Stanford Bio-X PhD Fellowships 2019

Stanford Bio-X Fellows

The Stanford Bio-X Graduate Fellowships

The mission of the Stanford Bio-X Program is to catalyze discovery by crossing the boundaries between disciplines to bring interdisciplinary solutions, to create new knowledge of biological systems, and to benefit human health.

Since it was established in 1998, Stanford Bio-X has charted a new approach to life science research by bringing together clinical experts, life scientists, engineers, and others to tackle the complexity of the human body. Currently over 970 Stanford Faculty and over 8,000 students, postdocs, researchers, etc. are affiliated with Stanford Bio-X. The generous support from donors, including the Bowes Foundation, enables the program to remain successful—at any given time, Stanford Bio-X is training at least 60 Ph.D fellows, and Fall 2019 brings 26 new fellows to the program.

The Stanford Bio-X Graduate Fellowship Program was started to answer the need for training a new breed of visionary science leaders capable of crossing the boundaries between disciplines in order to bring novel research endeavors to fruition. Since its inception in 2004, the three-year fellowships, including the Stanford Bio-X Bowes Fellowships and the Bio-X Stanford Interdisciplinary Graduate Fellowships (Bio-X SIGFs), have provided 297 graduate students with awards to pursue interdisciplinary research and to collaborate with multiple mentors, enhancing their potential to generate profound transformative discoveries.

Stanford Bio-X Fellows become part of a larger Stanford Bio-X community of learning that encourages their further networking and development. We achieve this through formal career development workshops and through the Stanford Bio-X Travel Program, where we award grants to fellows who are accepted to give talks at national and international meetings. Stanford Bio-X Fellows are provided the opportunity to present their work at all Stanford Bio-X symposia in order to share their knowledge and interact with other students, faculty, and members of the industry.

Stanford Bio-X Fellows 2015 group photo

Success at Stanford and beyond…

2004 Stanford Bio-X Bowes Fellow Andreas Loening became an assistant professor in the department of radiology at Stanford University in 2015. He received an R21 Trailblazer Award from the National Institutes of Health in 2019, an opportunity for new and early stage investigators to pursue research programs of high interest to the National Institute of Biomedical Imaging and Bioengineering (NIBIB) at the interface of the life sciences with engineering and the physical sciences, and to investigate the development of activatable MR contrast agents for detecting prostate cancer.

2006 Stanford Bio-X Bowes Fellow Kathryn Keenan was one of ten researchers from the U.S. Department of Commerce's National Institute of Standards and Technology (NIST) to receive a Presidential Early Career Award for Scientists and Engineers (PECASE) in 2019. This award is the highest honor bestowed by the United States government to science and engineering professionals in the early stages of their independent research careers. Kathryn was recognized for "transforming magnetic resonance imaging into a quantitative tool to diagnose and treat cancer and neurodegenerative diseases through the development of a world-first standard suite, providing leadership in the medical and scientific community, and through technology transfer and mentoring."

2011 Colella Family Fellow and Stanford Bio-X SIGF Samir Menon founded and became the CEO of Dexterity, Inc., a start-up focused on developing autonomous robots with human-like dexterity for applications in logistics, supply chain, and warehousing, in 2017. Samir has authored many research papers on robotics, haptics, human biomechanics, and spiking neural networks and has co-chaired and organized workshops at numerous Institute of Electrical and Electronics Engineers meetings.

2008 Stanford Bio-X Bowes Fellow Mark Sellmyer became an assistant professor of radiology with a secondary appointment in biochemistry and biophysics at the University of Pennsylvania in 2018. His lab focuses on molecular and chemical tool development for applications in cancer biology and infectious disease. Clinically, Mark is an attending physician in nuclear radiology. He recently received the Burroughs Wellcome Fund Career Award for Medical Scientists and the National Institutes of Health Director's Early Independence Award.

2014 Stanford Bio-X Bowes Fellow Lyndia Wu became an assistant professor in the mechanical engineering department at the University of British Columbia in Vancouver, Canada in 2018. During her first year of appointment, she successfully obtained a Natural Sciences and Engineering Research Council (NSERC) Discovery Grant, a New Frontiers in Research Fund Grant, and a Michael Smith Foundation Scholar Award for her research in sports concussions.

Graduates of the program have transitioned to promising postdoctoral positions or medical training and to successful careers in academia and industry, while others have established their own start-up companies. Six of our alumni—Adam de la Zerda, Andreas Loening, Guillem Pratx, David Myung, David Camarillo, and Xiaojing Gao—are now faculty members at Stanford University. Additionally, our fellows publish high-impact first-author journal articles, receive grants and fellowships from Fulbright, the National Institutes of Health (NIH), the National Research Service Awards (NRSA), and the National Science Foundation (NSF) among others, file patent applications, and give TEDx talks, exemplifying the importance of interdisciplinary research.

To learn about the successes of our alumni, please see page 28.

Stanford Bio-X Graduate Fellowships 2019

Lawrence Bai

Stanford Bio-X Bowes Fellow

Immunology

Mentors: Aida Habtezion (Medicine – Gastroenterology & Hepatology), Purvesh Khatri (Medicine – Biomedical Informatics and Biomedical Data Science) , and Paul (PJ) Utz (Medicine – Immunology and Rheumatology)

Elucidating the Role of Epigenetic Modifications in Inflammatory Bowel Disease (IBD) Pathogenesis and Presentation Using Mass Cytometry

IBD, which includes Crohn's Disease (CD) and Ulcerative Colitis (UC), impacts 3 million US adults and is increasing in incidence. Despite significant associations between IBD and genetics, diet, and the microbiome, its etiology remains unknown. Epigenetics, or the study of non-genetic modifications to the organism's gene expression, potentially links all three factors but has not been thoroughly studied in IBD. Using a novel single-cell technology, EpiTOF, Lawrence will study the epigenetics of immune cells from patients with IBD using state-of-the-art analytic methods to better understand and identify epigenetic differences in IBD pathology, which could ultimately lead to the development of novel and effective therapies for patients with IBD.

Kaisha Benjamin

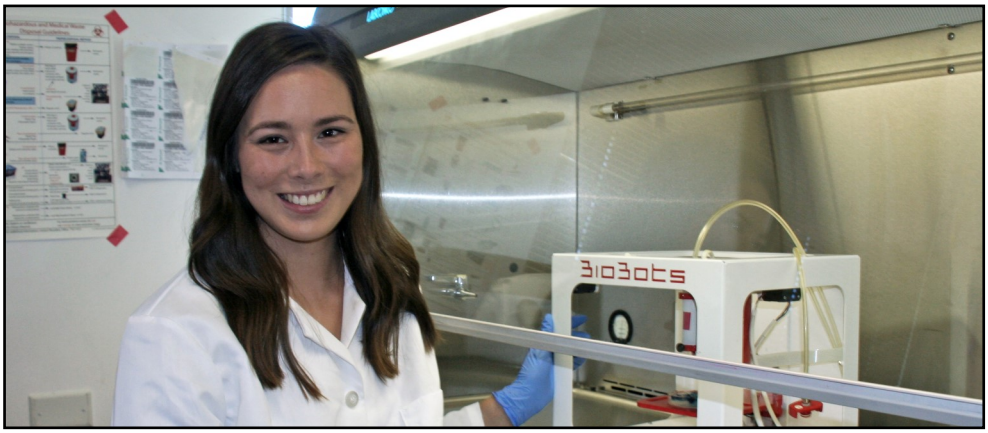
Stanford Bio-X Bowes Fellow

Bioengineering

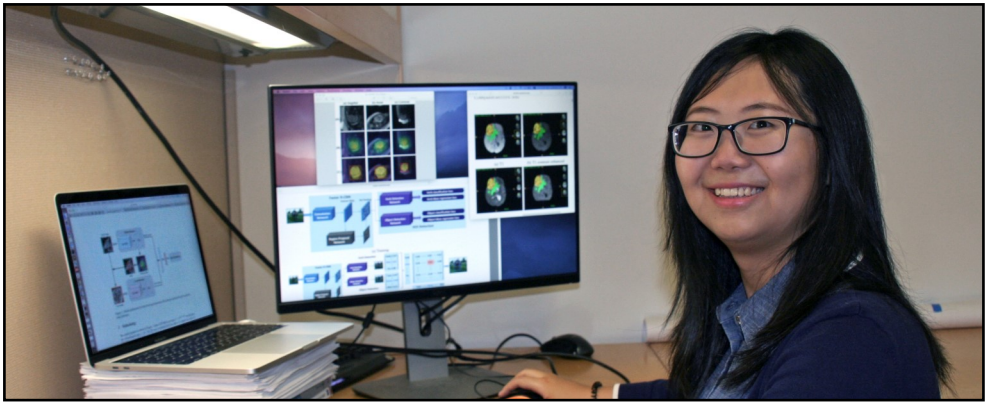
Mentors: Andrew Endy (Bioengineering) and Bruce Buckingham (Pediatrics – Endocrinology)

Engineering a Live Bacterial Therapeutic for Type I Diabetes (T1D)

T1D is a chronic endocrine disorder that is characterized by dangerously high blood glucose levels. Inadequate glycemic control results in serious micro- and macrovascular complications. Advances in synthetic biology enable the possibility of developing novel therapeutics via engineered bacteria. Thus, Kaisha will develop a live bacterial therapeutic for T1D using the skin commensal bacterium *Staphylococcus epidermidis* by integrating a genetic system that senses blood glucose and produces insulin in response to elevated blood glucose levels. This will pave the way for the development of a novel approach to TID treatment.



