2017-18 Churchill Scholars

For the second year in a row, the Foundation was able to increase the number of Churchill Scholars to 15 thanks to generous donations from previous winners, as well as from our Trustees and friends.

We received 92 nominations from 58 of our 110 Participating Institutions. Applications came from seven liberal arts colleges, 20 private universities, and 31 public universities. In line with recent trends, we had 31 (34%) women applicants and 61 men (66%). Of the Scholarship winners, there are four women and 11 men. The cohort includes students who are children of professors as well as students who are in the first generation in their families to attend college.

The most popular department to which nominees applied, as it is most years, was mathematics, with 23 applicants. A major change, however, is that there were just 13 applications for Part III of the Mathematical Tripos, a steep fall from recent years, probably reflecting the new advice we have added to the website to ensure that the math applicants are better prepared for the unique challenges of this course. The remaining 10 applicants to that department were for the MPhil in Computational Biology. The next most popular departments were Chemistry and Physics, each of which attracted 10 applicants. Engineering, Medicine, and Biochemistry were also popular.

The average GPA of this year's Scholars is 3.98. Eleven of them won a Goldwater Scholarship and two won an Astronaut Scholarship.

Christopher Balzer	Arizona State University	MPhil, Adv. Chemical Engineering
Shovik Bandyopadhyay	Purdue University	MPhil, Medical Science
Lucy Chai	University of Pennsylvania	MPhil, Machine Learning
Christopher Cooper	NC State University	MPhil, Chem. Eng. and Biotech.
Angela Harper	Wake Forest University	MPhil, Physics
Benjamin Kompa	UNC-Chapel Hill	MPhil, Computational Biology
Jesse Mu	Boston College	MPhil, Advanced Computer Science
Seth Musser	University of Chicago	MASt, Applied Mathematics
Daniel Rothchild	Harvard University	MPhil, Astronomy
Jarrod Shilts	Vanderbilt University	MPhil, Biological Science
Anthony Tabet	University of Minnesota	MPhil, Chemistry
Julian Vigil	University of New Mexico	MPhil, Chemistry
Vivian Wang	Stanford University	MPhil, Physics
Michael Zhao	University of Utah	MASt, Pure Mathematics
Angela Zou	UC-San Diego	MPhil, Biological Science

Christopher Balzer

HOMETOWN
Anthem, Arizona
INSTITUTION
Arizona State University
(BSE, Chemical Engineering)
TO STUDY
MPhil, Advanced Chemical Engineering
Department of Chemical Engineering and Biotechnology

Chris has worked on the synthesis, characterization, and application of metal-organic frameworks (MOFs) and the techniques involved in their molecular simulations. In Dr. David Fairen-Jimenez's lab, he will use these skills and his knowledge of computational software to bridge a gap between physical chemistry and chemical engineering as it applies to the adsorption properties of MOFs. He hopes that his research will contribute to the development of cleaner industrial production methods.

Chris' interest in science was sparked when he read about quantum physics while in high school. After completing a high school research project on "green chemistry," he found that chemical engineering would allow him to study physical processes on the macro/micro/nano scale while also developing techniques that would reduce the effects of climate change. As an undergraduate, he designed an independent research project that studied the detection of harmful volatile organic compounds (VOCs) using MOFs from a quantum perspective. His senior thesis focuses on the accuracy of theoretical models in predicting carbon dioxide adsorption in MOFs.

The first-ever Churchill Scholar from Arizona State University, Chris is the recipient of a Goldwater Scholarship, has co-authored two refereed journal publications and been a first author on one, and has presented his research on MOFs at a national conference. He served as a residential assistant at the Honors College, tutors at the university tutoring center and has a perfect 4.0 GPA. He has accumulated 21 A+ grades so far, including in each of the six courses he took in the Spring of 2016. He has taken such a high course load that he will graduate after just three years. He has medaled in two triathlons and is an avid hiker and backpacker.

