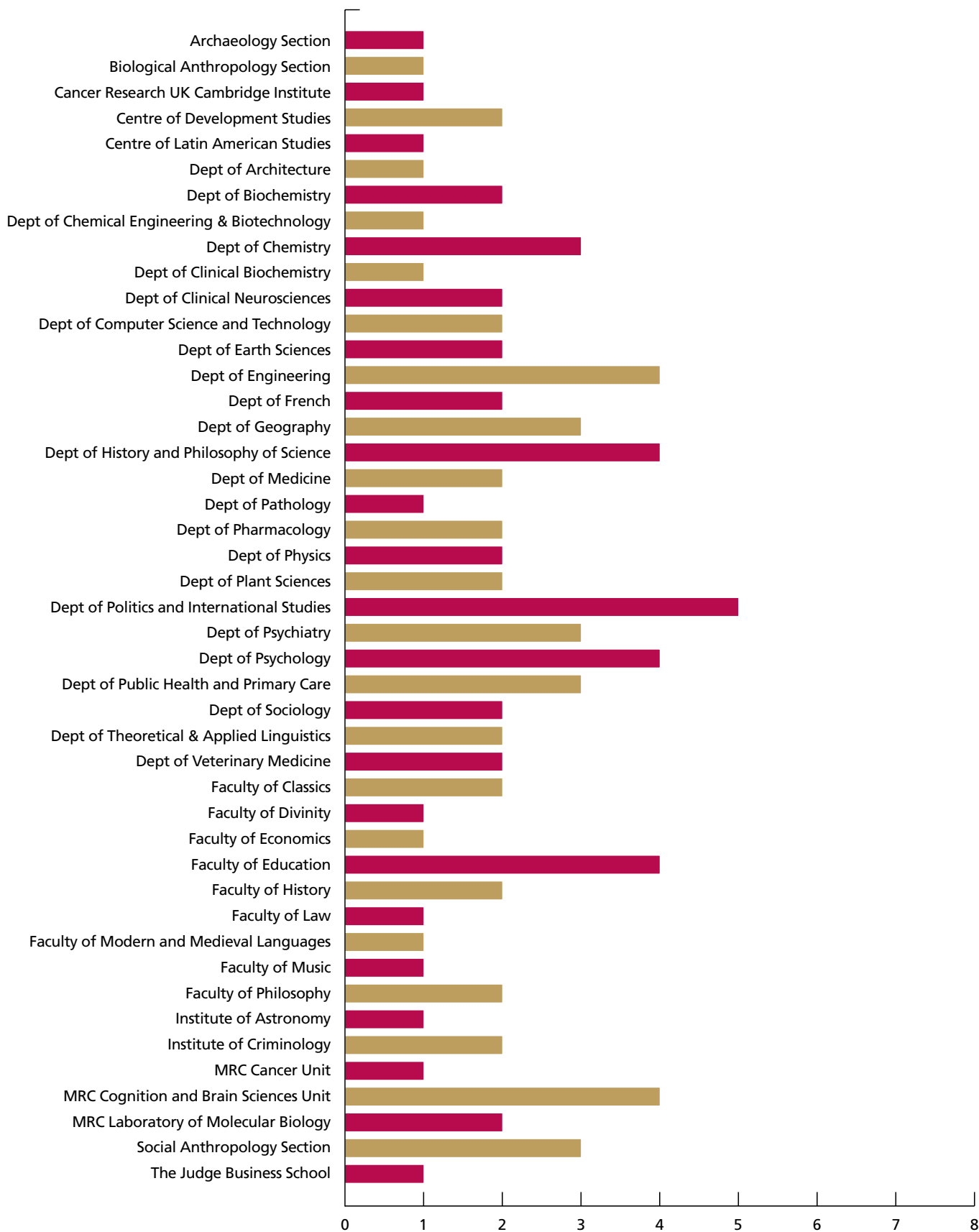
Degree type



College



Department



Ali Ansari

USA

PhD Education
Hughes Hall



I am a firm believer that a good quality education is the foundation for economic prosperity and poverty alleviation. Since 2010, I have been working in the development sector in Pakistan on the design and implementation of education reform programs. In my current role, I

am co-leading the World Bank's engagement in the Third Punjab Education Sector Project, as well as the Khyber Pakhtunkhwa Human Development Project. As a PhD student with the Education faculty in Cambridge, my objective is to further develop my research skills to work towards bridging the gap between research, program design and implementation. In a country like Pakistan, where millions of children remain out of school, and the quality of education is poor, there is enormous amounts of untapped potential that is waiting to be harnessed. I hope to play my part in ensuring that people have the opportunity to access quality education to realize their full potential, and improve the quality of their lives. I look forward to being part of the Gates Cambridge community to work with other scholars who are equally committed to improving the lives of others.

Michael Antosiewicz

USA

MPhil Classics
Sidney Sussex College



As an undergraduate at Rutgers I discovered my intellectual passions at the nexus of Classical languages and cultural history. Through my work on a newly-discovered papal archive in Rome (the Archivio Boncompagni Ludovisi at the Villa Aurora), I began to engage with the complex social,

cultural and political histories of the Classical tradition and its legacies. At Cambridge, I will integrate these focuses by studying Roman historiography and Classical reception. My central concern involves historical consciousness and the sociology of memory. I am fascinated with how the category of the Classics is under negotiation and frames the way cultures interact with the past and their own histories. Ultimately, I intend to take a comparative approach to the Classical tradition and concentrate on its legacy in the nineteenth century USA. I am particularly interested in history education, especially in underserved communities, and in continuing my work at the Gilder Lehrman Institute of American History in New York City. I am inexpressibly honored to join the Gates Cambridge community. I recognize that this distinction challenges me to ensure that my studies and energies benefit others.

Naoki Arakawa

Japan

PhD Astronomy
Darwin College



Graduating from University of Tokyo in physics and Princeton University in theoretical astrophysics, at Cambridge I am working on high-energy astrophysics to reveal the physical mechanism of black holes: accretion disk, relativistic phenomena, the nature of gravity/space-time and cosmic

feedback from supermassive black holes. I have also been involved in promoting academic globalization of Japan and supporting ambitious Japanese students pursuing overseas education. I am profoundly honored to be the first Japanese Gates scholar that had grown up in Japan prior to graduate education where I was the first Japanese graduate student ever in Cambridge/Princeton Astrophysics, which I hope will encourage many young Japanese to positively put themselves into international involvement by overcoming various obstacles intrinsic to Japan to eventually contribute back to our society. Moreover, I have been deeply engaged in the following social/ domestic issues and affairs: caregiving problems (e.g. fully caring for those having cancer/Alzheimer's disease/disabilities/etc., the lack of helpers and facilities, seniors caring for seniors due to aging), education and children's developmental and school/ home environmental issues. Joining the Gates community would significantly help me keep striving hard to improve these serious situations not only in Japan but also worldwide.

Andrea Aramburu Villavisencio

Peru

PhD Latin American Studies
Girton College



I began to develop an interest in visual studies as a teenager, when I first encountered films that sought to be something more than mere tools of entertainment. I began to question the relationship between this kind of cinema and the context wherein I grew up: Latin America. What are the implications of the

film industry for a developing country? What does cinema do for cultural policies? And conversely? Studying Hispanic Literature in Peru enriched my knowledge on Latin American literature, but, above all, it offered me the theoretical tools to start thinking about cultural representations from a critical viewpoint. After college, I worked as a teaching assistant, and became engaged in several film projects, trying to build a bridge between my knowledge of film theory and the film industry. My time at KCL, in London, where I pursued the Contemporary Literature, Culture and Theory MA strengthened my desire to take the academic path, so I can intervene in society and contribute towards genuine change. My PhD will undertake the study of the complex interactions between disruptive kinships, affect and aesthetics in the films of Argentinian filmmakers Lucrecia Martel and Milagros Mumenthaler.

Nicholas Barber

USA

PhD Earth Sciences
Churchill College



I spent my childhood outdoors, digging up every rock I could find and exploring the mountains of south-eastern Pennsylvania. These experiences grew into a lifelong desire to understand the most basic processes that shape the earth. As an undergraduate, I have conducted research on a variety

of related topics, from sea level rise to a more recent gas monitoring study of geothermal features at Yellowstone National Park. As a 2016–18 Hollings Scholar, I interned with a National Oceanic and Atmospheric Administration research team to model seafloor deformation leading up the 2015 eruption of Axial Seamount in the Northeast Pacific. From 2015 through 2018, I have worked to reassess the structure, scale, and environmental impact of the Deccan Traps, an extinct volcanic province in western India. During my PhD I will seek to explain the systematic behaviour of trace metals in active volcanic systems. This model will synthesize existing trace metal emissions data with novel field and laboratory techniques. The aim of this project is to further our understanding of ore body development and the impact of volcanic emissions on human health. This work also has the potential to provide new tools monitoring agencies can use to forecast eruptions and to safeguard volcanically-threatened populations.

Mohammed Uzair Belgami

India

PhD Social Anthropology
Trinity Hall



I grew up in India and the UK, and have lived in different parts of the world, studying subjects from the natural and social sciences, and in the Western and Islamic scholarly traditions. My doctoral research project is concerned with exploring the formation of Islamic scholars in

Mauritania, focusing particularly on bodies and language.

Melisa Basol

Germany

PhD Psychology
Pembroke College



My undergraduate degree in Psychology has consolidated my research interest in social influences and human judgements. With a particular focus on complex societal and political decisions, I am interested in the formation, polarisation, and 'immunisation' of attitudes in an age where the spread of misinformation poses a threat to science

and society. Hence, my MPhil in Psychology at Cambridge University has looked into protecting public attitudes against misinformation about immigration evident throughout the campaigning phase of the European membership referendum in 2016. With the intention to further explore the efficacy of attitudinal resistance across varying polarised contexts (e.g. race, gender, sexuality), I aspire to contribute to the scientific combat of this societal challenge through my research. I am truly honoured to be joining the Gates Cambridge community, where I will be surrounded by diverse yet like-minded individuals who are determined to utilise their research for the greater good of our world.

Adam Berman

USA

PhD Medical Science (CRUKCI)
Homerton College



After growing up in San Antonio, Texas, I undertook my undergraduate studies at Princeton University, where I am completing a degree in computer science. During my studies at Princeton, I discovered computational biology, and began working under Professor Mona Singh. My

independent work revolves around constructing a computational pipeline capable of leveraging cancer genomic and transcriptional data to identify metabolites closely associated with breast cancer. These cancer-associated metabolites, or "driver metabolites," could prove key for understanding the metabolic alterations that form a hallmark of cancer development. At the Cancer Research UK Cambridge Institute, I aim to continue my exploration of cancer metabolism and cancer evolution. In particular, I would like to explore structural and network-based models for understanding metabolic pathways important to cancer. These two areas should greatly refine my pipeline, improving its ability to uncover driver metabolites. It is my hope that augmenting our understanding of cancer metabolism and driver metabolites will open up new venues for cancer drug development and treatment.

MEMORIES ARE MADE OF THIS

LEVAN BOKERIA

Levan Bokeria has been researching how memories are formed and consolidated; in essence how they move from our short to our long term memory.



He says: "I am looking at what is going on in the brain and what conditions make the process more effective. This could, in the long term, help with understanding certain neurodegenerative diseases."

Levan will continue this research when he starts his PhD in Biological Science at the MRC Cognition and Brain Sciences Unit and becomes the first Gates Cambridge Scholar from Georgia.

He says: "I aim to uncover the inner workings of the human brain as it learns and remembers, in an effort to contribute to the development of science-based, effective strategies for improving knowledge acquisition and idea generation. I hope that such insights can be used to improve human learning in healthy adults as well as those with neurodegenerative diseases."

Levan was born in Tbilisi, Georgia. His mother is an academic and his father was a civil rights activist in the 1990s and early 2000s and is currently Chairman of the opposition party European Georgia.

Levan grew up in the turbulent Georgian politics of the 1990s and 2000s in the aftermath of the fall of the Soviet Union.

At school he was interested in science and took part in local and international Olympiads in maths and physics. He also took part in competitions organised by the local NATO office and wrote short articles for NATO publications.

When he left school Levan's parents were keen for him to study abroad to get a broader international perspective and a better quality education. He was accepted by George Mason University in Virginia where he initially majored in sociology and minored in economics.

Levan spent seven years in the US and says the experiences represented "a huge transformative change" in his life. "I learnt a lot about tolerance and diversity," he says.

Two years into his degree he switched universities after becoming interested in bioethics and philosophy. He moved to the University of Rochester where he was president of the university's philosophy club and discovered a fascination for neuroscience. He ended up majoring in philosophy and brain and cognitive science with a minor in economics. In addition he won a place on the Take Five Scholars programme which meant he could take another subject for half a year with all fees waived. He chose political science and focused on the recent history of Eastern Europe after the fall of the Soviet Union.

After graduating in 2014, he was offered a research assistant post in two laboratories at Georgetown University with leading neuroscientists. At one of the laboratories, the Laboratory for Computational Cognitive Neuroscience, Levan worked on a modelling project to understand data related to human performance in a particular task. He was also laboratory manager. At the second laboratory, the Centre for Functional and Molecular Imaging, Levan was working on a research project on perceptual imagery and was trained as an MRI operator. Levan also developed an interest in artificial intelligence and co-founded Georgetown's artificial intelligence club. He also participated in various science outreach initiatives.

After two years he was keen to return to Europe and applied to do a master's at the Donders Institute in the Netherlands, a world famous centre for cognitive neuroscience. There he worked part-time in the Predictive Brain laboratory to gain more research experience.

He says: "Neuroscience offers not only unprecedented tools to answer the deepest philosophical puzzles about cognition, but also an opportunity to use the discovered mechanistic understanding of the brain to design effective strategies for improving human abilities."

Charity Bhebhe

Zimbabwe

PhD Pharmacology
Newnham College



As is common in the majority of developing countries, there is an absence of basic resources needed to treat a variety of illnesses. My home country of Zimbabwe is no different. This lack of fundamental infrastructure is what has driven me to acquire knowledge that will allow me to

treat and prevent such diseases. During my undergraduate studies, I developed an appreciation of the molecular complexity of diseases that drives disease pathogenesis, an appreciation that is critical in informing prevention and treatment options. I intend to further explore these molecular and cellular foundations to develop therapies for human disease at Cambridge where I will pursue a PhD in Pharmacology while working with Dr. David Bulmer. Dr. Bulmer is investigating the mechanisms of hypersensitivity in gastrointestinal disease. Gastrointestinal disease is a common disorder that is characterized by diarrhea and abdominal pain and is a leading cause of child morbidity and mortality worldwide. It is therefore imperative to better understand the mechanisms of this disease to develop effective analgesics for pain management. It is my goal to apply my medical research skills in investigating and preventing diseases to improve healthcare standards.

Levan Bokeria

Georgia

PhD Biological Science (MRC Cognition and Brain Sciences Unit), Hughes Hall



I was born and raised in Tbilisi, capital of Georgia. I completed my Bachelors at the University of Rochester, exploring a diverse set of disciplines including philosophy, neuroscience, economics, and politics. I rapidly developed a deep interest in brain sciences, fueled by my philosophical fascination about

the human mind. I continued my scientific training as a research assistant at Georgetown University, followed by a Research Master's at the Donders Institute in the Netherlands. I realized that Neuroscience offers not only unprecedented tools to answer philosophical puzzles about cognition, but also an opportunity to use the discovered mechanistic understanding of the brain to design effective strategies for improving human abilities. At the heart of every scientific and intellectual advancement, lies the human ability to learn, create, and solve problems, enabled by the fascinatingly complex underlying neuro-computational processes. With my PhD, I aim to uncover the inner workings of the human brain as it learns and remembers, in an effort to contribute to the development of science-based, effective strategies for improving knowledge acquisition and idea generation. Such insights can be used to improve human learning in healthy adults and those with neurodegenerative diseases.