Rogers Family Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF Sarah Hull
(see pg. 10 for research details)



Stanford Bio-X Bowes Fellow Liyue Shen (see pg. 12 for research details)

Pamela Cai

Stanford Bio-X Honorary Fellow
Chemical Engineering

Mentors: Andrew Spakowitz (Chemical Engineering and Materials Science & Engineering), Sarah Heilshorn (Materials Science & Engineering), and Justin Sonnenburg (Microbiology & Immunology)

Characterization and Modeling of Intestinal Mucus as an Anti-Microbial Barrier

The intestinal mucosal layer plays a critical role in protecting the body from harmful pathogens; therefore, disruption of this protection barrier may lead to infection and disease. Previous work on mice has shown that dietary emulsifiers, ubiquitous in processed foods, can promote inflammation by decreasing mucus thickness and allowing encroachment of microbiota into the mucosal layer. Pamela will examine how the rheology (i.e. study of flow) of mucus informs the mechanics of bacterial invasion. She proposes to develop a high-throughput, predictive model for rapidly assessing the effects of dietary additives on the rheology of mucus and elucidating connections between mucus rheology and disease.

Robert Coukos

Stanford Bio-X Skippy Frank Fellow
Genetics

Mentors: Alice Ting (Genetics and Biology) and Michael Bassik (Genetics)

An Integrated Protein Engineering and Functional Genomics Approach to Investigate the Insertion Pathway of Mitochondrial Tail-Anchored Proteins

Mitochondrial tail-anchored proteins are featured in a variety of key cellular processes, such as apoptosis and mitochondrial fission/fusion dynamics, which play important roles in cancer pathology. Understanding the proper trafficking of these proteins is critical for understanding their function. However, identification of the machinery which regulates the localization of these proteins is an endeavor that has been hampered by technological limitations for over two decades. Robert has proposed a new methodology to identify these factors by integrating high-throughput functional genomics and protein engineering to do genome-wide screening of protein localization within live cells. This methodology will utilize a newly developed tool called "SPARK" ("Specific Protein Association tool giving transcriptional Readout with rapid Kinetics") that capitalizes on fluorescent protein expression while also expanding the capabilities of CRISPR gene-editing techniques, thus addressing a key objective in the development of genetic screening technology.

Rebecca Culver

Stanford Bio-X Honorary Fellow

Genetics

Mentors: KC Huang (Bioengineering and Microbiology & Immunology) and Michael Fischbach (Bioengineering)

General Genetic Tools for Discovery of Functional Pathways in the Human Gut Microbiota

Microbial species within the gastrointestinal tract play critical roles in human health and disease. Challenges in genetic engineering are a primary bottleneck in annotating the molecular functions of genes within this community, thus there is a general lack of understanding of the genetic pathways and interactions essential for metabolism, physiology, and stress responses of the gut microbiota. Rebecca proposes to establish large-scale functional genomic methods that can be used systematically to characterize many genes and require very little species-specific re-tooling. She hopes to lay the foundation for a new species-agnostic era of interrogating and exploiting microbial function across the diverse species that interact with human hosts by combining the fields of bacterial physiology with the CRISPR gene-editing technology and analysis of metabolic pathways.

Olivia de Goede

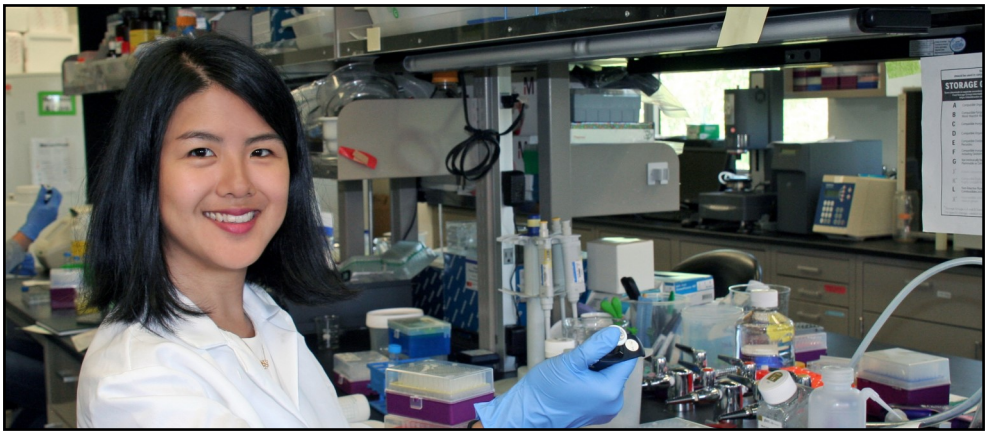
Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF

Genetics

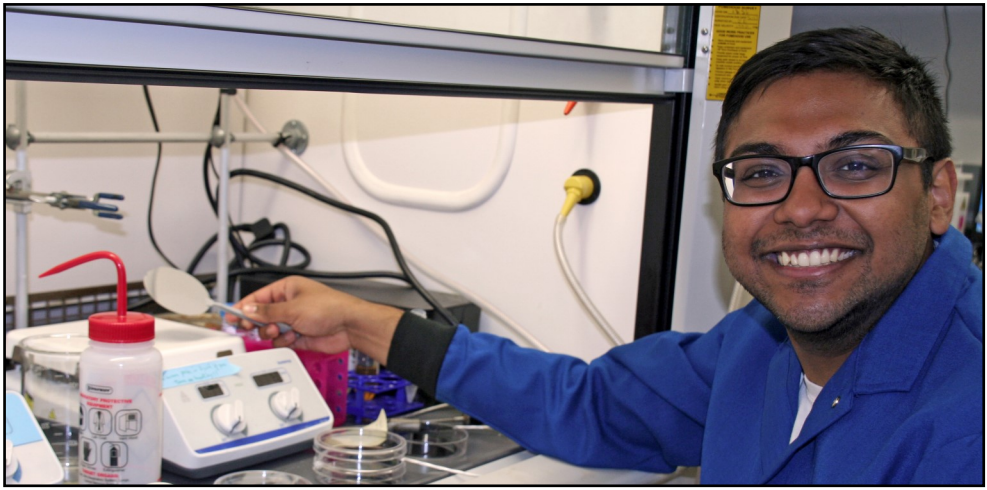
Mentors: Karla Kirkegaard (Genetics and Microbiology & Immunology), Stephen Montgomery (Pathology and Genetics), Jan Carette (Microbiology & Immunology), and Aaron Straight (Biochemistry)

Defining the Regulatory Roles of Long Non-Coding RNAs in the Immune System

Long non-coding RNAs (lncRNAs) have integral functions in key processes like dosage compensation, embryonic development, and the immune response. Despite their crucial role, lncRNAs are often ignored in gene expression studies. As a result, only a fraction of lncRNAs in the genome have been functionally characterized, and the others are largely unexamined. Olivia will combine computational genomics and experimental immunology to interrogate lncRNA regulation of immune system function. The goal of this project is to define healthy regulatory variation in immune-associated lncRNAs and to understand how their dysregulation relates to autoimmune disease development.



Stanford Bio-X Honorary Fellow Pamela Cai (see pg. 5 for research details)



Rosenberg Ach Family Fellow, Stanford Bio-X SIGF Ajay Subramanian (see pg. 13 for research details)

Stephan Eismann

Stanford Bio-X Bowes Fellow

Applied Physics

Mentors: Ron Dror (Computer Science) and Rhiju Das (Biochemistry)

RNA Structure Prediction and Design Using Deep Neural Networks

Fueled by algorithmic improvements, advances in parallel hardware, and the availability of large training datasets, artificial neural networks have revolutionized the field of image classification. In contrast, machine learning in structural biology has been hindered by the problem of how to better represent molecular structures for machine learning algorithms. Stephan will be developing a deep learning framework to approach RNA structure prediction and design in an entirely new form. Stephan's goal is to have the ability to predict the nucleotide sequence for a desired structure and to open the door for designing a new array of sensor RNAs that target molecules ranging from neurotransmitters to immune system messengers.

Corey Fernandez

Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF

Neurosciences

Mentors: Anthony Wagner (Psychology), Lisa Giocomo (Neurobiology), and Jay McClelland (Psychology)

An Integrated Approach to Investigating Dynamic Memory Processes in Goal-Directed Behavior

As we learn, dynamic memory processes integrate new experiences into existing memory representations to build structured knowledge about the world. The emergence of structured knowledge is crucial for planning and decision-making, but poor insight into these processes has limited our understanding of memory-guided behavior. Corey proposes a comprehensive research program that leverages computational approaches and experimental data from human and rodent studies, which enables novel investigations into the neurobiological mechanisms underlying experience-driven changes in memory representations. A mechanistic understanding of these dynamic processes will provide insight into foundational cognitive questions and advance efforts to optimize human and machine learning.

JONAS FOWLER

Stanford Bio-X Honorary Fellow
Stem Cell Biology & Regenerative Medicine

Mentors: Kyle Loh (Developmental Biology) and Hiromitsu Nakauchi (Genetics)

Combining Developmental Biology and Immunology to Efficiently Generate Human T Cells* In Vitro *from Pluripotent Stem Cells

Recent cancer immunotherapy successes have reinvigorated interest in T cell biology. However, it is presently difficult to obtain large numbers of human T cells of defined specificity and subtype for research or therapy, as primary T cells do not proliferate long-term *in vitro*. Leveraging developmental biology and immunology, Jonas proposes to efficiently differentiate human pluripotent stem cells (hPSCs) into definitive blood progenitors and, subsequently, mature T cells. Reconstituting T cell development *in vitro* will illuminate our knowledge of T cell development. Moreover, access to a limitless supply of human T cells from hPSCs will accelerate future cancer immunotherapies and provide a tractable platform to interrogate T cell biology.