Shovik Bandyopadhyay

HOMETOWN
Eureka, Missouri
INSTITUTION
Purdue University
(BS, Biology)
TO STUDY
MPhil, Medical Science
Department of Haematology

Shovik will work with Professor Tony Green, whose lab recently uncovered a novel mechanism in the regulation of proteins in the unphosphorylated STAT (uSTAT) pathway. This discovery may shed light on potential therapies for a group of bone marrow disorders called myeloproliferative disorders (MPNs), for which there is currently no consistently effective treatment. Shovik will analyze the data generated by Professor Green's lab as well as generating his own data sets to identify gene interaction patterns which may yield potential treatment targets within the uSTAT pathway.

As an undergraduate, Shovik created a research proposal that brought together two disparate labs from two institutions (Purdue and Washington University in St. Louis). This collaboration resulted in a first-author manuscript that proposes a novel way to overcome drug resistance in cancer based on the study of cholesterol metabolism. He is also the first author of a book chapter on mass cytometry methodology and was co-author of a paper in *Oncogene* before the end of his freshman year.

In addition to his research, he is also passionate about global health and public policy, having started initiatives to tackle childhood obesity in the community and healthcare challenges in Quito, Ecuador. He is a Purdue Presidential Scholar, a Goldwater Scholar, an Astronaut Scholar, and was named Outstanding Junior in Biological Sciences in 2016. He has a 4.0 GPA with 15 A+ grades. He plans to pursue an MD/PhD after his year in Cambridge.

Lucy Chai

HOMETOWN
Acton, Massachusetts
INSTITUTION
University of Pennsylvania
(BSE, Computer Science,
Bioengineering/Mathematics)
TO STUDY
MPhil, Machine Learning,
Speech and Language Technology
Department of Engineering

Lucy's goal is to study how processing in the brain can influence the development of computational intelligence. She plans to work with the Computational and Biological Learning Lab on the topic of computational vision, with a focus on how parallels between visual and computational processing can guide algorithms in object recognition for images.

Since her freshman year, Lucy has been working at Penn with former Churchill Scholar and MacArthur "genius grant" winner Dani Bassett, who is Associate Professor of Bioengineering. Lucy has an upcoming first-author publication in *Network Neuroscience*, where she investigated a new method of identifying networks within the brain using matrix factorization algorithms from machine learning and computer vision. She is first author of another paper published in *Cerebral Cortex*, that applied the use of network science techniques (originally used to study networks like Facebook and Twitter) to answer the question of how our brains work as we perform language-related tasks, such as listening to stories. She won a prize for Outstanding Poster at the Biomedical Engineering Society Annual Meeting in 2016. She is a Rachleff Scholar (Penn's School of Engineering and Applied Sciences honors program) with a 3.99 GPA and the recipient of several academic and research awards, including the IBM Watson Memorial Scholarship and the Manfred Altman Award for outstanding academic performance.

As a varsity swimmer, she has taught swimming to low-income children in Philadelphia and taught adapted baseball to young people with cognitive disabilities. She is also a classical pianist. She has already won an NSF graduate fellowship.

Christopher Cooper

HOMETOWN
Virginia Beach, Virginia
INSTITUTION
North Carolina State University
(BS, Chemical Engineering, Economics)
TO STUDY
MPhil, Chemical Engineering and Biotechnology
Department of Chemical Engineering and
Biotechnology

As a part of Jacqui Cole's Molecular Engineering lab at Cambridge, Chris will work on the development of next-generation solar cells. Using both experimental and computational techniques, he will study absorption properties and binding configurations of different dyes on titanium dioxide (TiO_2) nanostructures. The hope is that the research will one day provide a simple and low-cost way of improving energy sustainability in windows, buildings and even whole future cities.

As an undergraduate, Chris has studied the properties of stretchable fibers filled with liquid metal and their potential use as soft electronic fiber sensors, which led to a first-author publication. He also coated polymers with liquid metal nanoparticle films to create flexible circuit boards and antennas.