Dorien Braam

Netherlands

PhD Veterinary Medicine
St John's College



Having worked in a variety of roles across Asia and eastern Africa with the UN, INGO's and government focusing on disaster displacement, human rights and shelter, I returned to academia via a MSc in International Animal Health at the University of Edinburgh. My thesis

research on 'Animal health programming in humanitarian and development assistance in Somalia' showed the gaps and need for high quality research and critical assessment to improve the evidence base for policy and program development. For my PhD I will study the prevalence of zoonoses – diseases transmitted between animals and humans – in displaced populations, addressing some of the most pressing global challenges: climate change, displacement and emerging infectious diseases. Disease transmission between wildlife and livestock, the increased risk of zoonoses in areas where people and animals with weakened immune systems live closely together, and the emergence of infectious diseases among naive host communities are areas that need to be researched. Gaining a better understanding of disease prevalence and dynamics, control and prevention will improve the well-being of both humans and animals, with the aim to influence and improve institutional responses.

Juliana Broad

USA

MPhil History and Philosophy of Science and Medicine
Darwin College



While studying organismal biology, bioethics, and philosophy at McGill University, I became interested in how scientific knowledge informs and challenges philosophical ideas. Who has credibility in claiming scientific knowledge? What type of science can be claimed as legitimate and

worthy of funding? I took a year off to work with a community service organization in Pittsburgh, PA, where I helped homeless clients apply for welfare benefits, Medicaid, and public housing lotteries. The question of resource allocation, suddenly appeared on a much larger scale than it had in my bioethics textbook, and propelled me to study critical social theory. I finished my studies as a transfer student at The New School in New York City, where I had the opportunity to work as a research assistant for professors in the history and culture and media departments. At Cambridge, my work will focus on how scientific and medical research priorities are often influenced by financial and market forces; I'm particularly interested in how those interests have shaped our research on and understanding of reproduction and cognition. I'm excited to work with the Cambridge communities in examining the intersection of science, ethics, and economic systems to challenge hegemonic scientific ideas and pursue academic interventions needed for scientific and medical justice.

Christina Cabana

USA

MPhil Chemistry
Churchill College



Growing up in Long Island, New York, my interest in science stemmed from a long-held obsession with Agatha Christie novels and crime television. Fascinated by the mysteries that science could uncover, I threw myself wholeheartedly into the incredible research program offered by my high school. While attending Carnegie Mellon University, my interests began to narrow; I sought out research experiences at the interface of biology and chemistry. I came to realize that biology was a predictable, malleable series of reactions in which I, as a chemist, had the power to interfere when those reactions went wrong. During my MPhil in Chemistry, I hope to work towards elucidating some of the molecular mechanisms that allow genetic material to be translated into the many proteins that are needed to sustain life. In doing so, I can develop molecules that prevent dysregulation of protein production, and the diseases that come with it. The ability to break down complicated biological processes into well-controlled experiments will be an invaluable skill as I ultimately lead my own research group in developing therapeutic agents against cancer.

Mamasa Camara

USA

PhD Politics & International Studies
Churchill College



As the trilingual daughter of a traditional West African healer, my identity embodies the complexity of diaspora, migration, and collective memory. My research interests are in African identity formation, the social, political, and historical processes which inform various African experiences across and through diaspora. Through a historical lens, I have investigated the practice of female circumcision and how to apply this analysis to aid efforts to address the practice. My past research explored British colonial narratives on female circumcision in Kenya and received the highest honour thesis award in the History Department at Spelman College. In 2012, I collaborated with the Vice President of the Gambia to organize the first national conference on women's health. At Cambridge I will continue to excavate how historical forces inform contemporary moments in African Studies, by examining how colonial legacies of women's advocacy around female circumcision endure in the present. My research interrogates how global governance and women's human rights discourses translate across different systems of meaning and the risks that are posed when international organizations designed to modify local practices fail to understand the complex worlds in which these practices are embedded.

Rebecca Charbonneau

USA

PhD History and Philosophy of Science
Christ's College



Born to a Cuban-American family in Miami, I was raised in a community shaped by the events of the Cold War, and grew up listening to Space Age stories of revolution, geopolitical conflict, and international relations. This, in combination with my childhood love of astronomy and science fiction, inspired me to pursue a career in researching space history. After graduating with a double major in Art History and Critical Media & Cultural Studies from Rollins College, I earned a Master's in History of Science, Medicine, & Technology at the University of Oxford. At Oxford, I explored the challenges of international scientific collaboration during the Cold War. This deepened my curiosity regarding international partnership in space, so I interned at NASA and the National Radio Astronomy Observatory, where I learned more about international space relations. When it comes to human endeavors in space, the Space Race tends to dominate popular memory. The reality, however, is that space plays a larger part in our lives now than ever before, due to technologies such as communications satellites and GPS, and the role of space in national defense. I hope to positively contribute to humanity's continued expansion into space, by promoting space policy informed by history.

Salma Daoudi

Morocco

MPhil International Relations & Politics
Lucy Cavendish College



Born and raised in Morocco, I developed early on an interest for politics and international relations, especially as the Arab spring unfold in neighbouring countries. In order to gain a deeper understanding of how development issues can threaten regional and global security, I majored in International Studies at Al Akhawayn University to study and research the development-security nexus. After a semester spent at Binghamton University and an internship at the Moroccan Ministry of Foreign Affairs and International Cooperation, I particularly developed interest for biopolitics and the interrelation between health and security, which has been the main focus of my undergraduate capstone research. During the course of my Mphil in International Relations and Politics at the University of Cambridge, I seek to further deepen our understanding of how failing to provide for the right to health in complex civil war humanitarian emergencies in the MENA region constitutes an emerging security threat. I want my academic research to embody my engagement towards global development and equity, which I have developed while serving the social missions of clubs such as Rotaract and volunteering to tutor refugee children in Morocco. Besides, I also enjoy reading, traveling, and writing fiction.

SCIENTIFIC COLLABORATION DURING THE SPACE RACE

REBECCA
CHARBONNEAU

The spectre of the Cold War loomed over Rebecca Charbonneau's childhood. Growing up in a Cuban American family in Miami, it was something she was aware of from an early age.

Living in Florida she was also very aware of space exploration and had visited the Kennedy Space Centre at Cape Canaveral. She dreamt of being an astronaut. She would lie on her mother's truck in her backyard in Miami and use her telescope to look at the stars.

It is fitting therefore that her PhD in the History and Philosophy of Science, will look at the history of the Space Race.

Rebecca's path to studying the history of science was not a linear one. When she left school, Rebecca enrolled at Mount Holyoke College, majoring in astronomy.

However, things didn't go as planned. For health reasons she had to drop out and when she recovered several months later she was keen to study nearer to home. She transferred to Rollins College, a liberal arts college in Central Florida, but they didn't have an astronomy programme. Rebecca thought her dream of space was over.

Gradually she started doing research in art history. While on a research trip to Florence she went to a museum and saw Galileo's telescope. "It was a lightning bolt moment," says Rebecca. "I knew I had to study the history of science."

She looked for "sneaky ways" to introduce science into her research. She did her master's in the History of Science, Medicine and Technology at the University of Oxford and for her dissertation she studied international science collaboration in the Cold War, especially that between US and Soviet astrophysicists.

Her master's was followed by a year at NASA's History Office and the National Radio Astronomy Observatory which helped to develop her knowledge of space history and allowed her time to work on her Russian.

Rebecca, who is a NASA Solar System Ambassador, spent the first half of her year at the History Office at NASA HQ in Washington DC where she helped to research historical questions related to NASA's history.

Then she worked at the National Radio Astronomy Observatory's archives, helping to transcribe oral history accounts from radio astronomers around the world. At the same time she has been a guest lecturer on a Science in Society

class at the University of Virginia and helped her supervisor, Ken Kellerman, edit a book on the history of NRAO. She has also given a presentation at the European Space Agency's Space History Conference in Italy where she won "best paper for an ongoing project".

Rebecca's PhD will look at how scientists collaborated in the field of radio astronomy. She says: "Radio technology played a huge role in the Space Race and there was a lot of collaboration between the US and the Soviet Union. Scientists wanted to work with each other even in the 1960s. It is important to remind ourselves of the human connections maintained in times of war. Interferometry techniques in radio astronomy require distance, anything between metres and continents, between the antennae, making international collaboration important. For scientific reasons there was a desire to work together to get the best results. It was driven by science."

She adds: "So many things about the space race are applicable to today's environment so it is important to question the myths around it if we want to make policy that is based on history."



Neil Davey

USA

MPhil Technology Policy
Pembroke College



Visiting India each summer as I grew up in Maryland, I not only developed a deep appreciation for the beauty of Sanskrit and the rhythm of the Tabla, but also a keen interest in the issue of access to healthcare technology in resource-limited settings.

As an undergraduate at Harvard studying Applied Mathematics/Economics with a secondary in Global Health & Health Policy, I founded UniDx, an organization focused on the early-stage diagnosis of infectious diseases using microfluidics-based technology. I traveled to Peru and India to conduct clinical studies on the low-cost device for individuals with malaria. While there, I found that pure technological solutions were simply not enough to remedy pressing global health problems; rather, a more integrated approach addressing the relevant social, political, and economic barriers was required. Through my MPhil at Judge Business School, I hope to learn how to better launch technologies in developing countries with a strong understanding of the countries' local contexts. While at Cambridge, I am particularly excited to interact with faculty who research access to care, as well as be in a community of scholars who will challenge my beliefs and allow me to rethink my perspectives on healthcare.

Ramit Debnath

India

PhD Architecture
Churchill College



My undergraduate degree in electrical and electronics engineering introduced me to the concepts of energy systems. It motivated me to pursue an interdisciplinary postgraduate degree in technology and development from the Indian Institute of Technology Bombay. I worked on improving the indoor air quality of rural households in India by optimising the indoor built environment. Following this, I began to work as an urban-system researcher and investigated the linkages between public health and built environment for the slums of Mumbai, India. At the Centre for Sustainable Development in Cambridge I am a Commonwealth Scholar, investigating the energy usage trend in slum rehabilitation housing to understand the influence of low-income built environment on occupant's thermal comfort and its related behavioural attributes. As a Gates-Cambridge scholar, I will build on my current research and dive into understanding the complex relationship between well-being and built-environment for the slums. Well-being has always been a developed nation concept, and through my PhD, I seek to redefine the notion of well-being for slum rehabilitated occupants. It is a novel approach that would empower the policymakers to formulate sustainable slum redevelopment and poverty alleviation policies.

Romain Debroux

Belgium

PhD Physics
Hughes Hall



Living in a variety of countries – Belgium, Cameroon, the USA, and Kazakhstan – has given me a chance to see firsthand the diverse set of problems our global society faces. Growing up, I was motivated by broad endeavors like developing renewable energy sources to allow Cameroon to provide

reliable electricity to the most remote parts of their country, lowering the cost of biomedical products so that millions in Kazakhstan have access to basic healthcare, and improving transportation in congested cities in Belgium and the USA. I wondered whether there was a path which would allow me to contribute to all of these causes. When I was introduced to quantum computing, I realized this technology had the potential to bring drastic improvements throughout society, especially in the fields of medicine (sequencing DNA), energy (modeling photovoltaics), and transportation (enabling artificial intelligence). Quantum computers, using nature's strange phenomena such as "superposition" and "entanglement", could solve in minutes what would take today's best supercomputers an age to solve. At Cambridge, I aim to study how color centers in diamond can operate as qubits, the essential building blocks of quantum computers.

Juliana Demartini Brito

Portugal / Brazil

PhD Multi-disciplinary Gender Studies
Corpus Christi College



Born in Sorocaba, Brazil, I grew up understanding that there are a set of cultural barriers for LGBT individuals within the country. Because of that, in my undergraduate studies in Comparative Literary and Cultural Studies and Political Science at Franklin University Switzerland,

topics of gender, sexuality and the nation in Latin America interested me. My current MPhil program at the University of Cambridge continues to reflect my interest for these questions, as my dissertation examines how representations of trans and queer aging women in Brazil interact with the country's nation-state paradigm through image, film and text. For my PhD, I hope to write a comparative analysis between Argentina and Brazil regarding their queer futurity discourse within LGBT assemblies. I aim at mapping the dialogical relations between queerness and liberal notions of progress and the future that took place while the countries moved toward democratic regimes in the 1980s. By doing so, I hope to explore how these notions have contributed to the configuration of the current LGBT assemblies discourse of queer futurity. I hope to strengthen the tie between theory and activism, as well as collaborate to new developments in the direction of LGBT movements from local to international levels.

Yuan Belinda Ding

Singapore

PhD Clinical Neurosciences
Peterhouse

Coming from a Chinese immigrant family in Singapore, I am about to finish my Masters in Chemistry degree from Trinity College, University of Oxford. My final year project involves using magnetic resonance (MR) spectroscopy to quantify cardiac creatine levels in vivo. During

the course of the project, I was drawn to MR physics where quantum mechanical properties of atoms are used to explore and understand something as complicated as a living, breathing human. The elegance of the subject encouraged me to continue my studies in this field. My PhD project, with Prof. Chris Rodgers in the Wolfson Brain Imaging Centre, involves developing parallel transmit techniques for the new, state of the art 7T Terra MRI scanner to deliver high resolution images and spectra from the brain, particularly the hippocampus. These methods will enable collaborative clinical studies to assess the early stages of disease progression in neurodegenerative disorders like Alzheimer's disease.

Lena Dorfschmidt

Germany

PhD Psychiatry
Darwin College

During my undergraduate studies in Cognitive Science at Osnabrück University in Germany I became interested in machine learning and graph theory. I joined professor Henrik Walter's lab at Charité University in Berlin, Germany, and worked with Dr. Jonathan Clayden at the

Developmental Imaging and Biophysics Unit at University College London, UK. I am fascinated by a graph-theoretical approach to the study of whole-brain network organization in health and disease. Psychiatric illnesses, like mood disorders, often impede with our ability to lead independent and self-determined lives. With my research, I aim to contribute to a better understanding of such illnesses in order to develop biomarkers that allow for the effective detection, prediction and discrimination of mood disorders. At Cambridge I will be doing a PhD in Psychiatry, studying trajectories of brain network development, adolescent depressive symptoms and mood disorder. I will combine multimodal MRI metrics of network organization with machine learning tools to identify network phenotypes that are most predictive of subclinical depressive symptoms and depressive disorder.

Michael Dodson

USA

PhD Computer Science
Queens' College

From 2005 – 2007 I studied Computer Science and Engineering at Cambridge as a Gates Scholar. My time in Cambridge, both my research and my experience with Gates, formed part of a trajectory which has led me back to Cambridge for a PhD. I spent the intervening ten years designing,

operating, and securing safety-critical industrial control systems. These are the systems one might find controlling temperature in a home, the fuel pump in a car, a defibrillator in a hospital, power converters in a wind farm, or robotic arms in a factory. They are efficient, perform repetitive tasks with precision, and keep people safe; however, as these systems grow in complexity, reliability and security become harder to demonstrate and maintain over the course of the system's life. My research explores the interface between a control system and its environment, which the system senses and manipulates; how that environment could be used to maliciously modify the control system's behaviour; and how to design resilient systems which maintain their nominal behaviour in adversarial environments. I hope this work will form part of a foundation to build and maintain trust in these ubiquitous, safety-critical systems, even as they become more attractive targets for malicious activity.

Ethan Dutcher

Australia / USA

PhD Psychology
Pembroke College

Early in my medical training, I was struck by the fact that across my lifetime we will finally come to understand much of the neurobiology underpinning psychiatric disorders, and that with this will come a profound shift in the way these disorders are viewed by the public and managed by

medical professionals. I have found the lure of watching and contributing to this change irresistible, and am particularly interested in helping to unravel the molecular and cellular substrates of these conditions using convergent work in the lab, animals, and humans. At Cambridge, I will use high-resolution structural and functional magnetic resonance imaging, behavioural testing, neurosurgical techniques, and ex vivo assays to investigate using rodents the neurobiological basis of addiction, which we now know is a chronic brain disorder. In the longer term, I hope to lead a predominantly academic career alongside clinical practice in neuropsychiatry. Academics aside, I enjoy travelling, skiing, advocacy, and philosophy. I am very excited to meet my fellow Gates classmates and to go on to be inspired and motivated by this diverse group of future leaders.