TONY GINART

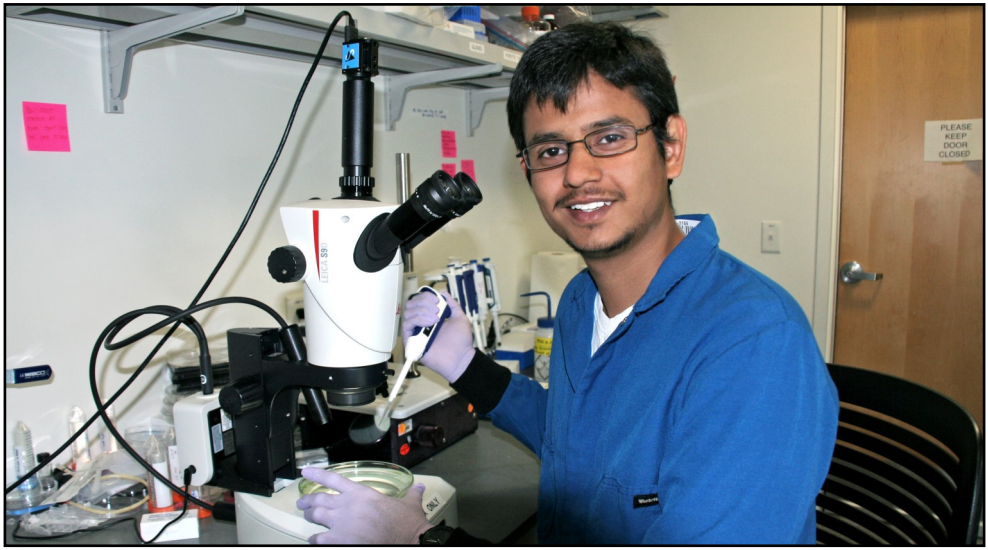
Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF
Electrical Engineering

Mentors: James Zou (Biomedical Data Science) and Mark Schnitzer (Biology and Applied Physics)

Visual Inception with Optogenetic Actuators and Deep Generative Control

Brain-machine interfaces (BMIs) will be among the most revolutionary technologies of the 21st century. One of the most highly sought-after applications of BMIs is the ability to directly write in sensory perception to the conscious mind, enabling advances in medical treatment of brain dysfunction. Here, Tony proposes to engineer a novel system for inducing complex, synthetic visual percepts with transformative innovations, enabling him to build a real-time control system that injects detailed visual scenes directly into the subject's mind via manipulation of cortical activation patterns.

Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF Olivia de Goede
(see pg. 5 for research details)



Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF Pranav Vyas
(see pg. 14 for research details)

LINDSEY HASAK

Stanford Bio-X Fellow
Education

Mentors: Bruce McCandliss (Education) and Anthony Norcia (Psychology)

Imaging the Emergence of Letter-Sound Cortical Associations in Children within Schools

Learning to read requires a reorganization of cortical networks to create pathways linking visual and language circuits. This process is critical for students' educational trajectories, but rarely studied within actual school contexts. Lindsey has proposed a school-based research project using short training studies to measure changing cortical responses to audiovisual (AV) integration, a process known to reflect children's reading ability. Using school-based electroencephalography (EEG), Lindsey will measure evoked responses specific to the integration of letters and speech sounds. This will demonstrate how dynamic AV integration links to literacy gains with a future goal of informing how we help children learn to read.

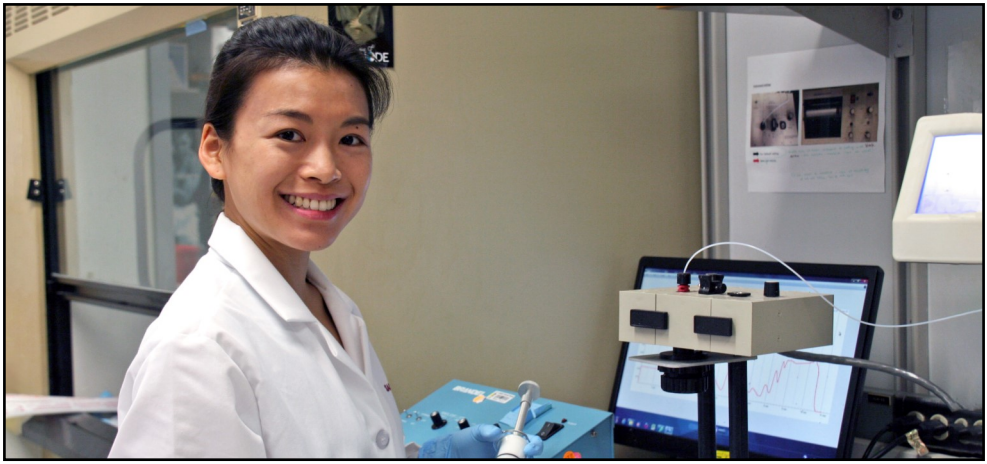
NINA HOROWITZ

Mona M. Burgess Fellow, Stanford Bio-X SIGF
Bioengineering

Mentors: John Sunwoo (Otolaryngology – Head & Neck Surgery) and Garry Nolan (Microbiology & Immunology)

High-Dimensional Profiling of Novel Innate Lymphoid Cells to Determine Their Function and Immunotherapeutic Potential

Natural killer (NK) cells are innate lymphoid cells (ILCs) that kill tumor cells and activate other cells to enhance adaptive antitumor immune responses. The Sunwoo lab has recently discovered novel intratumoral NK-like ILCs, but potential differences in their function are unknown because current assays are limited in scope. Nina will be engineering two multiplexed technologies in collaboration with the Nolan lab to profile the phenotypes and behavior of intratumoral ILCs, while also analyzing the activation state of these cells in cancer patients undergoing a specific therapy, to begin determining the ILCs' therapeutic potential.



Morgridge Family SIGF Fellow, Stanford Bio-X SIGF Adele Xu (see pg. 16 for research details)

SARAH HULL

Rogers Family Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF

Chemical Engineering

Mentors: Sarah Heilshorn (Materials Science & Engineering) and David Myung (Ophthalmology)

Investigation of Stem Cell Regeneration of the Cornea Using Bioorthogonally Crosslinked Hydrogels

Corneal stromal stem cells (CSSCs) have the potential to regenerate deeply wounded corneas and restore corneal transparency. However, the lack of technological means to deliver the cells and a limited understanding of the mechanism behind their regenerative potential have stalled clinical translation. Sarah has proposed the development of a bioorthogonally crosslinked, collagen-based material system to encapsulate and deliver CSSCs to the ocular surface without interfering with the existing processes of the eye. This materials platform avoids the confounding effects from traditional cross-linking chemistries reacting with biological systems, thus helping us determine the key regulators of CSSC phenotype.

CHUNZI LIU

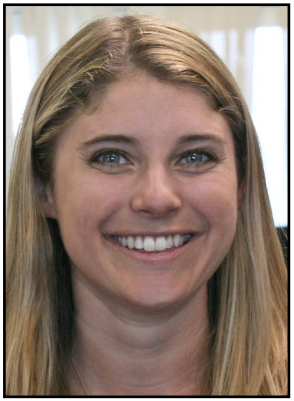
Stanford Bio-X Bowes Fellow

Chemical Engineering

Mentors: Gerald Fuller (Chemical Engineering), Carolyn Bertozzi (Chemistry), and David Myung (Ophthalmology)

Investigating the Altered Surface Properties of Mucin-Deficient Corneal Epithelium and Their Contributions to Dry Eye Disease

Dry eye disease (DED) influences hundreds of millions of people across the world, but a clear pathology remains elusive. Altered ocular mucin (a protein found in mucus) concentration and glycosylation are observed in some DED patients, but the relationship between mucin dysfunction and DED is unclear. Chunzi will utilize a mucin-specific enzyme to induce mucin deficiency in stratified corneal epithelium, and study the epithelium's surface properties through a combination of surface science and rheology methods. The results can potentially illustrate the lubrication mechanism of mucins present at biological interfaces. Chunzi will also test and explore possible short-term treatments for DED, including the use of the mucin-like protein, lubricin, to potentially restore lubrication to the eye.



Molly Lucas

Stanford Bio-X Bowes Fellow

Neurosciences

Mentors: Amit Etkin (Psychiatry & Behavioral Sciences) and Fei-Fei Li (Computer Science)

Closed-Loop Treatment Optimization for Repetitive Transcranial Magnetic Stimulation with Reinforcement Learning

Major depression is a highly prevalent (and often drug-resistant) disorder. Repetitive Transcranial Magnetic Stimulation (rTMS) leads to remission in about 30-40% of patients, which is impressive in spite of this being a first-generation treatment protocol. There is much room for improvement, particularly with regards to selecting stimulation parameters to maximize therapeutic effects. Using reinforcement learning algorithms, Molly will develop a fully-automated, individualized approach for rTMS. This adaptive protocol will modify treatment parameters in real time for each unique subject with the goal of eliciting a certain brain state quantified by electroencephalography (EEG) with higher efficacy than traditional rTMS.

Caitlin Maikawa

Stanford Bio-X Bowes Fellow

Bioengineering

Mentors: Eric Appel (Materials Science & Engineering) and Bruce Buckingham (Pediatrics – Endocrinology)

Supramolecular Designer Excipient for Improved Insulin Formulations

In the United States, 1.5 million Americans have Type 1 Diabetes and rely on subcutaneous daily insulin injections or insulin infusion pumps as an insulin replacement therapy. However, insulin alone is not sufficient to restore native metabolic signalling pathways. Caitlin's project will generate a new combination drug therapy for the treatment of diabetes that more closely mimics the endogenous beta-cell secretion. The interdisciplinary approach of this project will exploit a particular biomaterial to develop novel dual-hormone formulations with the ability to restore native signaling pathways and enable true replacement therapy, transforming diabetes treatment.

Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF Tony Ginart
(see pg. 8 for research details)

NICOLE SCHIAVONE

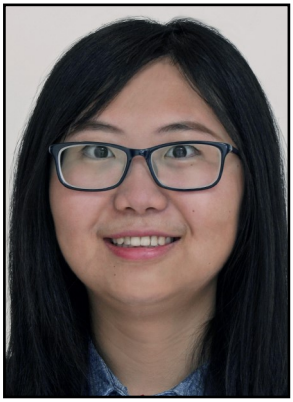
Stanford Bio-X Bowes Fellow

Mechanical Engineering

Mentors: Alison Marsden (Bioengineering and Pediatrics – Cardiology), Doff McElhinney (Cardiothoracic Surgery and Pediatrics – Cardiology), and John Eaton (Mechanical Engineering)

Integrated* In Vitro *and* In Silico *Analysis of Premature Bioprosthetic Pulmonary Valve Dysfunction in Children with Tetralogy of Fallot

Surgical treatment for Tetralogy of Fallot (ToF), the most common cyanotic congenital heart defect, often requires pulmonary valve replacement. While most bioprosthetic valves (BPVs) are subject to dysfunction within 15 years of implantation, they fail early and unpredictably in as many as 30% of ToF patients. Risk factors contributing to early failure are poorly understood, and reinterventions are significant causes of morbidity and mortality. There is an unmet clinical need for strategies to aid clinicians in valve placement that can increase valve longevity. Nicole will establish quantitative links between the environment surrounding the right ventricle outflow tract, adverse flow conditions, and impaired BPV performance.



LIYUE SHEN

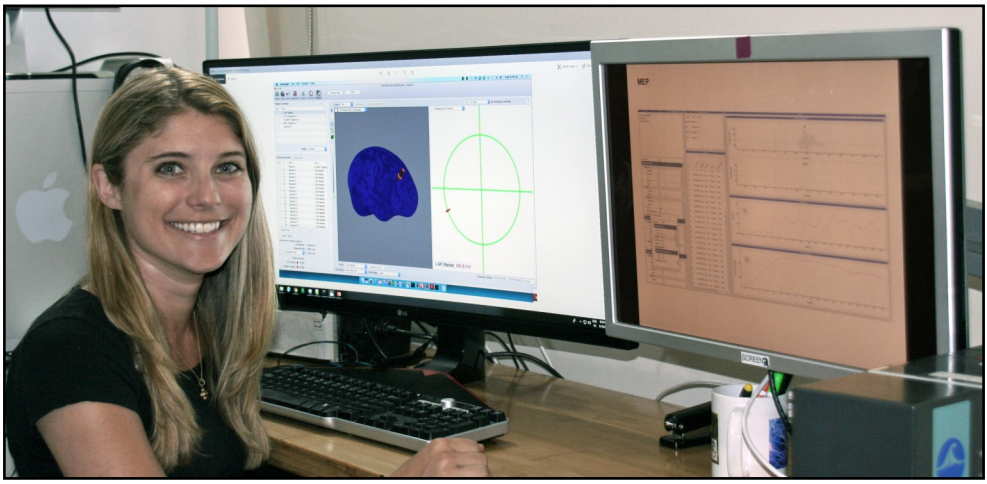
Stanford Bio-X Bowes Fellow

Electrical Engineering

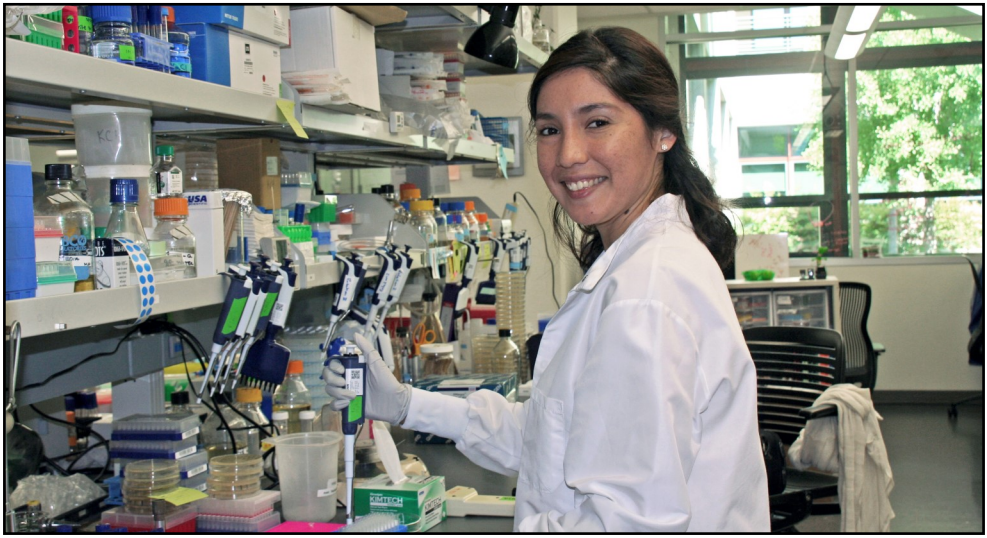
Mentors: John Pauly (Electrical Engineering) and Lei Xing (Radiation Oncology – Radiation Physics)

Enabling Single-View Computed Tomography by Deep Learning for Image Guided Interventions

Tomographic imaging using penetrating radiation is a fundamental approach to generating cross-sectional views of the internal anatomy of living subjects. Current imaging methods with sparse sampling still do not address the unmet need for real-time imaging. Recent advances in deep learning provide enabling tools to transform the way that an image is reconstructed. In this project, Liyue will investigate deep learning strategies for single-view and few-view 3D volumetric imaging and demonstrate its advantages in image-guided interventions. This project expects to push the limits of single-view in tomographic imaging, and open new opportunities for numerous clinical applications.



Stanford Bio-X Bowes Fellow Molly Lucas (see pg. 11 for research details)



Stanford Bio-X Bowes Fellow Kimberly Vasquez (see pg. 14 for research details)

AJAY SUBRAMANIAN

Rosenberg Ach Family Fellow, Stanford Bio-X SIGF
Materials Science & Engineering

Mentors: Guosong Hong (Materials Science & Engineering) and Marion Buckwalter (Neurology & Neurological Sciences and Neurosurgery)

Injectable Photovoltaics for Wireless, Gliosis-Free Deep Brain Stimulation

One major challenge in developing therapeutic neural implants is preventing the immune response and chronic gliosis (or changes due to the damage to the central nervous system) that occur at the interface between the implant and the neural tissue, preventing accurate neural recording and stimulation. Ajay is developing injectable stimulation microdevices fabricated with ultraflexible electronic materials, designed to significantly reduce any chronic immune response. Using state-of-the-art techniques, he will quantify the molecular and cellular effects of the device on glial cells. Thus, Ajay's ultimate goals are two-fold: to create 1) a new neural stimulator and 2) a paradigm for precisely measuring the device's glial response.

LAKSSHMAN SUNDARAM

Stanford Bio-X Bowes Fellow
Computer Science

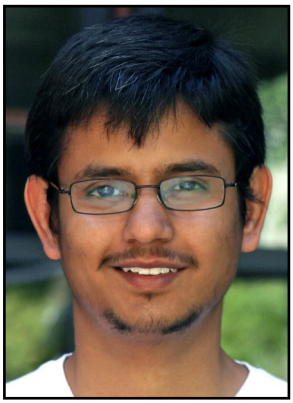
Mentors: Anshul Kundaje (Genetics and Computer Science), William Greenleaf (Genetics), and Michael Bassik (Genetics)

Predicting Deleterious Non-Coding Rare and* De-novo *Sequence Variants in Neurological Disorders

The genome-sequencing revolution is generating large catalogs of genetic variation from diverse populations. However, predicting the phenotypic effects and clinical relevance of variants remains a challenge. Laksshman proposes to use integrative approaches to leverage comprehensive functional genomics data, large-scale genome perturbation experiments, and interpretable deep neural networks to predict the pathogenicity of rare non-coding variants and *de novo* mutations in autism and rare neurodevelopmental disorders. Predicted causal variants will be validated experimentally in neuronal progenitors using CRISPR techniques.

Stanford Bio-X Bowes Fellow Nicole Schiavone (see pg. 12 for research details)

KIMBERLY VASQUEZ
Stanford Bio-X Bowes Fellow
Microbiology & Immunology
Mentors: KC Huang (Bioengineering and Microbiology & Immunology), Gavin Sherlock (Genetics), and Justin Sonnenburg (Microbiology & Immunology)
Tracking Evolution and Community Assembly Within the Mammalian Gut
The gut microbiota is critical for resistance to pathogen invasion, modulation of the immune system, and metabolism. While substantial progress has been made in correlating microbiota composition to host health and disease, the inherent complexity of this ecosystem has precluded mechanistic understanding of the dynamics of colonization and evolution. Kimberly will generate a high-resolution *Bacteroides thetaiotaomicron* library in which cells have heritable 'barcodes' that empower tracking of lineages through sequencing and imaging, and will use this library to study evolution in gnotobiotic mice. This study provides a novel paradigm for studying the ecology and evolution of multispecies communities, helping us to better understand how a healthy microbiota is established in the gut.



PRANAV VYAS
Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF
Bioengineering
Mentors: Manu Prakash (Bioengineering) and Christopher Lowe (Biology)
***Cells to Organism: Morphogenesis, Repair and Size-Control as Emergent Properties of Cell-Scale Interactions in an Early Diverging Metazoan* Trichoplax adhaerens**
Evolutionary transition of primitive clonally multicellular clusters into complex multicellular forms required establishment of developmental mechanisms guided by geometrical and environmental constraints. Pranav's project aims to identify a system that allows us to peek into the past and understand the evolution of developmental mechanisms in the first metazoans. In particular, he will be establishing *T. adharens* as a model system for studying collective cell behavior at an organismal scale, by combining multidimensional microscopy, microfluidics and theoretical condensed active matter physics with classical embryological and molecular biology techniques. This work will benefit the development of fundamental approaches towards understanding morphogenesis, as well as understanding regeneration and wound repair.