Chris is the second-consecutive (and second-ever) Churchill Scholar from NC State. Both he and his predecessor, Mia de los Reyes, received the prestigious Park Scholarship, a four-year merit award given to around 35 entering freshmen. He is a Goldwater Scholar, completed an REU at Norfolk State University which led to a first-author paper, and is the recipient of multiple grants and University scholarships. He also has a first-author paper forthcoming in *Advanced Functional Materials*. He has accumulated 31 A+ grades. In addition to his accomplishments in chemical engineering, he was recognized as Outstanding Senior of the Year in economics, an accolade he received during his junior year because of the number of credit hours he had already accumulated. He serves in leadership positions across several campus organizations. He lists Death Valley, CA, as one of his favorite hiking trails. He has already won an NSF graduate fellowship.

Angela Harper

HOMETOWN
Downingtown, Pennsylvania
INSTITUTION
Wake Forest University
(BS, Physics/Mathematics,
Computer Science)
TO STUDY
MPhil, Physics
Department of Physics

Using various experimental and computational techniques, including *ab initio* random structure searching (AIRSS), Nuclear Magnetic Resonance (NMR) and Electron Loss Spectroscopy, Angela's long-term research goal is to identify improved battery materials with longer lifetimes and higher capacities and to do so in the cleanest way possible. She will work in Professor Andrew Morris's lab using AIRSS to understand how a theoretical graphene-phosphorus hybrid material may overcome deficiencies in current sodium and lithium ion batteries. She will also collaborate with experimentalists at the Maxwell Centre.

Angela's experience in computational methods began as a freshman in a biophysics lab developing parameters for the classification of certain proteins. Her work on proteins culminated in a first-author manuscript in *PLOS Computational Biology* and an oral presentation at the International Protein Society Symposium in Barcelona, Spain. On the experimental side, she began work on "small molecule" organic semiconductors and presented her results on organic printed transistors at the Harvard Undergraduate Research Conference. She completed an REU at Cornell where she used quantum mechanical calculations to predict the efficacy of certain additives in the development of new solar cell materials.

She has a passion for mentoring and teaching and holds many leadership roles in her school community, including the creation of a mentorship program to help freshmen women in STEM. She is the recipient of a Goldwater Scholarship and the winner of several University academic scholarships, including the prestigious Stamps Scholarship. She plays the flute and is a soprano with the Wake Forest choir, having recently performed a solo in Italy. Angela is the first Churchill Scholarship winner from Wake Forest. She has already won an NSF graduate fellowship.

Benjamin Kompa

HOMETOWN
Columbus, Ohio
INSTITUTION
University of North Carolina – Chapel Hill
(BS, Mathematics, Computer Science/Biology)
TO STUDY
MPhil, Computational Biology
Department of Applied Mathematics and Theoretical Physics

Ben applies techniques in computer science and statistics to current biomedical problems. He will work in Dr. Pietro Lió's lab where he will leverage the pattern-predicting power of neural networks to identify disease comorbidities and hopes that his research will one day improve health care by creating more personalized medicine.

Through a summer internship at Harvard Medical School, Ben was introduced to "deep learning," a concept that requires the mastery of multiple computational skills, including linear algebra, probability theory, calculus, and advanced programming. He created an algorithm using neural networks to predict the location of a brachial plexus. During the school year, he has been working on a chromosome simulation project that proposes to model the organization of the miotic spindle, a pioneering work that utilizes his data skills.

Ben is a co-author of several manuscripts, including a publication in *Molecular Biology of the Cell*. He is a semi-professional, two-time national bridge champion, who draws parallels between the interaction of data sets and the possible combination of cards on the gaming table. Ben came to UNC-Chapel Hill as a Colonel Robinson Scholar, a full scholarship for exceptional STEM students. He is Chapel Hill's third Churchill Scholarship winner in three years.