A VOICE FOR BASIC HUMAN RIGHTS

SALMA DAOUDI

Salma Daoudi is interested in exploring social and economic rights as basic human rights and in how issues such as access to health and education get little attention because those most affected by them lack a political voice.

Her undergraduate dissertation was on how political power structures can impact how certain infectious diseases – tuberculosis, HIV and Ebola – are treated and can perpetuate structural violence against the most marginalised.

HIV was the first health issue to come before the UN Security Council and to be treated as a threat to peace and security. Salma is interested in how health policy became driven by fear rather than human issues – the fear that disease could create greater instability through increasing poverty and fuelling social unrest and that terrorists could use it to their advantage.

Salma, who is the first Gates Cambridge Scholar from Morocco, plans to continue her focus on health and biosecurity when her MPhil begins in October.

Salma was born in Rabat and attended a private high school at the time of the Arab Spring. Social sciences helped her to understand what was going on and gave her the tools to construct her own view of the situation.

As she finished school, Salma was considering going to medical school. She spent the summer deliberating between medicine and international relations. She figured doctors could save many lives, but that addressing issues such as access to healthcare and education and gender equality could save many more.

So she applied to Al Akhawayn University, the only university in Morocco whose curriculum was in English because she wanted to eventually study in the UK and because of the quality of the teaching staff and the university's exchange programme. Salma majored in International Studies for her four-year degree, taking a particular interest in international cooperation and development and business administration.

In her third year she spent a semester at Binghamton University in the US which gave her a different, broader perspective on world politics.

At the end of her third year Salma did an internship at the Moroccan Ministry of Foreign Affairs and International Cooperation where she worked on global multilateral issues with the UN and UN Development Programme. "Working there



helped me to understand Morocco's international position and how it is trying to strengthen cooperation with several countries to promote human rights for everyone," she says.

The experience also helped her choose her dissertation topic.

As she was finishing her degree Salma applied to Cambridge to do an MPhil in International Relations and Politics. She was interested in the university's focus on international law and security and the politics of the MENA region.

She was immediately drawn to Gates Cambridge with its mission of empowerment and focus on community development and social civil engagement. They are values she shares and which prompted her social activism. Salma did an internship at an association in Rabat two summers ago which involved teaching refugee children who could not attend school. She has also worked on a project which involves improving disadvantaged families' access to renewable energy so their children can study and has worked with high school students to educate them about the UN and give them the skills and confidence they need to develop a critical mind set about international relations issues.

Salma is looking forward to deepening her knowledge of biopolitical issues and of how failing to provide for the right to health in complex civil war humanitarian emergencies in the MENA region constitutes an emerging security threat.

Freja Ekman

Sweden / USA

MPhil Translational Biomedical Research
Pembroke College

With the modernization of medicine, we as a global community need to reevaluate the ostracization of people with disabilities and rare genetic disorders. Growing up with a friend with autism, I witnessed firsthand the bullying that many people with disabilities experience. This sparked my passion for

both genome engineering research and disability advocacy. During my studies at the University of California, Berkeley, my interests further grew as I helped develop CRISPR-Cas9-based gene therapy to treat Amyotrophic Lateral Sclerosis (ALS) in vivo. However, there currently exists a large disconnect between the development of novel gene therapies in academic research labs and their feasibility in clinical applications. The treatment of genetic disorders is plagued by off-target effects and autoimmune responses, the long-term effects of which are often neglected. During my time in the translational biomedical research program at Cambridge, I hope to gain the necessary skills to bridge the gap between genome engineering and the pathophysiology seen in the clinic. I will also continue to foster and advocate for a more inclusive environment for people with intellectual and developmental disabilities.

Lukas Freund

Germany / Switzerland

PhD Economics
Corpus Christi College

I have long been fascinated with the question of how societies achieve economic progress and how they determine the distribution of their resources. Volunteering in Thailand after high school underscored to me how economic, political, and social inequalities are closely intertwined. I was

able to delve into these topics as an undergraduate reading Philosophy, Politics and Economics at the University of Oxford. I found economics to be a fascinating and useful perspective, because it enables us to interrogate socially important questions in a systematic and tractable way, and pursued these methods further in my Master's. As a PhD student, my objective is to research the Macroeconomics of Inequality: to analyse, firstly, what the distributive effects of fiscal and monetary policies are and whether we can employ them to help ensure a more equal distribution of resources without sacrificing growth. Secondly, to investigate the extent to which changes in economic inequality over the past decades shape recent phenomena such as slowing global growth. Through this research, I hope to contribute to the development of a macroeconomic perspective on the relationship between equality and efficiency.

Erika Freeman

Canada / Switzerland

PhD Plant Sciences
Lucy Cavendish College

Through inefficient and inequitable resource use, society has pushed natural systems beyond their planetary boundaries, such that our own well-being is being undermined. This idea roused my curiosity during my BSc in Environmental Sciences, and the need for a better understanding of the complex

relationship between environmental and human health has motivated much of my academic career. While completing my MSc in Geography at Western University, Canada, I traveled to Uganda as part of a Global Health Systems program. This experience was perspective-building; reinforcing the idea that the most under-privileged and impoverished in our global village are the most vulnerable to harm associated with environmental degradation. In Uganda, I worked with communities to address environmental and social issues and facilitated a partnership with a local women's handcraft group forming a Not-for-Profit organization that aims to support the entrepreneurship of women through the sale of the group's handwork. My PhD in Plant Sciences will further develop the understanding of the risks human activity poses to ecosystem stability by exploring the link between forestry management practices and the protection of aquatic ecosystems. The broader aim is to ensure that resources are being managed efficiently so that human well-being is not compromised.

Devlin Gandy

USA

PhD Archaeology
St John's College

Born and raised in the Santa Monica Mountains, just north of Los Angeles, the chaparral and oak forests offered an impeccable education in the processes of the natural world. It left me deeply interested in the relationships between human beings and ecosystems—an interest that led me

to archaeology. Unfortunately, American archaeology has a long tradition of perpetuating Manifest Destiny in the creation and control of Native American history and identity—leaving a legacy of intergenerational trauma tied to the field. Coming from a Native family, these issues aren't simply theoretical but lived experiences. At the same time, I've seen the potential of archaeological research guided by Native communities in strengthening and rebuilding ancestral knowledge and validating tribal history. During my time at the University of California, Berkeley, I worked on collaborative projects with Native communities and came to understand the potential for archaeology as a decolonizing practice capable of empowering Indigenous self-determination. The meeting of scientific and Native worldviews can be mutually informative and co-creative in developing meaningful answers for the problems we are facing today. At Cambridge I will work towards understanding my own ancestors while pursuing a decolonizing archaeology that can meaningfully support, empower, inform Indigenous communities.

Ryan Geiser

USA

PhD Chemistry
St John's College



My research strives to unravel the complexities inherent in the pathogenesis of neurodegenerative diseases. With a passion for medical science, I moved south from Ohio to study biomedical engineering at the University of South Carolina, where I became increasingly intrigued by the human body as I worked on projects to provide elegant solutions to complex health problems. With a particular interest in Alzheimer's disease, I utilized an array of biophysical techniques to investigate compounds found in diets around the world and their potential to suppress protein aggregation in the brain. My fascination with the extent to which small molecules influence disease led me to the Centers for Disease Control and Prevention, where I instigated the beginnings of a project aiming to detect chemical exposures in the workplace and improve safety therein. Returning to research in the molecular processes underlying protein misfolding disorders, I joined the Centre for Misfolding Diseases as a Whitaker International Program Fellow to work under the supervision of Professor Chris Dobson. I now continue to apply my chemical, biological, and computational background to further investigate the folding and misfolding of proteins associated with Alzheimer's disease and related disorders. Outside of the lab, I enjoy introducing young students to the world of science through varied teaching and community outreach programs, as well as pursuing my interest in studying financial structures and markets.

Alexandra Grieve

South Africa / Ireland

PhD Film and Screen Studies
Magdalene College



During my undergraduate studies at the University of Cape Town, I specialized in Film Studies and History, the former of which is my principal passion, and the latter has been a keen interest since childhood. A key concern guiding my own filmmaking efforts, as well as my own academic research, is the question of how women filmmakers might begin to re-appropriate a technology that has historically excluded them. I am particularly interested in women's filmmaking, material culture and African history, which I am currently exploring in Masters' research at the University of Cambridge. In my PhD research, I aim to establish costume and material culture as an effective lens through which to re-evaluate postcolonial cinema and geopolitics, and, furthermore, to combat the marginalization of African women filmmakers in contemporary film studies. My future aspiration is to contribute to a transnational community of film exhibition and curatorship. I am thrilled to be a part of the Gates Cambridge initiative, and hope that my work will encourage unique, creative approaches to cultural studies both within and beyond the Global South.

Pooja Gupta

India

MPhil Biological Science (Biochemistry)
Sidney Sussex College



I was born and raised in New Delhi and am currently completing my undergraduate studies in Microbiology at the University of Delhi. Growing up on a diet of science fiction and popular science, I was certain by the time I was 17 that I wanted to pursue a career in research, and my journey which began under Dr. Anshu Bhardwaj's guidance at the Council of Scientific and Industrial Research (CSIR), India, has been quite serendipitous since. I am interested in the structure-guided fragment-based method being employed in Prof. Sir Tom Blundell's lab for antimycobacterial drug discovery. Using this method, one can not only design highly selective ligands against validated targets, but perhaps also implement the ambitious multidrug and polypharmacological strategies for more efficacious drug regimens with fewer side-effects. I hope to better understand aspects of bacterial community behaviour and explore how it may be exploited for more specific antimicrobial therapy. Learning techniques in Structural Biochemistry, principles of Drug Design, Systems-level approaches and Synthetic Biology could eventually enable an integration of these fields to study interactions in microbial communities, along with emergent phenomena like biofilm formation and drug resistance. I would also like to teach students and dedicate time to science communication for public engagement, which I believe is crucial to the larger scientific cause.

Brett Gutstein

USA

PhD Computer Science
Trinity College



I am interested in applying knowledge from computer science to work on humanitarian and societal issues such as supporting a large global population, protecting the environment, defending human rights, improving global health, and effectively regulating technology. I grew up in Houston, Texas and studied mathematics and computer science as an undergraduate at Rice University. During an exchange year at the University of Cambridge, I became fascinated by the design and security of computer systems while working on a research project to help secure computer architectures and operating systems against malicious attackers. I have continued to conduct this research as a master's student at Rice. I believe computing is a powerful and liberating tool that, if applied properly, can continue to make an enormous positive impact on our world. As a Gates Scholar and doctoral student at Cambridge, I hope to develop my technical expertise and work on impactful projects for the common good. I also hope to continue pursuing my interests in music, gardening, and world cultures.

MEASURING WELL BEING IN INDIA'S URBAN SLUMS

RAMIT DEBNATH

Over the last 30 years India's richest city, Mumbai, has seen a rapid expansion, including a programme to rehabilitate slum areas by moving residents to new high-rise buildings, built on the back of tax incentives for developers.

Those buildings, however, are now under scrutiny as research is beginning to show the health impact associated with housing people in stacks packed closely together.

Ramit Debnath is one of those involved in this research and he has been a lead author on several academic papers on the results. He says: "The stacks were built without proper planning and with no sustainable rehabilitation policy."

He has used his engineering skills on a research project focused on the well being of those who have moved to the new slums. The project measured air quality, flow and temperature at all levels of the buildings with the help of thermal sensors and maps the number of visits residents have made to their doctors. It was found that people with less access to fresh air were more likely to visit the doctor, particularly with respiratory illnesses.

For his PhD in Architecture, Ramit will be looking deeper into theories around urban rehabilitation and the associated engineering processes. He wants to develop a new definition of wellbeing for low income slum dwellers which includes environmental factors such as air quality and access to daylight.

The PhD builds on his master's work at Cambridge and involves an international multi-disciplinary research team, which includes a Cambridge fellow based in India.



Ramit's interest in urban science stems from a project he did for his master's in technology and development at the Indian Institute of Technology [IIT] Bombay.

That focused on how to improve indoor air quality in kitchens in rural areas through a change in building design. Many kitchens in rural areas burn firewood, which creates a lot of smoke pollution. Ramit's project involved mixed-method research methodology and he says it helped to expand his understanding of the complexity of low-income socio-technical systems. He modelled different solutions and gained the simulation and modelling skills he has since used in an urban setting.

Ramit was born in Kolkata and has a bachelor's degree in electrical and electronics engineering from Sharda University. His final-year thesis was on the application of electrical engineering to sustainable development. The research involved monitoring faults in farmers' pumps using low-cost ultrasonic sensors. His supervisor, who had graduated from Cambridge, was to prove influential when Ramit considered moving to the UK to continue his research. He also found he enjoyed doing a technical project that had social impact.

Ramit went straight into his master's after finishing his degree in 2014 and from 2016–2017 he worked as an urban-system researcher at the IIT Bombay and spent some time at Stanford working on simulating conditions in the slum areas of Mumbai and investigating the linkages between public health and the slum built-environment. He was selected as a part of a global team to study the impact of globalisation on public health at Ben Gurion University of the Negev, Israel, and he also took part in ETH Zurich's engineering for development summer programme.

He decided to continue his research and won a Commonwealth Scholarship to do an MPhil at the Centre for Sustainable Development at the University of Cambridge.

Even before he has started his PhD Ramit has had his research published in several peer review journals.

While he has been at the University of Cambridge, Ramit has been working on plans to develop a research and development start-up in India to advise on sustainable urbanism for low-income settlements.

Angela Harper

USA

PhD Physics
Churchill College



At Wake Forest University, where I completed my BS in Physics, the words “Pro Humanitate” or “For Humanity” are present on every school crest and throughout the campus. It was at Wake Forest that I developed my passion for using physics not only as a way to further an understanding of our universe, but also as a means of giving back to the community and our world as a whole. There, I not only worked to develop low cost organic transistors, but helped to create a Women in STEM program at the University and at a local secondary school. At Cambridge, I will continue my work in physics, discovering and modelling materials for energy storage devices in an attempt to create higher capacity, longer lasting batteries. By searching for novel materials from first principles, I hope to reduce experimental resources by computing the most favorable materials and thus limiting the number of experiments necessary. This work will address the urgent need for higher capacity energy storage to fully utilize sources of carbon-free energy such as wind and solar power, and reduce our global reliance on fossil fuels.

Robert Henderson

USA

PhD Psychology
St Catharine’s College



As an undergraduate studying Psychology at Yale University, I developed an interest in moral reasoning and decision making. At the Yale Mind and Development Lab, I conducted research on moral development, examining intuitions about moral obligation and punishment. I also performed research at Stanford University’s Social Learning Lab, studying social cognition with a particular focus on the ability to infer the emotional states of others. As a former foster youth and military veteran, others have helped me on my path. Today, I am a tutor for underprivileged children and mentor for veterans interested in education. As a Psychology student at Cambridge, I aim to investigate the psychological underpinnings of morality and prosocial behavior. Specifically, I am interested in what underlies generosity, and how to promote more of it. I hope to share useful findings with the public in order to increase happiness, strengthen social bonds, and promote kindness. I am honored to join the Gates Cambridge community, made up of scholars who are committed to improving the lives of others.

Megan Holdt

Australia

PhD Earth Sciences
Corpus Christi College



My passion for earth science began in high school and continued as an undergraduate at the University of Sydney, where I majored in geology and geophysics. During my PhD in Earth Science, I will seek to better understand and quantify how deep Earth processes, such as mantle convection, affect surface processes. In particular, my research will employ an observational approach to quantify the spatial and temporal interconnections between mantle convection and surface expressions on Earth during the Phanerozoic. This research has implications for many disciplines, including oceanography, climate science and sedimentology. I am excited to join the Gates Cambridge community.