JOHN WEN

Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF
Neurosciences

Mentors: Thomas Clandinin (Neurobiology) and Lisa Giocomo (Neurobiology)

Bridging the Computational Gap Between Vision and Navigation

Many species use environmental boundaries to navigate effectively. However, how different organisms extract border information from visual features and subsequently use that information to guide behavior is unclear. John proposes recording the neural activity of mice and flies as they encounter visually-defined borders in virtual reality environments. Recent technical advances have allowed for the simultaneous recording of hundreds of neurons in both species, making it possible to reveal the computations underlying border extraction from visual scenes. The use of these two species will provide a unique opportunity to reveal common principles underlying visually-guided navigation, thus bringing more understanding to how the brain and program neural circuits that affect our behavior.

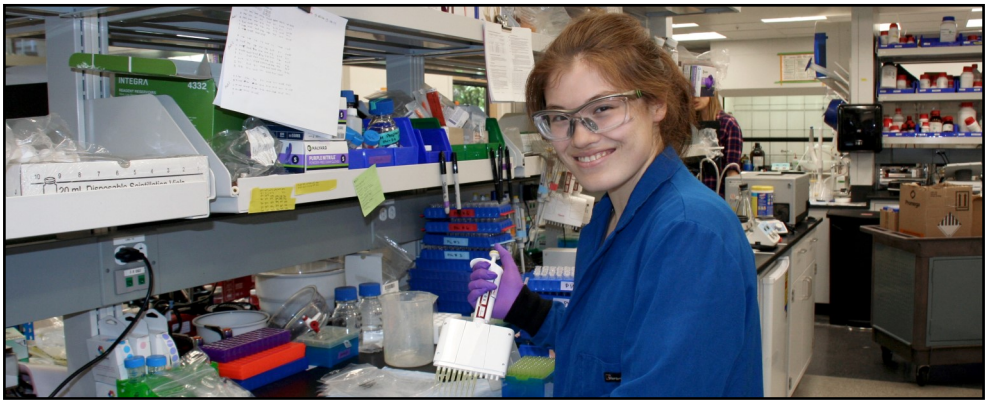
AARON WILK

Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF
Immunology, Medicine

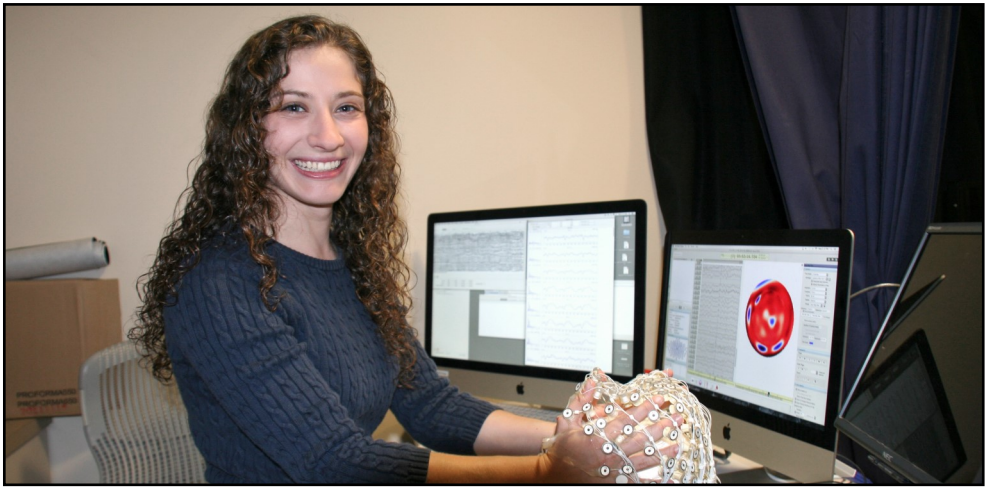
Mentors: Catherine Blish (Medicine – Infectious Diseases), Lacramioara Bintu (Bioengineering), and Paul Wender (Chemistry)

Single-Cell Characterization and Control of Epigenetic Regulation during Human Natural Killer Cell Response to Influenza

Despite modern vaccination strategies, influenza remains capable of causing significant morbidity. Natural killer (NK) cells are heterogeneous innate lymphocytes that respond to influenza-infected cells and strongly influence disease outcome. Recent evidence suggests that epigenetic reconfiguration regulates the strength and specificity of NK cell responses. However, NK cell epigenomics in the context of influenza remains unexplored. Here, Aaron will combine several single-cell technologies in the fields of cell biology, epigenomic engineering, and drug delivery to better understand the mechanisms by which NK cells respond to influenza infection, and possibly manipulate NK cells to induce influenza-specific memory. This approach will improve our understanding of epigenetic mechanisms in NK-mediated control of influenza and enable development of NK cell-based therapeutics.



Stanford Bio-X Bowes Fellow Caitlin Maikawa (see pg. 11 for research details)



Stanford Bio-X Fellow Lindsey Hasak (see pg. 9 for research details)

ADELE XU

Morgridge Family SIGF Fellow, Stanford Bio-X SIGF
Genetics, Medicine

Mentors: Maria Barna (Developmental Biology and Genetics) and Jonathan Pritchard (Biology and Genetics)

Regulation of Gene Translation by Alternative Ribosomal Protein Isoforms in Mammals

Alternative ribosomal proteins (aRPs) are a class of largely unexplored genes with the potential to modulate the cellular machinery that mediates expression of every protein-coding gene. Adele proposes a multidisciplinary approach to functionally characterize mammalian aRPs by focusing on a particular aRP both *in vitro* and *in vivo* to understand aRPs' physiological roles, and also to identify other potentially active aRPs genome-wide by developing a high-throughput computational and proteomic pipeline. These approaches will afford unprecedented depth and breadth of knowledge on these enigmatic genes' physiologic roles in translational regulation.

XINZHI ZOU

Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF
Bioengineering

Mentors: Michael Lin (Neurobiology and Bioengineering) and Julien Sage (Genetics and Pediatrics – Hematology/Oncology)

A Programmable System for Rewiring Aberrant Cancer Signaling to Therapeutic Effector Release

Although we have achieved dramatic improvements in cancer treatment, current therapies are still limited by toxicity to normal cells. Xinzhi proposes a new paradigm for cancer treatment where the abnormal signals that drive tumorigenesis are specifically detected and used to trigger therapeutic responses. The Lin lab has developed a technology called "RASER" (Rewiring Aberrant Signaling to Effector Release) that specifically responds to hyperactive signaling from the protein ErbB. Xinzhi now proposes to translate RASER *in vivo* to ablate tumors and extend the RASER response to additional oncogenic signals. This project will thus build a completely new type of cancer therapy, in which proteins are engineered to specifically identify and destroy cancer cells with cell-to-cell precision.

Stanford Bio-X Graduate Fellowships 2004-2018
(in alphabetical order)

Eliza Adams
Stanford Bio-X Bowes Fellow 2017
Neurosciences
Mentors: Marc Tessier-Lavigne (Biology) and Liqun Luo (Biology)
"Investigating the structural and molecular basis of functional plasticity in activity-defined circuits of the intact adult brain"

Rachel Agoglia
Stanford Bio-X Honorary Fellow 2016
Genetics
Mentors: Hunter Fraser (Biology) and Sergiu Pasca (Psychiatry & Behavioral Sciences)
"Exploring gene regulatory evolution in the human brain"

Suhaas Anbazhakan
Stanford Bio-X Bowes Fellow 2018
Bioengineering
Mentors: Alison Marsden (Pediatrics – Cardiology, Bioengineering) and Kristy Red-Horse (Biology)
"Computational investigations of coronary artery growth mechanisms during embryonic heart development"

Andrés Aranda-Díaz
Stanford Bio-X Bowes Fellow 2016
Bioengineering
Mentors: KC Huang (Bioengineering, Microbiology & Immunology) and Justin Sonnenburg (Microbiology & Immunology)
"A multiscale approach to antibiotic resistance in the gut"

Salil Bhate
Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2016
Bioengineering
Mentors: Garry Nolan (Microbiology & Immunology) and Stanley Lei Qi (Bioengineering, Chemical & Systems Biology)
"Computational interrogation of high-parameter tissue architecture and its implications for cancer immunotherapy"

Matthew Bull
Stanford Bio-X Honorary Fellow 2015
Applied Physics
Mentors: Manu Prakash (Bioengineering), Jan Skotheim (Biology), and Tim Stearns (Biology)
"Collective ciliary modes govern organism-scale behavior—Decision making in the world's simplest animal"

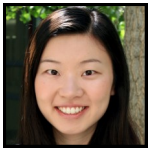
Binbin Chen
Stanford Bio-X Bowes Fellow 2018
Genetics, Medicine
Mentors: Ash Alizadeh (Medicine – Oncology) and Russ Altman (Bioengineering, Genetics, Medicine – BMIR, and Biomedical Data Science)
"Deep learning for personalized cancer vaccine design"

Elizabeth Chen

Rogers Family Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2013
Stem Cell Biology & Regenerative Medicine
Mentors: Michael Clarke (Medicine) and Stephen Quake (Bioengineering, Applied Physics)
"A stem-cell based approach to finding small molecule therapeutic interventions for Alzheimer's"

Shi-An Chen

Morgridge Family SIGF Fellow, Stanford Bio-X SIGF 2018
Biology
Mentors: Hunter Fraser (Biology) and Michael Bassik (Genetics)
"Direct measurement of gene-environment interactions by high-throughput precision genome editing"