Jesse Mu

HOMETOWN
Omaha, Nebraska
INSTITUTION
Boston College
(BA, Computer Science, Mathematics)
TO STUDY
MPhil, Advanced Computer Science
Computer Laboratory

Jesse will work with Dr. Anna Korhonen, co-director of the Language Technology Laboratory, on the problem of *word embedding*, a key area within Natural Language Processing. He will develop machine learning algorithms to recognize and predict different classes of verbs.

Jesse had long been intrigued by the challenges of language-learning, dating back to his time as a young child attending a weekly Mandarin Chinese school. As a Computer Science major at Boston College, he was hoping to find ways to apply his computer skills to this question. With no faculty at BC working on this, he introduced himself early in his sophomore year to a post-doctoral researcher at MIT named Dr. Joshua Hartshorne and began working in his lab, despite the long commute. He became very enthusiastic about the work at MIT, where he explored the Winograd Schema Challenge (a test of artificial intelligence involving ambiguous pronoun referents). This collaboration helped lead to Dr. Hartshorne taking a faculty position at BC, and the two were able to continue their work without the commute. Jesse has also worked with the Computational Intelligence Group at the Technical University of Madrid, examining subtypes of Parkinson's disease and coming up with ways to predict a patient's subtype near the onset of symptoms.

Jesse was recruited to Boston College with a Gabelli Presidential Scholarship, a full-tuition merit scholarship that is supported through a benefaction from Churchill Foundation Board Member Mario Gabelli. He won several academic awards at BC, including a Goldwater Scholarship. He won a Boston College Legacy Grant, which enabled him to direct and edit a documentary called "A Boston State of Mind," which focused on mental health in the greater Boston area across different socioeconomic communities. He also composed the music for the documentary.

Seth Musser

HOMETOWN
Newmanstown, Pennsylvania
INSTITUTION
University of Chicago
(BA, Physics, Mathematics)
TO STUDY
MASt, Applied Mathematics
Department of Applied Mathematics
and Theoretical Physics

Seth is interested in problems related to Quantum Field Theory in curved spacetime and in geometric approaches to unification, such as noncommutative geometry. The MASt in applied mathematics and theoretical physics will enable him to explore a broad range of approaches to topics in high energy theory, which he will pursue for his PhD.

Seth traces his interest in theoretical physics to encountering an illustration of Schrödinger's cat during a trip to the library in the third grade. While in high school, online university courses in physics and mathematics enabled him to become the first student in decades from his small rural district to attend a top-tier university. At the University of Chicago, he is a double major in physics and mathematics, and he has taken every honors mathematics sequence available, earning a near-perfect GPA. A Goldwater Scholarship recipient and a participant in three separate NSF REUs, he has researched Poisson geometry, non-canonical Hamiltonian structure, and he built a simulation of an airfoil moving in a superfluid.

Seth is passionate about sharing his love for physics, and he has worked as a tutor since his sophomore year, not just to help students understand the material, but to help them enjoy it as he does. He has already won an NSF graduate fellowship.

Daniel Rothchild

HOMETOWN
Ann Arbor, Michigan
INSTITUTION
Harvard University
(BA, Physics, Computer Science)
TO STUDY
MPhil, Astronomy
Institute of Astronomy

The Large Synoptic Survey Telescope (LSST), currently under construction in Chile, will take a series of panoramic 30-second exposures and enable astronomers a high-resolution and dynamic view of the sky. As an undergraduate, Daniel developed an algorithm to help the LSST take images more efficiently by avoiding clouds and ensuring uniform coverage. In Cambridge, Daniel will continue his work on this project with Professor Richard McMahon, who is a key international partner for the LSST. The Cambridge team also works on other similar large-scale projects, such as the Gaia and PLATO space telescopes, the VISTA infrared telescope, and the Dark Energy Survey, and Daniel will be able to both draw on and contribute to these surveys as well.