Alexander Horne

Australia / UK

PhD Philosophy
Trinity College



I studied philosophy and law at the University of Sydney. After finishing my undergraduate degrees, I completed a Master of Laws by research, also at the University of Sydney. In my research I asked how we should think about law, whether constructive interpretation was necessary and, if it was, whether it could generate truths. While completing my Master of Laws, I also worked as a lawyer at one of Australasia’s top law firms and volunteered with the Refugee Advice and Casework Service, the National Children’s and Youth Law Centre and Salvos Legal Humanitarian. This year, I have been studying for my MPhil in Philosophy at Cambridge. My current research is about reasons, personality, luck, choices and justice. I will continue that research in my PHD, asking questions about the relationships between normativity and the self, choice and identity, and luck and responsibility. I hope to use my research to develop a framework for thinking about the choices that matter from the perspective of distributive justice. I am immensely grateful to Gates Cambridge for giving me the opportunity to pursue my research and for inviting me to join such a wonderful community of scholars.

Papa Momodou Jack

Gambia

PhD Geography
Churchill College



Prior to commencing the MPhil in Development Studies course at the University of Cambridge in 2017, I worked as a Strategy Consultant in the international development field, with a particular focus on infrastructure and urban development in fragile and conflict-affected states. Having

lived in Botswana, The Gambia, Kenya, Nigeria, Rwanda, and Zimbabwe, I have long recognised the need to respond to public health challenges alongside diverse and complex regional characteristics. It is for this reason that I seek to examine the role of ethnicity, gender, and socio-economic status in explaining differences in health outcomes under the Community-Based Health Insurance (CBHI) scheme in Ethiopia as part of my PhD in Geography. This study will analyse regional variations in health outcomes under current political and socio-economic systems, provide practical recommendations on improving existing and future policies and programming, and examine the extent to which the CBHI scheme can contribute to the attainment of the health-related targets of the Sustainability Development Goals in Ethiopia. In doing so, this research will contribute towards bridging the divide between scholarship and policy, and shaping public health interventions that acknowledge and integrate the hybridity of African experience and humanity.

Leandra Jackson

USA

MPhil Biological Science (Pathology)
Churchill College



While an undergraduate at the University of California, Irvine I have become fascinated with understanding the relationship between human health and disease, both at the population and molecular levels. As we arrive at the precipice of breakthroughs that will revolutionize how we mobilize the forces

necessary to fight disease, I want to advance that process, actively aiming to not just treat cancer but also to understand it. I plan to combine my interest in cancer and the immune system to increase knowledge of how immunotherapies leverage the body's natural defense mechanism and spur the development of personalized combination treatments. Perhaps the most striking place to make these discoveries is at the University of Cambridge working with Dr. Klaus Okkenhaug, where I will pursue an M. Phil in Biological Sciences. This opportunity builds upon my previous experiences working in the PI3K/mTOR field toward a deeper analysis of the molecular mechanisms that promote the formation of diffuse large B cell lymphoma (DLBCL). I hope my research will lead to a greater understanding of the mechanisms that influence the development of cancer and elucidate possible targeted therapeutics to combat the disease.

Vineet Jagadeesan Nair

India

MPhil Energy Technologies
St Edmund's College



Although born in India, I spent most of my life in Bahrain and Dubai. This made me aware of the inequalities between oil-rich regions like the Middle East and resource-constrained developing nations, in energy security and access to clean technologies.

Thus, I developed a passion for energy and environmental sustainability. I knew that I would need a diverse skill set to tackle such complex, multifaceted issues. This is why as an undergraduate at UC Berkeley, I studied both Mechanical Engineering and Economics with a minor in Electrical Engineering & Computer Sciences. By engaging in activities ranging from honors research to environmental consulting, I gained exposure and worked on technologies including (1) Organic solar cells (2) Low-cost home energy monitors for smart, efficient grids and (3) Novel energy storage solutions such as printed batteries and high-capacity Lithium-ion cells. During my MPhil at Cambridge, I hope to gain more in-depth technical insight into various energy systems and strategies to combat climate change, spanning everything from carbon capture and abatement to renewable power generation. As part of my thesis, I also plan to specifically research how optimization principles and control theory may be applied to energy harvesting, storage, and distribution.

Maša Josipović Republic of Serbia / Croatia

MPhil Medical Science (Medicine)
Corpus Christi College



During my undergraduate studies at the University of Belgrade, School of Medicine, I have found myself taking an interest in the study of diabetes, being driven by the idea of improving the quality of lives of patients suffering from this disabling disease that affects millions of people everywhere

around us. Impaired awareness of hypoglycaemia in many long-standing insulin-treated diabetic patients is one of the barriers separating them from achieving tight glycaemic control, which is imperative in reducing the occurrence and severity of micro and macrovascular complications. Throughout my MPhil at the University of Cambridge, Department of Medicine, I will focus on elucidating the mechanisms of blunted awareness of hypoglycaemia. Unravelling this problem would make a big step towards the start of development of therapeutic options to treat or even prevent it. I would be elated if my research and efforts contribute to this goal. It is an absolute honour to be a part of the Gates Cambridge community, comprised of inspiring and devoted scholars from all over the world, united for the greatest cause – improving the lives of others.

IS PRO-SOCIAL BEHAVIOUR GOOD FOR US?

ROBERT HENDERSON

Robert Henderson is interested in moral development and in what encourages us to behave in positive ways towards each other.

"I am interested in what influences people to behave positively, in why people think the way they do and what makes them change their minds," he says.

He says his curiosity about how social norms are established is in part due to him growing up as an outsider.

As a foster child Robert, whose birth mother is Korean, shared foster homes with mainly African American and Hispanic children. At high school in a small Californian town he was one of only five Asian students. In the air force his politics were more liberal than many of his peers and at Yale his background was different to many of his fellow students.

Robert was born in Los Angeles. He doesn't know his father and hasn't seen his biological mother since he was very young. He was taken into foster care when he was two and spent five years in different foster homes in Los Angeles until he was adopted by a family from a small agricultural town in North California.

Although he had had a disruptive early childhood, Robert was a very curious child who got good grades despite finding the structured environment of school challenging. His grades improved as his home life became more stable, but that changed again when his adoptive mother divorced his adoptive father. Her new partner was shot when Robert was 14, changing the dynamics at home. After investing an insurance settlement in property, the family lost money – and their home – at the time of the financial crash. Robert's mother and her partner moved to another city. Robert was finishing high school and so opted to move in with a friend.

He knew his grades were not going to be good and he felt he was not ready to go to college so he opted to join the air force. Robert served as an electronic warfare technician in several countries, including Qatar, Kyrgyzstan and Germany.

As his contract was coming to an end, he investigated college courses for veterans and came across Yale Veterans' Association which helped him to get a place to study Psychology at Yale where he worked as a research assistant in Professor Paul Bloom's Mind and Development Lab.

For his senior thesis he focused on proportionality and punishment – specifically, whether young children believe punishment should be tailored to the moral transgression and



what people's sense of moral obligation to strangers is. For both projects he compares children and adults' perceptions.

While he was at Yale, Robert also did research at Stanford University's Social Learning Lab, studying social cognition with a particular focus on the ability to infer the emotional states of others.

Robert contacted his Cambridge supervisor, Dr Simone Schnall, because he was interested in her work on the role of disgust in morality and she encouraged him to apply to the university to do his PhD in Psychology.

At Yale he also worked at a tuition centre for disadvantaged children who were having trouble in school and he was a mentor for a veteran who overcame a disadvantaged upbringing and found his footing in the marines.

His research is in part inspired by that work. "I want to gather empirical data to explore whether pro-social behaviour is a win win. If so, I feel this would encourage more of it. From the research I've reviewed thus far, it seems money is not everything – it is relationships which are more important," he says.

Dino Kadich USA / Bosnia and Herzegovina

MPhil Geographical Research
Girton College



From a young age, I was keenly aware that the neat categories that bound and define our sense of belonging – ideas like “home” and “family” – were complex. My experience growing up as a refugee from Bosnia and Herzegovina (BiH) in Tucson, Arizona, gave me the opportunity to understand how

political geography is produced in the everyday, through acts of inclusion and exclusion. When I began my studies at the University of Arizona, I learned that such quotidian experiences were of enormous value to scholars trying to understand how political geographic realities that we take for granted are enacted and reproduced. My research has been focused on understanding how young people negotiate the fractured post-conflict politics in BiH. In particular, how Sarajevo youth mobilize hip-hop culture as a way to build community, make sense of these politics, and attempt to change them. After my B.A. in Geography and Africana Studies, I will pursue an M.Phil. at Cambridge, where I hope to continue my work with BiH youth using participatory, creative methods. I hope to use this work to complicate common perceptions of BiH youth as either a ‘panacea for peace’ or ‘apathetic’, and show how urban life has become a key site of political contestation for young people.

Lauren Killingsworth

USA

MPhil History and Philosophy of Science and Medicine
King’s College



My research focuses on maps of cholera outbreaks made by physicians in nineteenth-century Britain. I aim to understand the role of medical cartography in shaping public perceptions of disease and contributing to public health reform. As an undergraduate at Stanford, I conducted research on

neurodegenerative diseases, studied the connections between human and environmental health in the Galápagos Islands and Tanzania, and volunteered at local community health centers. My experiences raised questions that were as much social as scientific: What factors explain unequal distribution of disease? How is research communicated to the public? These questions drew me to the history of science and medicine. History reminds us that the way we present scientific information can significantly impact public perceptions of health and disease. We must work to illuminate health disparities in a way that focuses on addressing social determinants of health, rather than generating stigmas. Studying how public health messages have been delivered and acted upon in the past can help us to improve future initiatives. As an aspiring historian and physician, I hope to enable the medical community to approach health disparities with greater historical context, ultimately providing more holistic, ethical, and effective solutions.

Samuel Kebede

Ethiopia

MPhil Public Health
Sidney Sussex College



I am originally from Ethiopia but also grew up in Zimbabwe and the Congo. Through my experience living in these different settings, the role of diseases, health disparities and environment made a lasting impact. This realization influenced my decision to gain the knowledge and research skills to prevent and

control public health challenges in Africa. I came to the US in 10th grade attending Mercersburg Academy before completing my BA in Public Health at Johns Hopkins University. As an undergraduate, I devoted much of my time to service in the Baltimore community and was involved in infectious disease projects in Ethiopia, Congo and Baltimore. As a current third-year medical student at the Icahn School of Medicine at Mount Sinai, I’ve continued to learn more about HIV through a research project in Ethiopia. My time living in the US also peaked my interest in preventable illnesses related to chronic diseases (hypertension, diabetes, cardiovascular disease). Delving deeper, I learned more about the growing burden of chronic diseases in sub-Saharan Africa, especially as they relate to the double burden of infectious and chronic diseases on the continent. I hope to be part of efforts for continued policy, practice and research development related to chronic diseases in Africa as a public health physician.

Seth Kolker*

USA

MPhil Education (Taught Route)
St Edmund’s College



I grew up in Arlington, Virginia and attended a bilingual public elementary school at the footsteps of the nation’s capital, an experience that sparked my fascination with the intersection of culture and politics.

I graduated from Yale University and then taught math at a low-income public high school for three years, where some amazing students inspired me to co-found a ninth-grade academy and a course on How to Change the World, a program that I hope to eventually scale across the country. Following a year studying Public Policy as a Schwarzman Scholar in Beijing, I am thrilled to be joining the Gates community. As an MPhil student in Education at Cambridge, I hope to compare educational programs around the world and contribute to rapidly shifting debates on what it means to be a citizen in the twenty-first century. I plan to help build innovative institutions to develop the next generation of citizens in more just, effective, and democratic ways.

*Deferring to 2019

Monica Kullar

USA / Canada

PhD Biological Science (MRC Cognition and Brain Sciences Unit), King’s College



I completed my B.Sc. in Psychology at University of California, San Diego, where I trained across diverse labs within psychology and neuroscience. After graduating a year early, I joined Stanford University as a research assistant in the departments of Psychology & Psychiatry and Behavioral

Sciences. I explored how neural systems and personal traits are involved in the formation of social networks, as well as how neural mechanisms underlying self-regulation of emotion and cognition may predict positive lifestyle and mood-related changes in depression and obesity. At the University of Cambridge, I aim to conduct research on the effectiveness of down-regulating negative emotions in stressful real-world contexts, and elucidate further on neurobiological models of emotion regulation across both healthy and vulnerable populations. My goal is to advance our understanding on the complexities of managing our emotions and address ways to improve emotional and mental health. Ultimately, my ambition is to pursue an academic career within the growing field of social and affective neuroscience by leading my own laboratory and continuing to drive translational and applied research.

Tessa Laing

New Zealand

PhD Development Studies
Murray Edwards College



I have always been drawn to stories of people collectively organising to bring about social change. This passion has sparked many experiments, from co-developing a system to support a night-shelter with re-distributed café leftovers to working with activist networks on local environmental issues.

After thought-provoking Masters fieldwork in Gulu, Northern Uganda, I resolved that my future research must directly contribute to locally-driven social change. This revelation led me back to Gulu, where I have worked for five years as a grassroots community organiser and local government adviser on social policy development. I have been deeply moved by local citizens’ efforts to hold their leaders accountable, and fascinated by both the challenges facing local government and the potential for transformation that is still unthinkable at the central state level. My research at Cambridge will focus on the interactions between local government, citizens and international non-governmental organisations in Gulu and the struggle to transform a key aspect of local service delivery: absenteeism amongst teachers and health workers. My hope is that this research and collaboration with the Gates Cambridge community will catalyse effective approaches to social change which will transform access to health and education in Uganda and beyond.

Maeve Lentricchia

USA

PhD Classics
Queens’ College



As an undergraduate at Dartmouth College, I developed an interest in death and dying. This interest alone does not make me unusual. People have always been interested in, if not concerned by, death. Mortality, after all, is something which all humans share. It is also something which has important

consequences for how we live and think about our lives. Considering death involves considering what it is to live, and considering whether death can be a harm involves determining how to live a good life. As a PhD candidate in Ancient Philosophy at Cambridge, I will focus my research on Lucretius’ treatment of death and poetic immortality. With Lucretius as my guide, I plan to address the following questions: To what extent does a sustained reflection on mortality direct one’s philosophical and practical activities? In what sense does such an examination influence how we understand the shape or structure of human life? How might thinking about the nature and value of death shed light on questions of well-being, metaphysical and personal identity, and prudential reasoning? In thinking through the issues involved in these discussions it is my goal not only to illuminate Lucretius’ own views, but also offer some assistance in our own engagement with the same questions.

Alexandre L’Heureux

Canada

MPhil Engineering for Sustainable Development
St John’s College



Hailing from Montreal, Canada, I have dedicated the last four years to working in both high- and low-income countries fostering sustainable innovations to positively impact the environment and lift people out of poverty. I graduated from Building Engineering as a Hydro-Québec Scholar at Concordia University and worked in energy efficiency for two years. I then joined Engineers Without Borders Canada (EWB) to experience social entrepreneurship and develop my understanding of sustainable development in emerging markets. As an EWB Fellow, I first had the opportunity to design and pilot training programs to grow micro and small-sized agribusiness enterprises in Ghana and Côte d’Ivoire. I then joined LishaBora – a start-up using data and mobile technology to provide farm supplies, information, and financial services to smallholder farmers – in Kenya to lead the design and implementation of its digital strategy. In addition, I supported an off-grid solar project in rural Ghana and provided management and fundraising support for a post-fire reconstruction project in the informal settlement of Kibera, Kenya. Through my MPhil I look forward to building on my experiences and further exploring the potential of disruptive digital technologies and innovative business models to create shared value and drive systemic change.

DEMOCRATIC DEVELOPMENT

PAPA MOMODOU JACK

Papa Momodou Jack wants to change how development is practised in the sphere of public health by bridging the divide between scholarship and policy and shaping interventions that acknowledge the different social, cultural, political and economic contexts in which it takes place.