Kiara Cui

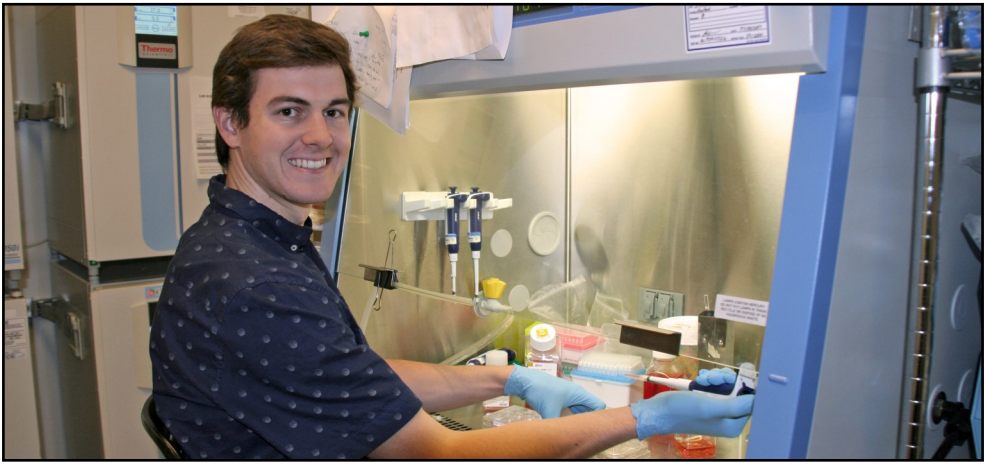
Stanford Bio-X Bowes Fellow 2018
Chemical Engineering
Mentors: Alexander Dunn (Chemical Engineering), Vittorio Sebastiano (Obstetrics & Gynecology – Reproductive Biology), and Gerald Fuller (Chemical Engineering)
"Investigation of murine embryo implantation and development in vitro *using microfluidics"*

Christopher Dembia

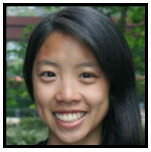
Stanford Bio-X Bowes Fellow 2016
Mechanical Engineering
Mentors: Scott Delp (Bioengineering, Mechanical Engineering), Stephen Boyd (Electrical Engineering), John Day (Neurology, Pediatrics – Genetics), Paul Nuyujukian (Bioengineering), Allison Okamura (Mechanical Engineering), and Walter Murray (Management Science & Engineering)
"Optimizing wearable robots for walking"

Sarah Divel

Stanford Bio-X Bowes Fellow 2016
Electrical Engineering
Mentors: Norbert Pelc (Bioengineering, Radiology), Maarten Lansberg (Neurology), Max Wintermark (Radiology), and Sanjiva Lele (Aeronautics & Astronautics, Mechanical Engineering)
"Optimization of x-ray computed tomography for stroke assessment"



Stanford Bio-X Honorary Fellow Jonas Fowler (see pg. 8 for research details)



Melody Dong
Stanford Bio-X Honorary Fellow 2017
Bioengineering
Mentors: Alison Marsden (Pediatrics – Cardiology, Bioengineering) and Marlene Rabinovitch (Pediatrics – Cardiology)
"Computational modeling of pulmonary arterial hypertension to determine abnormal hemodynamic effects on endothelial gene expression"

Anna Elleman
Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2018
Chemistry
Mentors: Justin Du Bois (Chemistry) and John Huguenard (Neurology & Neurological Sciences)
"Understanding the role of voltage-gated sodium channels in neural hyperexcitability"

Pablo García-Níeto
Stanford Bio-X Bowes Fellow 2017
Biology
Mentors: Hunter Fraser (Biology) and Ashby Morrison (Biology)
"Population genomics of UV-induced mutations"

David Glass
Morgridge Family SIGF Fellow, Stanford Bio-X SIGF 2018
Immunology
Mentors: Sean Bendall (Pathology) and Stephen Quake (Bioengineering, Applied Physics)
"Integrated phenotypic and clonal analysis of functionally-distinct human B cell subsets"

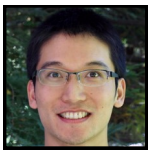
Caleb Glassman
Stanford Bio-X Honorary Fellow 2017
Immunology
Mentors: K. Chris Garcia (Molecular & Cellular Physiology, Structural Biology) and Michael Bassik (Genetics)
"Functional and biophysical investigation of coevolved receptor-ligand interactions using yeast and mammalian surface display"

Emma del Carmen Gonzalez Gonzalez
Stanford Bio-X Bowes Fellow 2018
Chemical Engineering
Mentors: Roseanna Zia (Chemical Engineering) and Drew Endy (Bioengineering)
"Spherically confined colloidal suspensions: a model for intracellular transport"

Amalia Hadjitheodorou
Stanford Bio-X Bowes Fellow 2014
Bioengineering
Mentors: Julie Theriot (Biochemistry, Microbiology & Immunology), Polly Fordyce (Bioengineering, Genetics), and Robert Tibshirani (Statistics, Biomedical Data Science)
"The cytoskeletal circuitry underlying directional decisions during neutrophil migration"

Mary Hall
Stanford Bio-X Bowes Fellow 2018
Mechanical Engineering
Mentors: Marc Levenston (Mechanical Engineering) and Garry Gold (Radiology)
"Contrast agent diffusion as a computed tomography biomarker for early osteoarthritis detection"

Stanford Bio-X Bowes Fellow Kaisha Benjamin (see pg. 4 for research details)



Shuo Han

Stanford Bio-X Bowes Fellow 2017
Chemistry
Mentors: Alice Ting (Genetics, Biology) and Howard Chang (Dermatology)
"Proximity biotinylation for spatially resolved RNA sequencing in living cells"

Timothy Horton

City Hill Foundation Stanford Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2017
Chemistry
Mentors: Justin Annes (Medicine – Endocrinology, Gerontology, Metabolism) and Jennifer Cochran (Bioengineering)
"Confronting the central challenge to developing a regenerative medicine: lineage-specific drug activity"

Brian Hsueh

Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2015
Neurosciences, MSTP
Mentors: Karl Deisseroth (Bioengineering, Psychiatry & Behavioral Sciences), Seung Kim (Developmental Biology), Krishna Shenoy (Electrical Engineering), and David Lyons (Psychiatry & Behavioral Sciences)
"Pathways to clinical CLARITY: methodologies for transparent-volume quantitative analysis of irregular, soft, and heterogeneous tissues in development and disease"

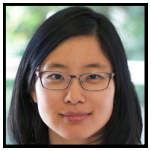
Kwang Eun Jang

Stanford Bio-X Bowes Fellow 2014
Bioengineering
Mentors: Dwight Nishimura (Electrical Engineering) and Shreyas Vasanawala (Radiology)
"Multichannel 3D cone trajectory development for MR abdominal/cardiac imaging"

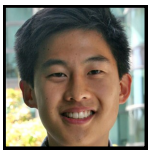
Hannah Kempton

Stanford Bio-X Honorary Fellow 2017
Bioengineering
Mentors: Stanley Lei Qi (Bioengineering, Chemical & Systems Biology) and Garry Nolan (Microbiology & Immunology)
"Dissecting the role of macrophage polarization in the tumor microenvironment"

Margarita Khariton
Lavidge and McKinley Interdisciplinary Fellow, Stanford Bio-X SIGF 2017
Bioengineering
Mentors: Bo Wang (Bioengineering) and William Talbot (Developmental Biology)
"Single-cell dissection of neuronal organization in a regenerative brain"



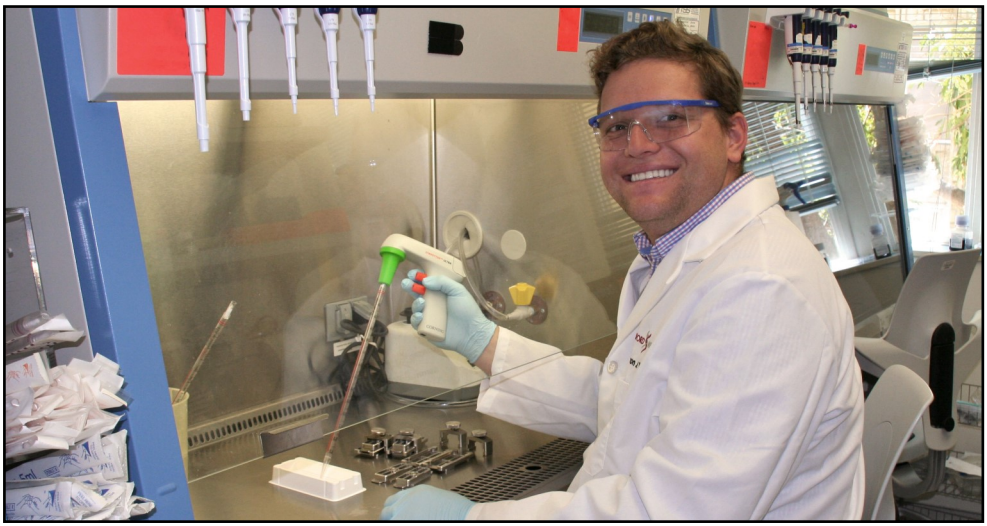
Carolyn Kim
Mona M. Burgess Fellow, Stanford Bio-X SIGF 2017
Computer Science
Mentors: Mohsen Bayati (Operations, Information, & Technology) and Michael Baiocchi (Medicine – Stanford Prevention Research Center)
"Adaptive experimental designs for clinical trials"