Since working as his school's webmaster in the eighth grade, Daniel has been looking for a discipline where he could apply his computer science skills in a way to make the biggest impacts. He started in areas where the impacts were societal: mapping unlawful employment practices, aiding cancer research, helping non-profit organizations in networking, and tracing fraudulent websites. With his concentration in physics and a secondary concentration (minor) in computer science, he was thrilled to discover that in astrophysics, he could apply his computer skills to his main academic interest and contribute to answering fundamental questions about the Universe.

Daniel's other passion is music. He has played cello in a classical piano trio which has been coached by members of the internationally acclaimed Parker Quartet, and he has a leadership role in the River Charles Ensemble (a student-run conductorless chamber orchestra). He has won numerous academic prizes including the Phi Beta Kappa Patricia King Harvard Summer Research Grant, one of three given to Harvard undergraduates. He has already won an NSF graduate fellowship.

Jarrod Shilts

HOMETOWN
Hingham, Massachusetts
INSTITUTION
Vanderbilt University
(BA, Molecular and Cellular Biology,
Neuroscience/Scientific Computing)
TO STUDY
MPhil, Biological Science
Wellcome Trust Sanger Institute

Jarrod is focused on developing novel genetic technologies to solve "meta-problems" in human health, where solutions are designed to tackle challenges shared by multiple specialties. At Cambridge, he will join the Cell Surface Signalling Laboratory of Dr. Gavin Wright, where he will work on improving the AVEXIS technique to efficiently test for interactions between modified extracellular proteins.

Working his way up from a job cleaning glassware, Jarrod earned a spot in a lab where he became an early adopter of the CRISPR genome editing system in *Drosophila*. He used these genetic approaches to elucidate the role of extracellular proteolysis in neural development, which may suggest new therapies for neurodevelopmental disorders. This work is currently under revision for publication with Jarrod as sole first-author.

Jarrod founded and is the scientific director of the Vanderbilt iGEM (International Genetically Engineered Machine) team, which operates an undergraduate research lab that participates in an international genetic engineering competition. His team designed and implemented a project on modifying DNA sequences and gene circuits to make them more resilient against evolutionary change, winning a Silver Medal in 2016. He was recruited to join Vanderbilt's Searle Undergraduate Research program in systems biology and bioengineering, where he developed a microfluidic system for accelerating directed evolution experiments. He was awarded the program's top individual award in 2016.

He is a Goldwater Scholar, a recipient of multiple academic and research awards and has a near-perfect GPA. Outside of the lab, he is a student of philosophy, having studied and written on epistemology and ethics for many years. He has also taught dozens of undergraduates through a semester-long extracurricular course he developed and has worked with local science outreach programs.

Anthony Tabet

HOMETOWN
Blaine, Minnesota
INSTITUTION
University of Minnesota
(BS, Chemical Engineering/Mathematics, Chemistry)
TO STUDY
MPhil, Chemistry
Department of Chemistry

Glioblastoma multiforme (GBM) is an aggressive brain cancer with a poor prognosis. Surgical removal of the tumors is highly ineffective and recurrence is almost certain. Anthony will work in Professor Oren Scherman's lab to develop a supramolecular biocompatible hydrogel that can efficiently deliver and slowly release anti-cancer drugs directly into the brain post-surgery to prevent glioblastoma metastasis and recurrence, or serve as a novel cancer vaccine adjuvant. He hopes to one day commercialize these and other novel drug delivery systems.

Anthony's undergraduate background has been in soft-materials related research as applied to biomedical fields. His research experience eventually led to his passion for discovering solutions for complex drug-delivery, immunological and tissue engineering problems. He developed an injectable drug delivery system for promising, hard-to-deliver, poorly soluble drugs, allowing for easy syringe-based injections of therapeutics with improved long-term delivery and release profiles. As an Amgen Scholar at Stanford in the Materials Science and Engineering Department, he developed a new class of protein-based dual cross linking 3D bioprinting inks that address major challenges in scalability. He also worked on technology in collaboration between the University of Minnesota Medical School and Precision Horizons that developed 3D printed *in vitro* cell culture and drug release models for studying a rare lysosomal storage disease (MPS 1).