As part of his PhD in Geography, Momodou will look at access to healthcare in Ethiopia, focusing in particular on the Community-Based Health Insurance (CBHI) scheme which draws from a scheme in Ghana which he has previously studied.

His research will analyse regional variations in health outcomes in Ethiopia, examine the role of intergovernmental and nongovernmental organisations and traditional healers in filling the health provision gap for the most vulnerable and provide practical recommendations on improving current and future policies and programming.

It will also examine the extent to which the scheme can contribute to the attainment of the health-related target of the Sustainability Development Goal framework in Ethiopia.

One of Momodou's main interests is in how the voices of those affected by policies are integrated into the development process.

Momodou is the first Gates Cambridge Scholar from the Gambia. Born in Bakau, a fishing town on the coast of the Gambia, his father worked for the UN so the family moved around a lot when he was young. His first four years were spent in the Gambia, then he lived in Botswana, Nigeria, Zimbabwe and Rwanda before going to boarding school in the UK and then returning to Kenya for his final years at school.

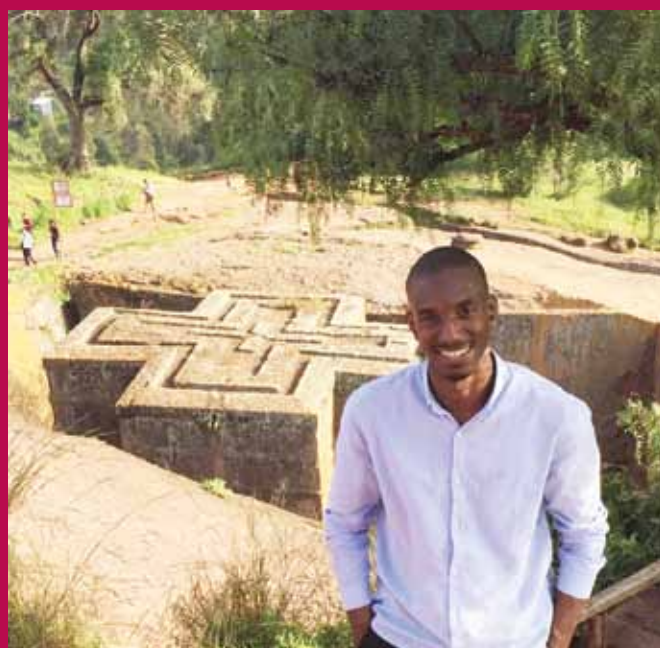
Momodou opted to do his undergraduate degree in Human Geography at Newcastle University where he was President of the university's African Caribbean Society. His undergraduate dissertation was on Ghana's National Health Insurance Scheme and its impact on the most marginalised communities. The scheme is held up as an example of what health insurance should look like in Africa.

Momodou spoke to NGOs, IGOs, health workers and traditional healers to put together a complete picture of health services. His research found logistical problems with reimbursement from the health insurance body and issues around the quality of universal healthcare offered which meant that people did not trust the system as much as they might do. It also called for greater recognition of the prevalence and role of traditional medicine and how Africans choose to heal themselves.

After his undergraduate degree Momodou worked for two years as an international development consultant for PwC in London on a flagship infrastructure programme funded by the Department for International Development.

His work made him question the assumptions behind development policies and he decided he needed to take a step back to understand why development was done in the way it was. He applied to the University of Cambridge to do an MPhil. While he has been at Cambridge he has been laying the groundwork for a social enterprise that will support marginalised women in the Gambia, Nigeria and Ethiopia to sustainably produce and export high-quality superfoods, with profits being used to close existing health provision gaps.

Through his master's course he has sought to question development policy using a post-colonial critique. He wanted to find out what worked and how policies could be more democratic. He says: "Policies are imposed from one country to another and ignore the complexity of the local environment. That is the fundamental problem."



Elinor Lieber

Israel

PhD Criminology
Pembroke College



Growing up in Israel, I have always been fascinated by prisons: what is their purpose, do they “work”, and what is life like for those who inhabit them. Throughout the past number of years, I have been fortunate to meet with prisoners in various contexts – whilst in prison, as a researcher, a teacher, and a fellow student (google ‘Learning Together’), and upon their release as a counsellor in a hostel. These experiences proved deeply meaningful to me, and have reinforced my desire to contribute to knowledge creation which can inform policy, and ultimately aid those entangled in the criminal justice system and their families. Whilst undertaking the MPhil in Criminological Research at Cambridge, I focused on forms of care, support, and friendship among prisoners – a topic which I intend to explore further during my PhD. My research will include both female and male prisoners, and will examine the meaning and structure of friendship between prisoners and its impact on the flow of power on the wing. Since completing my MPhil, I have been working as a Research Assistant at the Institute of Criminology here in Cambridge. I am honoured to be joining the Gates Cambridge community and working with others committed to social justice.

Matthew Malone

USA

MPhil Theoretical & Applied Linguistics
Downing College



Despite my love for all topics of linguistics, it was only after completing a course in endangered language documentation that the beauty and importance of language studies crystallized before me. Our small class at Columbia University collectively documented the phonology, morphology, syntax, lexicon, and stories of Zazaki – an threatened relative of Kurdish – by eliciting translations from our local language consultant. As a result, we grew to understand the language very organically, and more importantly, managed to preserve a portion of Zaza cultural history in a public database. Given the prediction that approximately 50% of the world’s languages will no longer exist by the 21st century, the urgency of documentation is not to be understated. During my MPhil at Cambridge, I will deepen my familiarity with linguistic theory in order to accurately and respectfully document languages for independent research in Bantu syntax. After conducting thesis research in Kribi, Cameroon last summer, I grew fascinated by the noun class system of African languages, and plan to study endangered Bantu languages with a focus on this feature. I am confident that Cambridge’s unparalleled department of linguistics can guide my research to become the best that it can be.

Solange Manche

Netherlands

PhD French
King’s College



When I was four years old, I stood up against the king of a play I was attending and told him that he should not mistreat his servant. Although I only learned about this anecdote recently, my undergraduate and graduate studies appear to have been motivated by the same astonishment as my naive bravery: why does inequality exist? Why does the servant exist? Before starting my bachelor’s degree at Utrecht University, I was determined to study the dynamics between culture, power relations, and economics. This inquiry has led me to French studies and my current research project. My doctorate is fundamentally concerned with the future of humankind facing economic, political, and technological changes that emerged after the 2008 economic crisis. I intend to determine how the way we think about ourselves has changed after the crash by creating a dialogue between three contemporary French thinkers: Frédéric Lordon, Catherine Malabou, and Bernard Stiegler. Ultimately, I hope that my research will contribute in developing technologies that take into account the ethics of the production process, as well as the effects that they might have upon our cognitive abilities. I feel incredibly honoured to have been awarded the Gates Cambridge Scholarship and look forward to become part of this diverse and talented community.

Ayan Mandal

USA

PhD Psychiatry
St Edmund’s College



In high school, I was interested in the questions surrounding psychology, but more satisfied with answers utilizing biology. Naturally, this predicament led me to neuroscience. At Georgetown University, while pursuing majors in Neurobiology and Physics, I studied how different disease states could affect the connectivity of the nervous system. Most of my work centered on stroke, where we investigated how damage to neural structures, particularly white matter tracts, affected language abilities in patients. I also conducted in vitro electrophysiology research and characterized the functional connectivity of neuronal networks corresponding to APOE4, a high risk gene for Alzheimer’s Disease, in comparison to APOE3, the neutral allele. At Cambridge, I will be applying my growing expertise in network neuroscience analysis to uncover brain networks corresponding to states of cognition in patients with brain tumors. We hypothesize that when important pieces of cognitive networks are resected to remove the tumor, predictable surgically induced cognitive deficits will result. This work could inform neurosurgical planning before tumor resection in the future. I hope to become a physician-scientist dedicated to translating key advances in research into the clinic.

Jason Martins*

Canada

MPhil Energy Technologies
Downing College



Scuba diving through reefs affected by coral bleaching in Southeast Asia, I witnessed the downstream consequences of rising carbon dioxide levels in the atmosphere. In between my studies in Chemical Engineering at the University of Toronto, my work experiences in the wastewater, metallurgical, and nuclear

energy industries introduced me to problems dealing with the environmental effects of energy production and consumption. In addition, a fourth-year undergraduate project with industry advisers from NASA exposed me to the possibility of transforming carbon emissions from waste product to valuable resource. Most recently, as an MIT graduate student, I worked on a team in charge of organizing the MIT Energy Conference – the largest student-run energy conference in the USA. During my MPhil in Energy Technologies at Cambridge, I plan to work on electrochemical energy storage technologies capable of meeting new demands with integrating renewables into our energy generation mix. As a Gates Cambridge Scholar, I will seek to apply my research to creating a sustainable world for future generations.

*Deferred from previous year

William McInerney

USA

PhD Education
Queens' College



As an undergraduate studying Peace, War, and Defense at the University of North Carolina at Chapel Hill, I researched arts and peace education and discovered the power of creativity in the classroom. I went on to work as a poet and educator, performing and teaching worldwide, a journalist,

focusing on peace and conflict stories, and as Executive Director of a spoken word poetry and peace education non-profit. This work led me to begin focusing on using education to address the problem of men's violence against women. Through a fusion of arts and peace education, I co-created and taught a men's violence prevention programme at UNC Chapel Hill. In recognition of my work, I was awarded a Rotary Peace Fellowship to the University of Bradford, where I received my MA. At Cambridge, my research will continue to explore the value of creative educational approaches, specifically spoken word poetry, in making men's violence prevention education more effective and affective. How creative practices and a conflict transformation framework can potentially help men develop critical consciousness, emotional intelligence, and the confidence to challenge violence-supportive norms, attitudes, and behaviors. This work seeks to contribute to efforts to reduce men's violence against women and make gender equality real.

Gabrielle McClymont

Australia / Malta

PhD Biochemistry
Corpus Christi College



My life aim is to improve humanity through scientific endeavour. At the age of 11 I met Dr Takyama an eminent HIV researcher who inspired me to develop my scientific curiosity; years later volunteering at St Vincent de Paul, I observed my small services improve lives. This motivated my desire to

use scientific research to magnify my contribution and advance the welfare of humanity. I will achieve this through my two interests, science and policy; utilising medical research and implementation in public policy with industrial collaboration to maximise the benefits globally. I graduated from University of Sydney with honours roll Biochemistry, Government & International Relations. Early in my undergraduate career I began researching inhibitors of breast cancer oncogene LMO4, inhibitors are a method to understand LMO4 mediated tumour progression and possible therapeutic precursors. My PhD will elucidate the molecular mechanisms of inflammatory signal transduction in the innate immune system. This will save lives of those suffering from severe inflammatory diseases including viral haemorrhagic fevers (Ebola and Dengue) and Sepsis by providing the crucial molecular structure from which new therapeutics targeting severe inflammation can be developed.

Nikhita Mendis

UK / Sri Lanka

MPhil Social Anthropology
Trinity Hall



Studying International Relations and Middle East Studies at Brown University, I conducted ethnographic fieldwork on the lives of Sri Lankan migrant domestic workers in Lebanon. I learned that my interlocutors did not consider themselves marginalized subjects. Instead, they articulated their

experiences as empowered women using Buddhist practices to navigate their everyday lives. Growing up in Sri Lanka during the Civil War, I witnessed similar discrepancies between the way local populations viewed themselves and the assumptions human rights organisations made when proposing policy. Through these experiences, I came to value anthropology's emphasis on localised ways of life as a tool for improving policy initiatives. At Cambridge, I will investigate how human rights organisations with deeply secular roots can work to protect migrant domestic workers whose primary motivations are non-secular. I seek to confront the liberal assumptions of feminist and labor theorists engaging with the lives of migrant domestic workers and to explore the imbrication of religious embodiment in post-colonial subject formation. I hope to amplify the voices of women caught between the difficult experiences of migration and the problems of representation in secular human rights discourse.

EXPLORING ALTERNATIVE FORMS OF POWER

SANDILE MTETWA

Sandile Mtetwa wants to transform the energy sector in her country. Her PhD in Chemistry will investigate alternative energy sources which can produce and store hydrogen and could give Zimbabwe access to cost effective solar energy.

Her interest in clean energy was ignited during her undergraduate studies which took place at a time of frequent power cuts in Zimbabwe. "Some of the energy in rural communities is very toxic to human health. I wanted to focus on providing alternative means of getting clean energy which were not hugely expensive," she says.

Sandile's PhD builds on her MPhil, for which she also received a Gates Cambridge Scholarship.

Working at the nanoparticle level, Sandile aims to create nanoparticle support-based composites with metal-organic frameworks to boost the lifetime of photoactive materials and so increase power generation.

When she first applied to Cambridge she had planned to investigate using the metal-organic framework ZIF-67 to produce and store hydrogen. However, her supervisor said that it had a lot of problems associated with it which made it less efficient. He proposed using ZIF-8 instead which others in the research group were using. It is a more efficient, more stable material.

For her PhD she will use ZIF-8 in monolith form which she says will enhance its ability to perform any application.

While hydrogen energy is currently quite expensive, Sandile hopes that, with more research, costs will come down. Policy changes also have a role to play, she adds.

Since she has been at Cambridge, Sandile has become active in African politics. She hosts the African Society of Cambridge University, Africa over Coffee monthly discussions on topical subjects. She has also taken part in events at Cambridge to encourage more girls to take STEM subjects.

In addition, Sandile runs the non-profit she set up as an undergraduate at the University of Zimbabwe. The Simuka-Arise Initiative is a university-based community project which works to empower young women. The organisation also works with young men who are encouraged to come along and discuss issues and join in campaigns and awareness-raising sessions.

It has three main strands: economic, social and academic empowerment of young women and partners with other



organisations to ensure it has a greater impact. Women and children are either referred to the organisation or come through word of mouth and are offered financial, practical and educational support.

Sandile set up the organisation as a result of her experience as a single parent. She fell pregnant before she started university and then took a gap year to reconsider what she wanted to study. She began working as a teacher in a local high school to support her daughter before returning to university to do a chemistry degree.

Sandile lived at home during this time and received a lot of support from her parents for which she is very grateful. She faced a lot of abuse and violence from her daughter's father and as a result of that she met other young women in similar situations who didn't have the support she had.

While she has been at Cambridge, Sandile has focused mainly on strategic issues at Simuka-Arise, such as fundraising. She has received a Tuwezeshwe Fellowship in London to raise awareness about gender-based violence in Zimbabwe. The Fellowship is sponsored by Comic Relief.

She admits that it can be hard working on building her non profit so far from home. She is in regular contact with the organisation in Zimbabwe through social media and coaches volunteers remotely.

Jane Menton

USA

PhD Politics & International Studies
St John's College



Growing up in Tallahassee, Florida, I asked way too many questions. In college, I realized curiosity could be a career. I learned about the practice of journalism at the Yale Daily News and CNN. My love of journalism also shaped my academic pursuits and I began focusing my independent research on both the successes and failures of American journalism. In 2015, I graduated from Yale with a double BA in History and Global Affairs (Security Studies). After college, I worked as a production assistant at CNN's Anderson Cooper 360 and freelanced in Japan before going to Oxford on a Rhodes Scholarship to study Modern Middle Eastern Studies. Since receiving my MPhil, I have been an editor at Foreign Affairs magazine in New York. At Cambridge, my PhD will focus on the relationship between the press, the public, and foreign policy in the new digital age. I am so grateful for this opportunity to continue researching a topic that feels more important now than ever, and I cannot wait to join the Gates community!