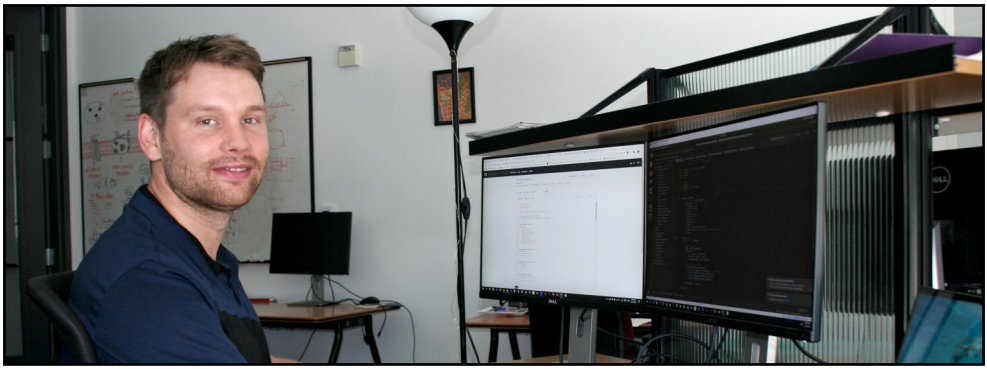
Daniel Kim
Stanford Bio-X Bowes Fellow 2015
Biomedical Informatics, Medicine
Mentors: Anshul Kundaje (Genetics, Computer Science), Paul Khavari (Dermatology), William Greenleaf (Genetics), Howard Chang (Dermatology), and Michael Snyder (Genetics)
"An integrative machine learning framework applied to epidermal differentiation"

Yoon Seok Kim
Stanford Bio-X Bowes Fellow 2016
Bioengineering
Mentors: Karl Deisseroth (Bioengineering, Psychiatry & Behavioral Sciences) and Brian Kobilka (Medicine – Cardiovascular, Molecular & Cellular Physiology)
"Structure-guided expansion of inhibitory optogenetic tools"

Elgin Korkmazhan
Stanford Bio-X Bowes Fellow 2018
Biophysics
Mentors: Alexander Dunn (Chemical Engineering) and William Weis (Structural Biology, Photon Science Directorate, Molecular & Cellular Physiology)
"Spatiotemporal dynamics of beta-catenin at single molecule level in cells under strain"



Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF Aaron Wilk
(see pg. 15 for research details)



Stanford Bio-X Bowes Fellow Stephan Eismann (see pg. 7 for research details)

Deepak Krishnamurthy

Stanford Bio-X Bowes Fellow 2015
Mechanical Engineering
Mentors: Manu Prakash (Bioengineering) and Giulio de Leo (Biology)
"Life under gravity: Multi-scale measurement tools for plankton biophysics and disease ecology"

Hong-pyo Lee

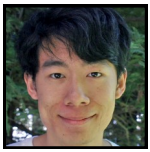
Stanford Bio-X Bowes Fellow 2017
Mechanical Engineering
Mentors: Ovijit Chaudhuri (Mechanical Engineering) and Nidhi Bhutani (Orthopaedic Surgery)
"Utilizing hydrogels with fast stress relaxation for induction and expansion of iPSCs"

Bauer LeSavage

Stanford Bio-X Bowes Fellow 2018
Bioengineering
Mentors: Sarah Heilshorn (Materials Science & Engineering) and Theo Palmer (Neurosurgery)
"Robust and efficient expansion of human neural stem cells for clinical translation"

Steven Leung

Stanford Bio-X Bowes Fellow 2013
Bioengineering
Mentors: Kim Butts Pauly (Radiology) and Pejman Ghanouni (Radiology)
"Computational modeling of high intensity focused ultrasound therapies"



Hongquan Li

Paul Berg Interdisciplinary Biomedical Graduate Fellow, Stanford Bio-X SIGF 2017
Electrical Engineering
Mentors: Manu Prakash (Bioengineering), Fabian Pease (Electrical Engineering), and Leo Hollberg (Physics)
"Open, configurable high-throughput imaging platform for diagnostics and research"

Catherine Liou

Stanford Bio-X Bowes Fellow 2018
Chemical Engineering
Mentors: Elizabeth Sattely (Chemical Engineering) and Justin Sonnenburg (Microbiology & Immunology)
"Plant metabolic engineering to quantify the impact of individual dietary nutrients on host biology"

PAYTON MARSHALL
Stanford Bio-X Bowes Fellow 2017
Immunology, Medicine
Mentors: Paul Bollyky (Medicine – Infectious Diseases, Microbiology & Immunology) and Carolyn Bertozzi (Chemistry)
"Engineering dendritic cells for immune tolerance"

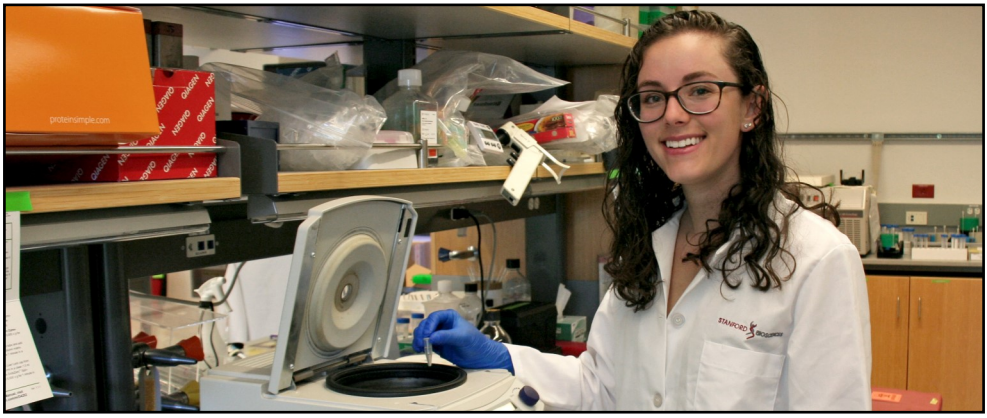
KELLY MCGILL
Stanford Bio-X Bowes Fellow 2017
Immunology
Mentors: PJ Utz (Medicine – Immunology & Rheumatology) and Purvesh Khatri (Medicine – Biomedical Informatics, Biomedical Data Science)
"Sex affects immune system aging"

JORGE MERAZ
Stanford Bio-X Bowes Fellow 2018
Civil & Environmental Engineering
Mentors: Craig Criddle (Civil & Environmental Engineering) and Eric Appel (Materials Science & Engineering)
"Transformation of greenhouse gases into sustainable, biodegradable microbial plastics"

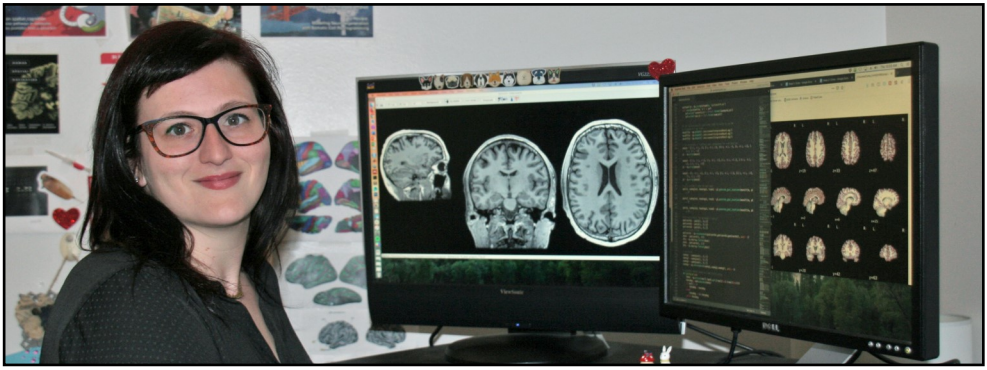
CAITLYN MILLER
Stanford Bio-X Honorary Fellow 2017
Bioengineering
Mentors: Jennifer Cochran (Bioengineering) and Carolyn Bertozzi (Chemistry)
"Targeted approaches for in situ *cancer vaccination"*

MIRA MOUFARREJ
Stanford Bio-X Bowes Fellow 2018
Bioengineering and Computer Science
Mentors: Stephen Quake (Bioengineering, Applied Physics) and David Stevenson (Pediatrics)
"Using cell-free RNA (cfRNA) to investigate prenatal complications"

ABDULMALIK OBAID
Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2018
Materials Science & Engineering
Mentors: Nicholas Melosh (Materials Science & Engineering, Photon Science Directorate) and Jun Ding (Neurosurgery, Neurology & Neurological Sciences)
"A scalable approach to neural recording and stimulation for deep brain stimulation"



Mona M. Burgess Fellow, Stanford Bio-X SIGF Nina Horowitz *(see pg. 9 for research details)*



Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF Corey Fernandez (see pg. 7 for research details)

Johanna O'Day

Stanford Bio-X Bowes Fellow 2017
Bioengineering
Mentors: Scott Delp (Bioengineering, Mechanical Engineering) and Helen Bronte-Stewart (Neurology & Neurological Sciences)
"Developing a novel measurement system to understand the neural and biomechanical signatures of pathological gait in Parkinson's disease"

Petar Petrov

Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2017
Chemistry
Mentors: W. E. Moerner (Chemistry) and Jan Liphardt (Bioengineering)
"Development and application of a light sheet microscope for 3D single-particle tracking of chromatin loci in thick, live mammalian cells"

Samantha Piekos

Tusher Family Stanford Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2018
Stem Cell Biology & Regenerative Medicine
Mentors: Anthony Oro (Dermatology) and Joanna Wysocka (Chemical & Systems Biology, Developmental Biology)
"Identifying the role of craniofacial-associated non-coding genetic variants in directing surface ectoderm differentiation"

Arjun Prabhakar

Affymetrix Bio-X Fellow, Stanford Bio-X SIGF 2016
Biophysics
Mentors: Joseph Puglisi (Structural Biology) and Peter Sarnow (Microbiology & Immunology)
"Probing the dynamics of translation termination and recycling"

Amanda Rabe

Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2016
Cancer Biology
Mentors: Jennifer Cochran (Bioengineering), Edward Graves (Radiation Oncology), Edgar Engleman (Pathology, Medicine – Immunology & Rheumatology), and Amato Giaccia (Radiation Oncology)
"Combining an engineered tumor-targeting fusion protein with immune checkpoint blockade in the treatment of cancer"