He has a near perfect GPA, with just one A- since he started taking courses at the University of Minnesota during his junior year in high school. He is a recipient of a Goldwater Scholarship, an Astronaut Scholarship, and several undergraduate research awards. He is also passionate about investing in young scientists and to this end, has co-founded an early-stage accelerator called CoCreateX which provides engineers, inventors, and young scientists with an incubator space and resources to commercialize their discoveries. Anthony is the third Churchill Scholar in a row from the University of Minnesota. He has already won an NSF graduate fellowship.

Julian Vigil

HOMETOWN
Albuquerque, New Mexico
INSTITUTION
University of New Mexico
(BS, Chemical Engineering)
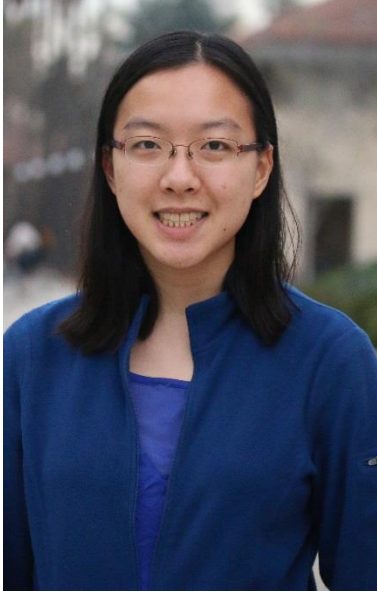TO STUDY
MPhil, Chemistry
Department of Chemistry

Interconverting electrical and chemical energy is crucial to the viability of renewable power and requires efficient catalysts. Precious metal catalysts (such as platinum) are used commercially, but these elements are in short supply and expensive. Julian is interested in identifying new alternative catalysts derived from earth-abundant materials. At Cambridge he will pursue this goal in Dr. Erwin Reisner's lab, working on a project to develop novel molecular catalysts for hydrogen production and further explore solar-assisted water electrolysis.

Julian began his research career as a rising high school senior at Sandia National Laboratories in Dr. Timothy Lambert's group, and has continued to work there as an undergraduate. In addition to the tasks of identifying and synthesizing active catalysts, he is driven to understand the fundamental science behind why some catalysts are active and some are not. His group has focused on developing non-precious metal nanostructured electrocatalysts such as manganese oxide and cobalt oxide for the oxygen reduction, oxygen evolution, and hydrogen evolution reactions. His group's work recently resulted in one of the first publications elucidating the role of the Mn^{3+}/Mn^{4+} on manganese oxide surfaces for the oxygen reduction reaction. His more recent focus has been on solar water splitting through the use of composites which have bifunctional surfaces for catalysis and electron transfer. He has co-authored seven peer-reviewed articles and is first-author on three of them, with two more under review or in preparation for submission.

Julian has received an A+ in 24 of the 35 courses he has taken. He is the chapter president of the American Institute of Chemical Engineers (AIChE) and, as part of the first generation in his family to attend college, is passionate about promoting STEM to local students and underrepresented minorities. He is a Goldwater Scholar and a Regents Scholar and the recipient of multiple academic awards for undergraduate research. A year before the application deadline, Julian contacted the Foundation to see if his university could be admitted as a Participating Institution. The University of New Mexico quickly applied, was accepted into the network, and Julian has now become its first-ever Churchill Scholarship recipient. He has already won an NSF graduate fellowship.

Vivian Wang

HOMETOWN
Ellicott City, Maryland
INSTITUTION
Stanford University
(BS, Electrical Engineering)
TO STUDY
MPhil, Physics
Department of Physics

Vivian will work with Professor Ulrich Keyser (Department of Physics: Biological and Soft Systems) to develop a method for detecting alterations in concentration levels of certain proteins and for quantifying them in order to identify elevated disease risk. Her thesis will involve the design of a nanopore-based device capable of real-time quantification of biomarkers.