Sandile Mtetwa

Zimbabwe

PhD Chemistry
Peterhouse



As a research scientist in Chemistry it is my desire that in a few years, the world population that currently does not have access to clean energy will be streamed down noticeably. My PHD work aims to contribute to that goal. I believe that several renewable resources should be utilized to ensure the adequate distribution of energy around the globe and solar-driven hydrogen is one of the solutions. An efficient and cost-effective way for harnessing sunlight and driving the evolution of hydrogen is critical to achieving a hydrogen economy soon. My work will be focused on a metal-organic framework (MOF)-based hybrid system that is tailor-made for long charge carrier lifetime. This I will do by synthesizing: a suitable organic linker; as the photosensitizer, a robust and inexpensive semiconductor and exploring the optimum co-catalyst loading for effective reduction of hydrogen ions to molecular hydrogen. I will also consider the subsequent storage of hydrogen after its evolution by the same system. Having been a Gates Scholar during my MPhil I became privy to a wide range of opportunities and I met a wonderful network of scholars who are so passionate about their individual areas of study and are always motivated to do better. I am so honored to continue to be part of that community.

Dorian Minors

Australia / UK

PhD Biological Science (MRC Cognition and Brain Sciences Unit), St Catharine's College



My current research interests lie in the neural mechanisms that underpin intelligent behaviour. Many relatively unsophisticated animals appear to show glimpses of the highest orders of cognitive ability, once thought to be out of reach of such tiny brains. That these animals can solve very complex problems seems to challenge the conventional distinctions between 'higher-order' and 'lower-order' thought. In setting aside these traditional notions, we can ask new and exciting questions. What truly characterises intelligent behaviour? In what ways can simple neural mechanisms come together to facilitate higher-order aptitudes? And what does it mean to be clever? By using cutting edge neuroimaging techniques, I hope to contribute to our growing knowledge of how basic neural function can coordinate complex behavioural outcomes and in doing so, address these questions. While research consumes much of my time, my other interests are more broad. I currently serve in the Australian Army Reserve as junior officer, am a residential care worker for individuals with mental health concerns, am affiliated with the Centre for Emotional Health at Macquarie University, and serve as a crisis counsellor with Lifeline Australia. I'm thrilled to be joining the incredibly diverse Gates Cambridge community.

Dillon Muhly-Alexander*

USA

MPhil Development Studies
Jesus College



Born and raised on a farm in rural West Virginia, I developed an early interest in food security and accessibility. During my undergraduate studies at West Virginia University, I joined a research team that identified and mapped every food distribution site in West Virginia and became increasingly interested in "development" as a formal academic field. I studied abroad and conducted research on economic development projects in Nicaragua, Timor-Leste, and Rwanda. In addition, I worked for the Senate President of the West Virginia Legislature and the West Virginia Secretary of State. These experiences led to an appreciation of the impact politics exerts on the economic development process. I currently serve as an AmeriCorps VISTA and work on program development related to increasing accessibility to higher education among first-generation and low-income students. I plan to work in international development for several years before returning home to work on economic development in West Virginia and Appalachia. I enjoy hiking, writing, playing tennis and basketball, watching Mountaineer sports, and traveling. I am excited and honoured to join the global Gates Community and begin work on the MPhil in Development Studies.

*Deferring to 2019

Pranay Nadella

USA

MPhil Public Health
Christ's College



I grew up in suburban New Jersey as the son of two immigrants from southern India. My father is from a small village called Pedapulivarru, which inspires my passion for health equity in low-resource settings. Growing up, I devoted much of my time to community service. My experience volunteering at a free medical clinic in New Jersey showed me that the same health disparities in my father's village exist around me in New Jersey. As an undergraduate student at Harvard University, I study Biology and Statistics in order to refine my lens on pressing public health challenges. Through global health coursework, I've become very passionate about maternal and child health. As a result, I spent time in Tanzania investigating contributors to delayed vaccination. I lead Harvard's Partners in Health Engage chapter, which meets with legislators and fundraises to advocate for lifesaving global health programs. Striving to address maternal and child health disparities at home in the U.S. as well, I served as a leader of the National Youth Council of the March of Dimes, a U.S.-based non-profit focused on preventing preterm birth. At Cambridge, I will continue to focus on improving public health programs for vulnerable mothers and children.

Valentina Ndolo

Kenya

PhD Veterinary Medicine
Churchill College



I developed a passion for infectious disease research whilst undertaking my BSc in Biochemistry at the University of Nairobi. Upon graduating, I was offered an internship at the KEMRI Wellcome Trust Research Programme where I did a study alongside the malaria immunology group. I later joined the US Army Medical Research Unit to work alongside the influenza surveillance group. For my MSc in International Health & Tropical Medicine at the University of Oxford I was awarded a Commonwealth Scholarship and worked with the malaria vaccine research group at the Jenner Institute for my thesis project. I also founded the STEMing Africa Initiative to advocate for the active inclusion of women in STEM, winning a number of awards. This summer I will join the 2018 Mandela Washington Fellowship, a flagship programme started by former president Barack Obama to connect young African leaders with leaders from the USA. The Gates Cambridge scholarship will enable me to conduct a spatial analysis of anthrax occurrence patterns in Kenya using the ecological niche model. Anthrax threatens food security and the economic productivity of Kenya. This study will apply mathematical modelling to develop risk maps to guide the activities of the government and other stakeholders involved in the control of Anthrax in Kenya.

Siyabonga Njica

South Africa

PhD History
Darwin College



I grew up in Gugulethu township, a black residential area that was established for migrant workers and families that were forcefully relocated from Cape Town's inner city under the Group Areas Act (1950) during apartheid. I have always been interested in ideas about movement, black subjectivity and how the oppressed have historically reflected on the meaning of freedom. Also, the ways in which arts and culture became a premium nation-building tool that galvanized the international community around institutionalised racial segregation and the violation of human rights under apartheid. At the University of Cape Town, I was awarded the Mellon Fellowship and became a visiting scholar at Emory University where I conducted research on the role of literature and jazz music in South Africa's liberation struggle. For my PhD, I am interested in reimagining how we think about South Africa's recent past by gesturing towards alternative archives and historical frameworks to reveal how exiled South African artists became key cultural players at the height of intellectual diasporic engagements between African, Caribbean and North American writers in the twentieth century. My research aims to promote the African people's creative and intellectual contribution to their fight for freedom and equality.

Roxane Noël

Canada

PhD Philosophy
Wolfson College



As a student at Université du Québec à Montréal, I developed an accidental passion for medieval philosophy: I entered the mandatory introduction class thinking that I would not enjoy it, only to be pleasantly surprised by how intellectually rich this historical period was. I continued to explore this passion during my M.A. at University of Alberta. My initial disdain with what became my research interest is a great illustration of what makes philosophy so fascinating: it invites us to explore topics that are not always salient in our everyday lives but nonetheless fundamental to how we experience the world. It encourages us to change our minds, to challenge our intuitions, and to marvel at the vast expanse of things that remain to be known. Philosophy is tied to our humanity: it draws on our capacity for rational analysis, our curiosity, our desire to go beyond what is mundane. As such, I believe that it should be made more accessible to the public, a commitment that is reflected in my actions, from making the discipline more inclusive to opening up the world of philosophy to non-academic audiences. My PhD will explore the evolution of nominalism in the second half of the twelfth century. I hope to fill a gaping hole in the history of philosophy, but also to open up the fascinating world of medieval thought to a larger audience.

ARTS ACTIVIST

SIYABONGA NJICA

Siyabonga Njica has always been interested in how oppressed peoples have historically reflected on the meaning of freedom – from the blues in black America to the work-songs of unskilled labourers in South Africa – and, more specifically, how the arts and culture became a premium nation-building tool that galvanised the international community against apartheid.

His PhD in History will explore the role of exiled artists in South Africa's liberation struggle. His research interests link to his own arts activism. A well-known poet in South Africa, he has also been involved in student movements which are part of the ongoing response to the legacy of the apartheid system in South Africa.

Siyabonga was born in 1994 in the township of Gugulethu in Cape Town. He was raised by his grandparents, mother and two aunts. His father was incarcerated when he was born and Siyabonga later moved in with him following his release. Three years later, however, his father died suddenly.

Siyabonga started writing at the age of 15. His poetry critically examines the contradictions of South Africa's post-apartheid state and what it means to be 'born free' – after apartheid. He says his creative work was always linked to his political activism.

Siyabonga continued his arts activism at the University of Cape Town. He co-founded two poetry collectives called Vocal Revolutionaries and Whispers of Wisdom. Vocal Revolutionaries was dedicated to creating programmes that cater to youth through arts education, reading clubs and scholarship opportunities.

The real breakthrough was when they were able to raise the money to travel and tell their stories abroad. Siyabonga represented the group at the international Brave New Voices poetry festival for four years up to the summer of 2016.

Siyabonga was also involved in student activism at the University of Cape Town. He led poetry and music sessions that followed heated student-led political discussions about issues such as land rights.

For his first degree, Siyabonga majored in anthropology and gender studies. He then did an honours degree in African Studies and became more interested in the links between literature and jazz music in South Africa's liberation struggle. During a writing fellowship at Emory University in the US he came across a rich archive of South African exile activity which ignited an interest in how South African artists counterpoised the injustices of apartheid and reflected on the idea of freedom through their creative imagination.



In 2016 he applied to the University of Cambridge to do an MPhil in African Studies.

He has been tracing the cultural activity of two South African artists exiled in the UK in the 1960s: the Drum magazine writer Bloke Modisane and Blue Notes jazz musician Johnny Dyani. While at Cambridge he has also become interested in the work of the Black Cantabs Research Society which aims to research and make visible black Cambridge alumni across the university. He currently serves as resident artist and cultural coordinator of the Black Cantabs Research Society.

His PhD will extend his master's work on artists' contribution to the anti-apartheid struggle and will also consider their impact today. "I am interested in art as a lens for South Africa to re-imagine its recent past and in the role of art in political struggles from the decolonisation movement to the Fallist insurrections [#RhodesMustFall and #FeesMustFall] in South Africa today," he says.

Sebastian Ober

UK / USA

PhD Engineering
Christ's College

Born and raised in Dallas, Texas, I decided to go overseas to Cambridge to study engineering for my undergraduate degree. Now in my fourth year, I intend to continue in the Engineering Department, working towards a PhD in statistical machine learning. I was first introduced to machine learning techniques in the context of wearable biomedical devices while working with Roozbeh Jafari at Texas A&M for a summer internship. While realizing the potential that wearable devices have for providing doctors and patients unprecedented access to physiological data, I was also struck by the sheer amount of data to be processed to uncover meaningful patterns and make predictions. Inspired to address these and similar issues in data modelling, I hope to develop novel techniques to improve upon both the speed and accuracy of current machine learning algorithms. Central to my work will be the idea that a probabilistic framework, one that can fully account for uncertainties in the data, provides the most flexibility and power in making inferences; this is a framework that Cambridge specialises in. My research will be applicable to all branches of science, but I am most eager to apply it to biomedical research. I am very honoured to join the Gates Cambridge community.

Cynthia Okoye

Nigeria

PhD Pharmacology
Fitzwilliam College

I remember learning about DNA and genetic inheritance at my high school in Lagos, Nigeria and being captivated by the fact that so much about life could be explained at the atomic or molecular level. I knew then that my curiosity about the chemical processes of life was unstoppable. At the age of 16, I moved to Johannesburg, South Africa where I completed my A-Levels in biology and chemistry at African Leadership Academy. As a capstone of my undergraduate studies at Williams College, I am conducting a thesis in chemistry under Dr. Katie Hart. Our work aims to characterize and assess the effects of clinical and synthetic missense mutations on beta-lactamase, an enzyme that confers resistance to beta-lactam antibiotics. Drug resistance to current medications is a global health concern, and understanding the evolutionary drivers of resistance can better equip us to address this crisis. My PhD in Pharmacology at Cambridge will also address the problem of drug resistance, but through a drug design approach. I will be optimizing the PROTAC technology, which is the foundation for a novel class of therapeutics that harness the natural protein-degradation machinery to target disease-causing proteins. The broad applicability of PROTACS to many diseases makes this project significant to drug discovery.

Warren Pan

USA

MPhil Medical Science (Clinical Biochemistry)
Clare Hall

I am a first generation Chinese-American MD/PhD student interested in studying disease at the bench-side and bed-side. While I concentrated in Economics at Harvard, the Collapse of 2008 motivated me to explore other disciplines, including Medicine and research. My previous research experiences include developing targeted immunotherapies at the National Institutes of Health and understanding hyperleptinemia in obesity at the University of Michigan during my PhD in the Myers Lab. Interestingly, in the wards, I have witnessed the clinical significance of both leukemia treated with immunotherapy and obesity-related complications. In the O'Rahilly Lab at the University of Cambridge, I will extend my research in obesity and learn how to translationally apply basic science findings at the bench-side to patient care at the bed-side. Additionally, through the Gates community, I hope to further develop my understanding of using multi-disciplinary approaches to address multifaceted diseases like obesity. I, therefore, aim to become a physician-scientist who asks and answers questions grounded in clinical Medicine that can be translationally applied to patients.

Senthil Sharadkumar Pandian

India

MPhil History and Philosophy of Science and Medicine
Magdalene College

My primary interest concerns the ways concepts and theories change over time. Having always been fascinated by the history of science and how scientific descriptions can be quite counter-intuitive, I decided to major in Physics. However, I soon realised that the issues I was interested in – how inconsistent models can serve as explanations, what impact science's history of discarded theories should have on our attitudes toward our current best theories – were being asked in the Philosophy department instead. As a result, I shifted focus to the History and Philosophy of Science, and I undertook multiple research projects to further explore these questions, diving into sub-fields like the history of astronomy, seismology in the 20th century, and the shift from Newtonian to Einsteinian physics. In particular, I was interested in how developments in mathematical techniques, the invention of instruments, metaphysical speculation, and the discovery of facts in neighbouring fields came together to produce scientific progress and understanding. I look forward to continuing this line of inquiry at Cambridge's Department of History and Philosophy of Science.

Rhea Parande

India

PhD Medical Science (MRC Cancer Unit)
Downing College



During my education in Singapore, I developed a keen interest in the functions and mechanisms of biochemical processes in the body, and was granted the opportunity to intern at a research laboratory working on tumour suppressor proteins and their role in regulating cell division. This inspired my interest in cancer research and the mechanistic basis of disease. My Biochemistry degree at the University of Oxford illuminated the myriad of interconnecting cellular signalling pathways that regulate biological processes. Even the slightest error in a pathway can cause disease, and I was fascinated by the manner in which the deregulation of tumour suppressor proteins and cell cycle events leads to cancer development. The economic and social burdens caused by increasing cancer incidence highlight the importance of understanding early steps in carcinogenesis in order to develop new approaches for clinical intervention. My desire to explore chromosomal instability in cancer pathogenesis led me to pursue a PhD at the MRC Cancer Unit, where I will investigate the mechanism by which aldehydes – toxic chemicals present in the environment and in the body – induce the selective cellular degradation of the tumour suppressor protein BRCA2. I hope to reveal new insights into the development of cancer treatments.

June Park

USA / South Korea

PhD Engineering
King's College



I am an engineer fascinated by stem cell biology, aiming to address the challenges in healthcare through innovation and entrepreneurship. Studying Chemical and Biological Engineering at MIT, I found my passion for translational research while working in interdisciplinary labs. At Langer Lab, I helped develop an ultrasound-mediated colonic drug delivery device that became the platform technology for Suono Bio, a Boston-based biotech start-up. With keen interests in education and entrepreneurship, I cofounded Kepler Tech Lab in Rwanda, to develop and test an affordable, hands-on, and locally-relevant engineering teaching laboratory model with an associated teacher training programme. Since graduation, I have been working as a healthcare consultant to help generate and deliver strategic recommendations for top 20 global biopharmaceutical companies. My excitement for biology and engineering brings me back to research, and at Cambridge I plan to develop a biomimetic, 3D printable scaffold for development of lung stem cell-derived artificial trachea and organoids. The successful development of artificial trachea using the synthetic scaffold and patient stem cells may transform the treatment of tracheal injuries and diseases, significantly improving the survival and post treatment quality of life for millions of patients.

Stephen Pepper

USA

PhD Divinity
St John's College



A question overtook me during a drive through the Pennsylvania Wilds in 2015. How might people in life situations of exile have access to theology and literature itself conceived out of exile? Thus, a passion for Dante that had begun during my first year of seminary at the University of Notre Dame developed into a weekly Dante study group at my local prison in northeast PA, and through my exposure to the lives and hopes of these inmates over the course of two years, I began to see how Dante could be used to explore the fundamental structures of and possibilities for human unity, even in the midst of fragmentation and isolation. My research in the Faculty of Divinity will formalize this exploration by tracing the theological and metaphysical participation traditions in which Dante stands, delimiting his understanding of the inter-relationship among divine and human nature(s), and applying the systematic consequents of his theology of participation to new ways of thinking about social modalities, wherein pluralities of valuation and reasoning may cohere to address the anomies of our own day. As a Roman Catholic priest from a military family in Alabama, I am humbled to be part of the Gates community and eager to gain from it a deepening respect for the versatility of human goodness.

Marina Perkins

USA

PhD French
Jesus College



I was introduced to the Essais of Michel de Montaigne, the sixteenth-century French pioneer of the personal essay, during the Comparative and European Literatures MPhil course at Cambridge. As an undergraduate at Brown University, I had double concentrated in Comparative Literature and Art History, and found productive intersections between the two fields of study. I therefore was drawn to the simultaneously interdisciplinary and coherent nature of Montaigne's oeuvre. He explores a diverse range of topics, including but not limited to bodily functions, education, sexuality, religion, the classics and friendship. Nevertheless, the Essais are unified by their author's tendency to reserve judgment and question assumptions, and by his preoccupation with the vehicle he employs to convey his ideas: words, and the palpable yet contingent force they exercise over the physical and social world. In my PhD, I plan to explore this theme in Montaigne, and its implications for diplomacy and justice. I have spent the last two years teaching high school history, and hope that underscoring the stakes of communication through instruction in the humanities will foster more civil discourse on a local and global scale. I am thrilled to join the 2018 Gates cohort.

THE HISTORY OF FOOD

EMELYN RUDE

How do eating habits change through history? Why do we eat what we eat? And what is the impact when a community's traditional food stocks collapse?

Emelyn Rude is fascinated by the history of food. Her PhD, which she begins in the autumn, will focus on how past fish stock collapses have impacted national eating habits and their effect on local fishing communities.

The research will bring together several of Emelyn's interests – food, history and the marine environment. Emelyn is a rescue scuba diver and has seen the impact of coral bleaching first hand.

Her PhD builds on her undergraduate thesis on the history of chicken which she later turned into a book, "Tastes Like Chicken: a History of America's Favourite Bird".

The thesis came about after a professor at Harvard, where she did her undergraduate degree mentioned in passing that chicken was "an incredible piece of technology". "That stuck with me," she said.

She was interested in how attitudes to eating chicken had changed over time. In the 1920s chicken was not even perceived as a meat in the US. It was regarded as a 'woman's'

food and something for the sick and weak in the 1920s. In the 1920s, only 10 pounds of chicken per person per year were eaten in the US. That figure is now 90 pounds per person. Emelyn says: "The rising popularity of chicken has been the most dramatic revolution in US eating habits."

Her thesis won a lot of praise and suggestions she should write a book on the subject. It was not until two years later when she had some experience of working with chefs under her belt that Emelyn signed her book contract.

For the book she went through the archives of Cornell professor Robert C. Baker who invented chicken nuggets and the 1948 Chicken of Tomorrow contest which aimed to create a breed of chicken that would grow bigger and faster.

The book came out in 2016 and was promoted by Amazon as one of their books of the month. Emelyn was invited to give a fried chicken tour in Louisville, Kentucky and was interviewed for a documentary called Holy Bird.

Emelyn was born in Fresno, California, but the first few years of her life were spent in Islamabad, Pakistan, where her parents, who were agricultural economists, were posted. At age six she moved to Jakarta, Indonesia. The family then moved to Washington DC when she was 10.

At Harvard she took a class on the history of dietetics which proved a turning point academically. Emelyn also joined the food literacy project and organised events aimed at getting students more interested in food issues.

After obtaining her history degree, Emelyn began an internship with well-known chef Marcus Samuelsson in New York. He specialises in Swedish Ethiopian soul food and runs a popular restaurant in Harlem called the Red Rooster where customers have included the Obamas. She then worked for an Israeli chef doing media and events and began work on her book before going travelling.

When she returned she did some food writing and worked with a cook book author, but she wanted to do more research. She applied to Cambridge for her MPhil as she was interested in the work the university was doing on economic and social history.

While she has been at Cambridge Emelyn has not given up on her food writing career and, through a Kickstarter campaign, set up and published the first edition of a magazine on the history of food called Eaten.



Ayala Pniewsky

Israel

PhD Sociology
Murray Edwards College



Growing up in Israel, my academic aspiration has always been driven by a search for a path that could lead to a feasible and concrete change within the Israeli society. I was drawn to the academia after years of experience in journalism, politics and NGOs. Before joining the Gates community, I have

worked for 'Haaretz' newspaper, the Israeli Parliament and the aid organisation for refugees in Israel. Today I am a PhD candidate at Cambridge and a research associate at 'Molad – The Centre for the Renewal of Israeli Democracy'. Following my bachelor's degree in The Hebrew University's honours programme, I have graduated from Goldsmiths, University of London with an MA in Political Communications. My current project explores the ever-changing relationship between media and politics in contemporary democracies, and in particular, the encounter between mainstream media and political extremism in the age of social media and big data. Due to dramatic cultural shifts, both on the local and international levels, a deeper understanding of the mechanisms behind populism, extremism and social polarisation is essential. I find it imperative for academics to contribute to the debate, providing insightful ideas and practical tools for journalists, politicians and citizens.

Steven Rathje

USA

PhD Psychology
Trinity College



I grew up in Portland, Oregon, where I was very active in the local theatre community. My time in theatre inspired me to study Psychology at Stanford University, where I could explore the same questions about the human experience that I explored in theatre. At Stanford, I conducted research on how

metaphorical language covertly influences our thoughts. At Cambridge, I will pursue a PhD in Psychology, where I plan to build on my past research to explore how our language and the way we frame information influences the way we think about political and social issues. The ultimate aim of this research is to help people communicate more effectively and persuasively and to attempt to have better dialogue about divisive issues. In addition to my research, I am interested in exploring the same psychological questions raised in my research through playwriting, fiction, and nonfiction writing. After studying at Cambridge, I plan to become a Psychology Professor and a public communicator of psychology who uses my work in writing and art to make knowledge of Psychology more accessible to the general public.

Francisco Jose Quintana

Argentina

PhD Law
Pembroke College



As a law student at Di Tella University, I developed a strong interest in international law as a tool to secure justice and bring peace in times of political turbulence. As I began researching and working in the field, I became increasingly aware of the role of international law in maintaining

global power structures. I decided to explore which possibilities international law offered to formulate claims about violence and inequality from the Global South. This goal has defined my career. Professionally, I have relied on international law to promote social and political change in Latin America, by working at three branches of government in Argentina and presenting a complaint before the ICC on crimes against humanity in Venezuela. Academically, I have focused on studying the role of law in global governance and critical approaches to international law, most recently at Harvard (obtaining two Dean's Scholar awards) and LSE (graduating with distinction). I have also taught international law for over five years. At Cambridge, I will research how human rights took a turn towards anti-impunity in Latin America. By studying who has invoked human rights law, I hope to become an effective and responsible advocate, and to enable others to do the same.

Garrett Rubin

USA

PhD Education
Jesus College



Soon after I finished my undergraduate studies in classical music, my focus shifted from opera performance to education during times of conflict. In 2013, I completed a Fulbright-mtvU Fellowship in Jordan, where I researched and implemented music education programming for displaced

children and youth. In the three years that followed, I worked throughout the Middle East primarily as a consultant for government, UN and international organizations on projects to support youth education, gender equality and economic engagement. These experiences solidified my commitment to advancing outcomes for young people in the region, while also raising difficult questions about the potential for humanitarian efforts to unintentionally harm those they aim to help. This dilemma is at the heart of my doctoral research on education and conflict in Syria, which will examine how wartime politics both shape and are shaped by education and international aid. By addressing these fissures, my hope is that research of this kind will contribute to bringing about safer, more meaningful and just educational opportunities for young people affected by conflict in Syria and beyond.

Emelyn Rude

USA

PhD History
King's College



As the daughter of two globetrotting agricultural economists, I've always been fascinated by why people eat what they eat. My obsession with what's for dinner led me to work in the basements of some of New York City's finest restaurants, to test recipes in the kitchens of renowned cookbook

authors, and to sift through the archives of the man who invented the chicken nugget. As a National Geographic Explorer and avid scuba diver, I also care deeply about the natural world and the impact humans are having on the health of our oceans. My PhD research at the University of Cambridge will combine these two interests to focus on how past fish stock collapses have impacted national eating habits. It is my hope that this work will provide a new mode of understanding the social effects of these environmental and economic catastrophes. A graduate of Harvard University with a degree in Social Studies and a current Cambridge MPhil student studying Economic and Social History, I am also the author of "Tastes Like Chicken: a History of America's Favorite Bird" and the founding editor of Eaten: the Food History Magazine.

Erik Rudicky

Czech Republic

PhD Politics & International Studies
Corpus Christi College



My research project concerns the legitimacy and sovereignty of states and non-state actors in "tribal" societies, particularly in South Arabia. More specifically, the project investigates the relationships between tribes, religious elites and the state, especially where these relationships were altered by

large-scale interventions from outside actors and ideologies, or by the discovery of natural resources. I believe that proper understanding of these relationships will have a bearing on the development of location-specific approaches to a variety of societies and contribute to a fairer distribution of humanitarian aid and development funds. I am also interested in the research of desertification, revival of grasslands through improved livestock management practices, access to land for small-scale farmers and the dynamics of rural life. These issues are relevant across the globe and directly affect public health; yet not enough is currently being done to reverse desertification, improve the condition of our grasslands and return farming families into the countryside. I am thankful for the opportunity to join the Gates Cambridge community of scholars. I appreciate the Trust's mission and very much look forward to the beginning of the academic year.

Julia Schwarz

Germany

PhD Theoretical & Applied Linguistics
Jesus College



Communication is something all animals have in common; language, however, is a uniquely human capacity. Without language, scientific discoveries, inventions, and even mathematical advances would have been impossible. My fascination with language as a uniquely human trait and the basis for all

sophisticated thought has been ongoing. After completing a B.A. in English Linguistics and Latin at the University of Regensburg, Germany, I came to Cambridge for an MPhil in Theoretical and Applied Linguistics, where I began research on language processing. As a consultant for R&D Funding and Innovation Advisory, I was given the opportunity to apply my linguistic knowledge to assist companies in successfully gaining funding for their innovative and sustainable ideas. In my PhD project I wish to further investigate complex word processing to build more reliable models of our understanding of language. By combining theoretical and experimental methods from Linguistics, Psychology, and Neuroscience, I aim to give new insight into the psychological and biological reality of linguistic rules and symbols in the brain. I hope that the findings of my research will help to unravel the influencing factors of human thought and understanding as well as lead to practical applications such as teaching and learning, text optimization, and language disorders.

Colleen Silky

USA

PhD Clinical Neurosciences
Darwin College



Neuroscience has been considered one of the final frontiers of science; a labyrinth of cellular connections that we still barely understand. So much of what makes the brain amazing can also lead to devastating disease. The drive to discover solutions to unanswered questions has been my

motivation as a research scientist. I have been provided the unique opportunity to develop my own experiments and lead projects which contributed to the breakthrough of a novel drug into clinical trials for Alzheimer's disease. Seeing the impact innovative research has on patients' lives has solidified my desire to pursue a career focused on scientific advancements in neurodegeneration. For my PhD in Clinical Neuroscience, I will study new methods identifying cellular irregularities in ALS with the use of patient derived cell lines. ALS was thought to be strictly a motor neuron disease, but recent advancements have shown that the support cells, astrocytes, could cause aspects of disease pathology. I hope that studying three dimensional cell organoids will shine light on new therapeutic pathways for patients in need and bridge the gap between conventional two dimensional cell cultures and clinical trials.

THE SCIENCE OF FLAVONOIDS

VAITHISH VELAZHAHAN

It has been established for some time that eating fruit and vegetables is good for your health and can protect people from a range of illnesses, including some forms of cancer.



However, the way they do this is little understood. Vaithish Velazhahan's research seeks to establish how flavonoids – a diverse group of phytonutrients (plant chemicals) found in almost all fruits and vegetables – protect human health. The ultimate aim is to create new drugs which work more efficiently.

Vaithish took two degrees – in medical biochemistry and microbiology – at Kansas State University and has been working at Kathrin Schrick's laboratory which focuses on understanding the molecular mechanisms that govern how plant cells differentiate.

Vaithish initially focused on plant genetics and in particular on the transcription factors which turn genes off and on. However, his main interest was in applying plant research to humans so he looked around for a project which would combine plant biology and human health. That was the seed for his subsequent research on flavonoids. Many previous studies on flavonoids' protective role have focused on animal models. Vaithish's research investigates the hypothesis that flavonoids might directly interact with heat shock transcription factors in humans.

To study the different chemistry of proteins, he had to teach himself a lot of techniques from structural biology and protein biochemistry. These techniques had not previously been used in his laboratory so he had to work with scientists from other laboratories who had access to cutting edge tools.

In his research to date Vaithish has uncovered two mechanisms through which flavonoids work.

Vaithish was born in Kansas in the US, but when he was one his parents moved back to Tamil Nadu in India. His father, a plant pathologist, was a postdoctoral associate at Kansas State University. Vaithish graduated from school as the top student in his year and in the top 1% in the state with a desire to train to be a doctor. However, he discovered that, having been born in the US, he could not go to medical school in India so he decided to move back to Kansas to attend Kansas State University.

In addition to his research, Vaithish has been involved in a lot of extra-curricular activities, including MEDLIFE [Medicine Education and Development for Low Income Families Everywhere]. He was Vice President of the Kansas State University chapter of MEDLIFE for a year and worked in Peru and Ecuador with the non-profit's founder on some of its programmes. He was motivated in large part by his experiences in India and his desire to make a difference. Working in Latin America spurred Vaithish to start up his own non-profit, WE SAVE, in August 2016. It works in India and its focus is on teaching school children about the importance of vaccination programmes and working in collaboration with medical doctors in India. The organisation is now working on creating a mobile app to connect doctors better with patients who need access to healthcare urgently. "The aim is to create a network of doctors who can share the burden of treating people," says Vaithish.

During his PhD in the MRC Laboratory of Molecular Biology (LMB), he will use electron cryo-microscopy to try to understand the structures of key membrane proteins called G protein-coupled receptors (GPCRs) that help cells communicate with an organism's environment. Vaithish says: "More than 40 percent of all commercially available drugs target these proteins, so it is very important to understand their structures to design new drugs to treat a variety of human diseases."

Malina Simard-Halm

USA

MPhil Criminology
Murray Edwards College



During my time at Yale, I have concentrated my studies on the ethics and politics of the criminal justice system with a particular emphasis on sentencing and alternatives to incarceration. While at Cambridge, I seek to further examine the limits of individual culpability in criminal sentencing, especially as they relate to racial and economic marginalization. By integrating sentencing theory with the study of crime's causes, I aspire to show that precluding identity markers of adversity from sentencing guidelines can often lead to more unjust outcomes. Outside of classes, I have spent time working with the Federal Public Defenders, the Legal Action Center (an advocacy organization for individuals with criminal records and substance use disorders), the New Haven Law Enforcement Assisted Diversion (LEAD) program, and Yale Students for Private Prison Divestment. As one of the first children born to two gay dads through assisted reproduction, I am also proud to have advocated for LGBTQ families on the news and in the courtroom. I am lucky to serve as a member of the Board of Directors of the National Non-Profit COLAGE (Children of Lesbians and Gay Everywhere). I could not be more honoured to be joining the Gates Cambridge community to work and learn with others committed to thoughtful and effective social change.