Ever since she dissected a frog in middle school and isolated the sciatic nerve, Vivian has been interested in bioelectrical phenomena. She is now interested in electrical biosensors that can sense biomolecular and cellular properties. She would like to develop a device to analyze biological quantities at the nano-micro scale level, in order to provide real-time health information to patients and consumers. As an undergraduate, she has done research on fluorescence-based biosensors as well as label-free, impedance-based biosensors. She has done research at the Leibniz Institute for Solid State and Materials Research in Germany, where she became familiar with the issues surrounding sensor fabrication.

Vivian has a GPA over 4.0 with 17 A+ grades so far. A mathematical artist, she has exhibited twice in the juried Bridges Conference Mathematical Art Exhibition and is the recipient of a departmental design award given to the top undergraduate final project. Vivian is the third Churchill Scholar in a row from Stanford. She has already won an NSF graduate fellowship.

Michael Zhao

HOMETOWN
Salt Lake City, Utah
INSTITUTION
University of Utah
(BS, Mathematics, Computer Science)
TO STUDY
MASt, Pure Mathematics
Department of Pure Mathematics
and Mathematical Statistics

While taking a number theory course in eighth grade, Michael became captivated by deceptively simple math questions that were posed in class, such as Goldbach's Conjecture and Fermat's Last Theorem. In high school, he attended the Canada/USA Mathcamp, where he acquired diverse mathematical interests. Most recently, his interests have turned to the Langlands program, a unified explanation of certain phenomena in algebraic geometry, number theory, and representation theory. He hopes that Cambridge's courses on these topics will build upon his knowledge so that he can pursue a research career with a focus on the Langlands program.

Michael has worked on research projects from many different areas of mathematics, including materials science, random graph theory, computer vision, and number theory. His senior honors thesis on the subject of quaternion algebras develops a quatemionic analogue of Gauss's composition law. Michael has also completed a competitive internship with Google's Identity Testing team and was awarded a spot in the Research in Industrial Projects for Students (RIPS) program held on the campus of Hong Kong University of Science and Technology, where his team successfully built a logo recognition program.

Michael is a Goldwater Scholar and has a near-perfect GPA. He is the second mathematician in two years from the University of Utah to win the Churchill Scholarship.

Angela Zou

HOMETOWN
San Diego, California
INSTITUTION
UC-San Diego
(BS, Bioengineering, Bioinformatics)
TO STUDY
MPhil, Biological Science
Wellcome Trust Sanger Institute

Angela will work in Dr. Sarah Teichmann's lab studying changes in gene transcription and chromatin accessibility in mice CD4+ T cells activated with live malaria infection. Using cutting-edge computational methods and genomic sequencing technologies, Angela hopes to uncover the regulatory mechanisms affecting T-cell fate decision making and plasticity.

As an undergrad in the lab of Professor Weg Ongkeko, one of her first major tasks was to find a panel of non-coding RNAs that might serve as biomarkers and potential treatments for head and neck cancer. Turning to bioinformatics and engineering driven approaches, she helped conduct some of her lab's first whole-transcriptome analyses of sequencing data. In collaboration with labmates, physicians, and scientists, she has taken terabytes of data and made novel discoveries about cancer-associated non-coding RNAs and found links to patient prognosis as well as to regulation of cancer progression.

Angela is a Goldwater Scholar and a recipient of multiple academic scholarships and research fellowships including the prestigious Regent's Scholarship. In one of UCSD's most difficult majors, she has achieved 23 A+ grades so far. She is first author on three of her four publications and is currently in the process of submitting three more papers for publication as first author or co-first author. She is editor-in-chief and founder of the *Undergraduate Research Journal*, her University's first interdisciplinary research journal bringing together students from all majors. She intends to pursue an MD/PhD after her year in Cambridge.