Emma Soneson

USA

PhD Psychiatry
Clare College



With undergraduate degrees in Italian and Ecology & Evolutionary Biology and research experience in primate behaviour and orthopaedics, I might seem an unusual candidate for a PhD in Psychiatry. Originally a pre-medical student, I developed through my work at Yale and the National Institute of Child Health and Human Development an interest in population health research. I am particularly passionate about child and adolescent mental health, and about the role of schools in mental health promotion and prevention. This year, I completed my MPhil in Public Health at Cambridge, and wrote my thesis on the acceptability of school-based identification of mental health difficulties. For my PhD, I will continue to work with Professor Peter Jones and Dr Emma Howarth on this project as we design, implement, and evaluate different models of school-based identification. By increasing rates of identification, we hope to improve access to care and support for children and young people who are experiencing mental health difficulties, and ultimately improve their long-term psychosocial outcomes. I am incredibly grateful for the opportunity to spend another three years in Cambridge surrounded by inspiring mentors, colleagues, and friends!

Yumi (Babette) Tachibana-Brophy

Australia / Japan

MPhil Conservation Leadership
Churchill College



I have always been inspired by the focus, tenacity and courage of wildlife. As a wildlife lawyer, I endeavour to apply that same conviction in my research into the ways in which law and policy affect wildlife, the communities that come into contact with them and the outcomes of conservation projects. While studying Law and International Studies at the University of New South Wales, I developed an appreciation of the profound and dramatic impact that the law can have on a person's life. This principle similarly applies to animals, as I witnessed firsthand while working in Namibia, researching human-wildlife conflict, the illegal wildlife trade and endangered species conservation. As growing populations and environmental changes bring humans and wildlife into more frequent contact, proactive conservation strategies are an increasingly important factor in protecting the lives of both wildlife and the people who coexist with them. At Cambridge, I intend to research the ways in which interdisciplinary conservation approaches can deliver more effective solutions to key environmental challenges. I look forward to developing the skills to design and manage conservation projects in the future, as well as bridging the gap between conservation and the law, in theory and in practice.

Anne Thomas

USA

PhD Plant Sciences
Newnham College



I began my undergraduate degree at Brigham Young University in Utah as a Conservation Biology major with the goal of intimately understanding the natural world and contributing to its protection in the face of rapid environmental change. As I delved into research topics such as plant community shifts with climate change, I learned how crucial computational tools and approaches are in addressing the complexity of global change, and as result, added a Bioinformatics major. At the same time, doing field work in the deserts and mountains of the American West reaffirmed to me the importance of close contact with the ecosystems we seek to understand in order to better protect and manage them. As a Plant Sciences PhD candidate at Cambridge, I plan to leverage both computer modeling and empirical field approaches to predicting the biogeography and resilience of alpine plants in the face of climate change. My research aims to inform both eco-evolutionary theory and conservation efforts for sensitive alpine systems. I care deeply about cultivating our human relationship with nature, making it one of my goals as a scientist and a citizen to help engage others in conservation through outreach and education.

Bergthor Traustason

Iceland

MPhil Biotechnology
Fitzwilliam College

My main research interests lie in the development of a broad range of new technologies that employ living organisms, especially microalgae, to make diverse products in an efficient and environmental-friendly way. I'm particularly interested in how interdisciplinary knowledge, large-scale computation and data analytics can lead to new discoveries in the growing field of biotechnology. During my undergraduate studies in Engineering Physics at the University of Iceland I've worked on diverse research projects ranging from the design of new bioreactors for growing microalgae to the development of kinetic algorithms for the simulation of nucleic acid reaction pathways. They have consisted of broad cooperation between universities, companies and institutions, where different expertise and resources were used to reach a common goal. I've also been a teaching assistant in three different courses, co-founded a small teaching company and taken part in several out-reach programmes to get children interested in science. I think the new MPhil programme in Biotechnology at Cambridge will broaden my vision and improve my possibilities to help seize some of the great opportunities that this emerging field has to offer. I am honoured to join the diverse and vibrant Gates Cambridge community and look forward to being a part of this global network of future leaders.

Stepheni Uh

USA

PhD Biological Science (MRC Cognition and
Brain Sciences Unit), St Edmund's College

As a Korean American raised in Boise, Idaho who dreamed of becoming a lawyer, I never imagined that a few of my first friends at Emory University would be Tibetan monks, or that I would ultimately pursue an academic concentration in Neuroscience and Ethics. During my time at Emory, and while completing my MPhil at the University of St Andrews, I was exposed to the interdisciplinary nature of neuroscience as well as the growing field of neuroethics. My diverse research experiences as well as remarkable mentors have cultivated my ambition to research and apply translational neuroscience to enhance human wellbeing while raising awareness regarding the ethical, legal, and social implications of neuroscientific research. My PhD at University of Cambridge's MRC Cognition and Brain Sciences Unit will investigate the neurophysiological underpinnings of resilience in children growing up in poverty, with the motivation that achieving wellbeing is a global endeavor. The overarching aims are to better understand the neural mechanisms underlying this adaptive trait for conquering extreme stress and adversity and to translate our findings for interventions and policies to promote resilience in children from all backgrounds.

Domiziana Turcatti

Italy

MPhil Sociology
Robinson College

At Amsterdam University College, where I specialized in Anthropology and Sociology, I learnt about the importance of approaching marginality – and privilege – with an intersectional framework and discovered qualitative research as a powerful means through which we – as researchers and humans – can learn about and from our many 'Others'. In particular, I developed a trajectory of studies on understanding the position of Moroccan-Dutch youth in Dutch society, while continuously questioning my assumptions. I had the privilege of collecting the lived experiences of Moroccan Dutch youth and collaborated with Moroccan-Dutch coaches to make visible the youths' marginality and resilience. This taught me how the 'Other' is not simply the body where marginality materialises but a source for developing allies and critical knowledge. At Cambridge, I want to expand such learning and acquire the means to understand and explain the marginality of children of migrants from 'non-Western' countries living in Europe in a manner that is attentive of the context and the youths' positionality. By uncovering how youth make sense of their own position and create strategies of resistance I hope to use the strength of qualitative research to advocate against inequality.

Kim Van Daalen

Netherlands

PhD Public Health and Primary Care
Newnham College

Growing up in the Netherlands, I was always curious, asking questions to understand the "How" and "Why" (I had my own little blue microscope when I was 8, telling my family about the bacteria in water). This curiosity only grew stronger during my BSc Biomedical Sciences at Utrecht University. At the same time, driven by my values – the right to healthcare, equality, peace and safe and health environment for everyone – I developed a strong passion for Global Health and Climate Change action and dedicated my time to work for international non-profit organisations including: IFMSA; UAEM; UNFCCC-YOUNGO and other organisations to make and advocate for change. I realised that I could combine this curiosity and passion by studying Global Public Health and started a MPhil Public Health at the University of Cambridge. From here, I am now continuing into a PhD. As 80% of premature non-communicable diseases (NCDs) deaths happen in LMICS and local environmental risk factors (e.g. air pollution, water pollution) are increasingly being associated with NCDs, it is critical to develop effective, context specific interventions. My PhD will focus on the environmental risk factors for non-communicable disease in developing countries; comparing the urban and rural populations (specifically in South Asia).

THE VALUE OF HOPE

ERIN WILLIAMSON

Erin Williamson's first in-depth experience of academic research was certainly eventful. For her master's degree she chose to research a Pentecostal Church in Appalachia whose services involved the handling of poisonous snakes, such as rattlesnakes.

During her time researching the church a pastor died from a snake bite and she had a ringside seat at the fall-out, which included national press coverage and a Grand Jury case.

The practice of snake handling is based on a literal interpretation of a verse from the Bible about taking up serpents to show the strength of your belief.

Erin had planned to interview a pastor from the church, but the day she had been due to meet him he was bitten by a snake and died. Although access to the church community was usually heavily restricted, there were photos of the pastor dying and the story was widely covered. National Geographic did a series about it and there was a Grand Jury case. Due to the National Geographic show and the church's argument that handling snakes was a religious freedom issue, the charges related to possession of Class I wildlife.

It resulted in the snakes being confiscated, a pastor being charged and the local church community falling apart. Erin had access to the church throughout this time and watched it all happen.

She wrote her master's thesis about it and attended conferences speaking about what she had witnessed.

For her PhD she is tackling an issue which has also received a lot of coverage, but about which she hopes to provide more depth and analysis.

This autumn, Erin will begin an ethnographic study of time and the value of hope among refugees and asylum seekers of Syrian origin.

Erin was born in Knoxville, Tennessee, but when she was three her family moved to Germany. Erin attended an international school, but when she was four her mother was diagnosed with breast cancer. The family eventually moved back to the US where her mother died four years later. Erin's family are part of a strong Church community who provided a lot of support and stability while she was growing up.

After being offered a full scholarship, Erin chose to go to Lee University, a private University in Tennessee which has historical affiliations with the Church of God, an evangelical Christian denomination.



She studied anthropology and did her master's in Social Anthropology at University College London. It was through contacts at Lee University that she was able to do her research on the Pentecostal Church. Lee also introduced her to Western Wyoming Community College where she got a job teaching an online anthropology and archaeology course.

Erin has travelled extensively since her undergraduate days, around Europe, to Cambodia, India, Turkey and Egypt where she worked with refugees and to Costa Rica where she worked as a photographer.

On her return, she created a refugee course at Lee just after news of the travel ban on refugees was announced in early 2017.

The course was pitched as a Christian response to refugees, meaning church members felt they could take it. It was very well attended. Erin, who has worked for a refugee agency in the US, will focus on Syrian refugees in Turkey for her PhD.

She says: "Refugee status is only temporary. It is not an identity that lasts, although it is difficult to escape the label. I am interested in this transitional phase when the past is too painful to think about, the present is uncertain and the future cannot be contemplated – and how humans navigate that."

Chris Van Hoorn

Netherlands

PhD Biological Science (MRC Laboratory of Molecular Biology), King's College



During a BSc in Biology at Utrecht University, I became especially interested in protein structure. The images of 3D structures that could exhibit mechanical movement to drive biological processes captivated me. I followed this interest by doing an internship in a research institute in Berlin during a gap year. I also travelled by car from the Netherlands to China and experienced first-hand the social challenges faced by LGBTQI communities. This sparked an interest in human rights in the Middle East and Central Asia. And during my subsequent MSc in Molecular and Cellular Life Sciences, I actively engaged in advocacy and activism with a Sexual and Reproductive Health and Rights organisation. As part of my MSc, I worked in a research group at Utrecht University and at the Laboratory of Molecular Biology (LMB) in Cambridge. In the latter, I focused on an approach that has only recently become possible – to study the structure of multi-protein complexes by cryo-electron microscopy. Visualizing the structure of these large molecular machines can considerably aid drug development for disease-causing protein variants. I am excited to continue this research at the LMB during a PhD in Biological Sciences. I will study the structure of “two-legged” proteins that can physically walk along fibres inside our cells.

Vaithish Velazhahan

USA

PhD Biological Science (MRC Laboratory of Molecular Biology), Sidney Sussex College



As an undergraduate at Kansas State University double majoring in Medical Biochemistry and Microbiology, I worked in the lab of Dr. Kathrin Schrick where I pursued multiple independent projects. I used biophysical tools to characterize direct targets of dietary flavonoids, which are abundantly found in fruits and vegetables and are known to possess anti-cancerous properties. This project emerged from my quest to understand protein-flavonoid interactions. As the only person conducting this research, I had to teach myself a lot of different techniques and face numerous challenges, but in the process I developed a great love and appreciation for the visualization of protein structures. During my PhD in the MRC Laboratory of Molecular Biology (LMB), I will be using electron cryo-microscopy to uncover new structures of activated states of G protein-coupled receptors (GPCRs). Over 40% of commercially available drugs target GPCRs; therefore, it is important to understand their structures to design new drugs to treat a variety of human diseases. I am very excited to contribute to advances in electron cryo-microscopy, and I am grateful for this opportunity to work alongside and learn from world-class scientists in the LMB.

Kaamyra Varagur

USA

MPhil Music
Wolfson College



I am a scientist and singer pursuing an MPhil at the Cambridge Centre for Music and Science. At Princeton University, I majored in neuroscience with a certificate in vocal performance. As a student of both neuroscience and music, I have always been interested in the scientific study of music's effects on mind and body. While a dominant narrative within music and medicine focuses on music's therapeutic effects during the illness state, I am interested in further exploring its impact on healthy individuals, from the perspective of music as a tool to enhance community health. One of the most unique stages of life during which music can exert its effects is in early infancy, when mothers and families of infants can expose their children to an enriching musical environment, which has been shown time and again to have benefits for infants along various developmental avenues. At Cambridge my research will specifically examine the reciprocal effects of infant-directed singing on mother and child, looking at how such music modulates physiological arousal/stress. I plan on pursuing a medical career and hope to engage with community music programs that operate out of healthcare settings throughout my life. In my time at Cambridge I also look forward to participating in its vibrant choral tradition.

Erin Williamson

USA

PhD Social Anthropology
Darwin College



While an undergraduate at Lee University, I was introduced to anthropology as a powerful tool of insight and understanding. During my M.Sc. in Social Anthropology at the University College London, I conducted ethnographic fieldwork among Pentecostal Christians in Appalachia who practice a tradition of handling venomous snakes in worship. A death in the serpent-handling community captured public interest leading to the community's engagement with journalists, often framing it as different and unusual. Teaching anthropology at Western Wyoming Community College has only reinforced my belief that understanding human differences and similarities is invaluable in breaking down barriers of fear and prejudice. Having worked in refugee and migrant communities in India, Egypt and Tennessee, I have seen how fear of differences can ostracize the imaginary 'other.' My Ph.D. research will focus on the ethnographic study of time and the value of hope among refugees and asylum seekers of Syrian origin. By focusing on the values of hope and the ideal good life, I expect insight can be gained which situates refugees not as political nor as suffering strangers, but as morally evaluative humans distinctly and deeply informed by their unique cultural experiences.

Norman Wray*

Ecuador

MPhil Conservation Leadership
Darwin College



As a Constituent Assembly Member I was a strong promoter for the “Buen Vivir” (Good Living) regime, rights of nature and for including water as a human right in the Constitution of Ecuador. Ten years have passed since the Constitution was approved in a national referendum and the answers of what to do to put all these into practice are still in construction. I define myself as a politician, not necessarily based only in the idea of power searching, but under the perspective that the world needs to build a strong speech and practice about environment, sustainability and conservation with people, promoting advocacy and organizing them for the defense of their rights and the rights of nature. We need to evidence that having a nature based approach for the resolution of our social, economic, ecological and political problems, could really improve our lives and the survival options of human kind. We have the opportunity and the responsibility – with a strong political-science based approach – to confront our national and global leaders that are taking dangerous skeptical positions on climate change. I believe that having the opportunity to research and share these questions at Cambridge is a unique chance to try to build together answers and strategies to these threats.

*Deferred from previous year

Keaghan Yaxley

Australia

PhD Biological Anthropology
King’s College



I grew up in Canberra, Australia’s capital – rich in both wilderness and politics – so it’s unsurprising that I became interested in both. I completed my B.Sc. in Zoology at the Australian National University, investigating how evolutionary history can be used to inform conservation planning.

While studying, I worked for federal Labor Senator Kate Lundy. My time in politics included work in government, a federal election campaign, and a subsequent stint in opposition, after which I returned to research. Currently, I am using evolutionary models to reconstruct the last common ancestor of the African apes (gorillas, bonobos, chimpanzees and humans of course) to complete my MPhil in Human Evolutionary Studies at the University of Cambridge. My PhD will see me examine the evolution of African mammals over the last five million years, looking for innovative adaptations that allowed species to occupy new environments. This work will help to shed light on the processes that drove the evolution of form in mammals. I hope to combine the opportunities afforded by Gates Cambridge and the skills I gained working in politics to become a scientific communicator and an advocate for higher education and research.



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