ASHWIN RAMACHANDRAN
Stanford Bio-X Bowes Fellow 2017
Aeronautics & Astronautics
Mentors: Juan Santiago (Mechanical Engineering) and Sanjiva Lele (Aeronautics & Astronautics, Mechanical Engineering)
"Electrokinetic microfluidics for rapid and automated clinical diagnostics"

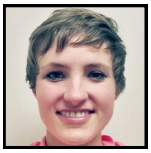
ANNINA SARTOR
William and Lynda Steere Fellow, Stanford Bio-X SIGF 2018
Chemistry
Mentors: W. E. Moerner (Chemistry) and Wah Chiu (Photon Science Directorate, Bioengineering, Microbiology & Immunology)
"Developing correlative cryogenic superresolution light and electron microscopy with applications to the study of protein aggregates in neurological disease"

TIM SCHNABEL
Stanford Bio-X Bowes Fellow 2015
Bioengineering
Mentors: Elizabeth Sattely (Chemical Engineering), Drew Endy (Bioengineering), Sharon Long (Biology, Chemistry), James Swartz (Chemical Engineering, Bioengineering), and Virgina Walbot (Biology)
"Engineering ammonia excretion in free-living diazotrophs for cereal crop fertilization"

ANNA SHCHERBINA
Stanford Bio-X Bowes Fellow 2017
Biomedical Informatics
Mentors: Anshul Kundaje (Genetics, Computer Science) and Euan Ashley (Medicine – Cardiovascular Medicine, Genetics, Biomedical Data Science)
"Deep learning approaches for functional variant prioritization"

AVANTI SHRIKUMAR
Stanford Bio-X Bowes Fellow 2016
Computer Science
Mentors: Anshul Kundaje (CS, Genetics) and Helen Blau (Microbiology & Immunology)
"Interpretable deep learning approaches for regulatory genomics"

STEVEN SHUKEN
Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2017
Chemistry
Mentors: Tony Wyss-Coray (Neurology & Neurological Sciences) and Joshua Elias (Chemical & Systems Biology)
"Proteomics of brain aging, disease, and rejuvenation in the CSF"



ALICE STANTON
Stanford Bio-X Bowes Fellow 2017
Bioengineering
Mentors: Fan Yang (Orthopaedic Surgery, Bioengineering) and Ovijit Chaudhuri (Mechanical Engineering)
"Uncovering the role of biochemical cues on modulating stem cell mechanotransduction and differentiation: a biomaterials-based approach"

"I am very grateful for being part of the Bio-X community. Bio-X has helped me connect with inspiring scientists from various fields, which broadened my knowledge and contributed to my PhD research. Additionally, Bio-X has provided multiple opportunities for showcasing my work which was very beneficial for expanding my academic network and generating ideas."
— Orly Liba, Stanford Bio-X Bowes Fellow

Lyndsay Stapleton

Affymetrix Bio-X Fellow, Stanford Bio-X SIGF 2018
Bioengineering
Mentors: Joseph Woo (Cardiothoracic Surgery) and Eric Appel (Materials Science & Engineering)
"Post-operative adhesion prevention using polymer nanoparticle hydrogels"

Alexander Tarashansky

Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2018
Bioengineering
Mentors: Bo Wang (Bioengineering) and Dmitri Petrov (Biology)
"Predicting competition outcomes between stem cell lineages in tissues"

Terence Theisen

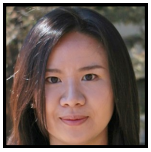
Colella Family Fellow, Stanford Bio-X SIGF 2017
Microbiology & Immunology
Mentors: John Boothroyd (Microbiology & Immunology) and Polly Fordyce (Genetics, Bioengineering)
"Microfluidics as a novel means to discover the function of an extremely large family of paralogous surface proteins in the ubiquitous pathogen Toxoplasma gondii*"*

Avin Veerakumar

Lubert Stryer Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2017
Bioengineering, Medicine
Mentors: Mark Krasnow (Biochemistry) and David Kingsley (Developmental Biology)
"Identifying genetic and cellular events underlying the evolution of the human speech circuit"

Jiarui Wang

Mona M. Burgess Fellow, Stanford Bio-X SIGF 2018
Chemistry
Mentors: Lucy Shapiro (Developmental Biology) and W. E. Moerner (Chemistry)
"Molecular cinematography: single-molecule imaging of heterogeneous protein behaviors for understanding asymmetric cell division in Caulobacter crescentus*"*



Wanxin Wang

Stanford Bio-X Bowes Fellow 2015
Bioengineering
Mentors: Stephen Quake (Bioengineering, Applied Physics), Carlos Simon (OB-GYN/ Reproductive, Perinatal & Stem Cell Biology Research), and Barry Behr (OB/GYN)
"Characterizing the human uterus using single cell RNAseq for mechanistic elucidation and clinical tool development"

Cosmos (Yuqi) Wang

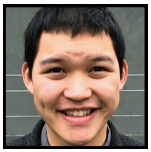
Felix and Heather Baker Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2018
Neurosciences
Mentors: Thomas Südhof (Molecular & Cellular Physiology) and Axel Brunger (Molecular & Cellular Physiology, Photon Science Directorate, and Neurology & Neurological Sciences)
"C1ql3 in synapse specification, from molecular structure to olfactory behavior"

Yonatan Winetraub

Stanford Bio-X Bowes Fellow 2016
Biophysics
Mentors: Adam de la Zerda (Structural Biology) and Steven Chu (Physics, Molecular & Cellular Physiology)
"Trying to reveal cancer cell communication: Creating a molecular acoustic Optical Coherence Tomography (OCT) imaging device"

Yuan Xue

Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2018
Bioengineering
Mentors: Stephen Quake (Bioengineering, Applied Physics) and John Boothroyd (Microbiology & Immunology)
"Single-cell co-transcriptomic analysis of Toxoplasma gondii *asexual life cycle and host interactions"*



Andrew Yang

Stanford Bio-X Honorary Fellow 2015
Bioengineering
Mentors: Tony Wyss-Coray (Neurology), Carolyn Bertozzi (Chemistry), and Michelle James (Radiology, Neurology)
"Circulatory proteins permeate the brain via selective transport impaired with age"

Renzhi Yang

Stanford Bio-X Bowes Fellow 2016
Biology
Mentors: Jun Ding (Neurosurgery) and Michael Lin (Neurobiology, Bioengineering)
"Dissecting the neural network underlying motor control"

Alexander Yoshikawa

Stanford Bio-X Bowes Fellow 2017
Chemical Engineering
Mentors: Tom Soh (Radiology, Electrical Engineering) and Carolyn Bertozzi (Chemistry)
"Development of highly specific xeno-nucleic acid (XNA) aptamers to modulate the innate immune system"

Noah Young

Stanford Bio-X Bowes Fellow 2012
Bioengineering
Mentors: Karl Deisseroth (Bioengineering, Psychiatry & Behavioral Sciences) and Gordon Wetzstein (Electrical Engineering)
"Light field imaging for high speed volumetric calcium activity recording in the larval zebrafish"

Stanford Bio-X Bowes Fellow Lawrence Bai (see pg. 4 for research details)

Where are they now?

200 of our Stanford Bio-X Fellows have graduated and gone on to utilize what they have learned in the corporate, academic, and governmental sectors...

Amin Aalipour (Stanford Bio-X Fellow 2017) has defended his thesis and is now doing clinical rotations.

Namiko Abe (Paul Berg Interdisciplinary Biomedical Graduate Fellow, Stanford Bio-X SIGF 2006) is a medical writer at Caudex, New York.

Shelley Ackerman (Stanford Bio-X Bowes Fellow 2014) is a scientist at Bolt Therapeutics, a start-up with compelling technology from Stanford that has demonstrated complete cures in numerous cancer models.

Jaimie Adelson (Stanford Bio-X Honorary Fellow 2010) is a researcher on the Global Burden of Disease Study at the University of Washington Institute for Health Metrics and Evaluation.

Afsheen Afshar (Stanford Bio-X Bowes Fellow 2005) is a senior business executive and deep technical/AI expert who has extensive experience across a variety of industries and enterprises driving large-scale technological transformation associated with hundreds of millions in value. He regularly advises start-ups, universities, investors, enterprises, and others across the globe on how best to leverage modern technology. His current appointments include Technical Advisor to Aginity, Inc. and DotAlign, Inc.

Atish Agarwala (Stanford Bio-X Bowes Fellow 2015) is currently an AI Resident at Google, where he is studying the connections between physics, evolution, and machine learning.

Ron Alfa (Stanford Bio-X Bowes Fellow 2011) is the senior vice president of Translational Discovery at Recursion Pharmaceuticals.

Katherine Amberg-Johnson (William and Lynda Steere Fellow, Stanford Bio-X SIGF 2016) is a scientist at Inzen Therapeutics, a biotechnology company pioneering medicines based on novel insights and an orthogonal approach to cell death.

Edith Arnold (Stanford Bio-X Bowes Fellow 2006) is working at Apple, Inc. as an engineering manager leading a team developing motion sensing algorithms. In 2018, she was selected as a Mentor for the Grace Hopper Celebration of Women in Computing.

Georgios Asimenos (Stanford Bio-X Bowes Fellow 2005) is the Chief Technology Officer at DNAnexus, a Stanford-spawned startup company which sits at the intersection of two of the most ground-breaking fields: cloud computing and genomics. DNAnexus powers all things genomics, including next-generation diagnostic tests, large research consortia studies, and pharmaceutical discovery. DNAnexus received the FDA Commissioner's Special Citation Award for superior achievement of the Agency's mission through teamwork, partnership, shared responsibility, and fostering collaboration to achieve the FDA goals.

Oguzhan Atay (Colella Family Fellow, Stanford Bio-X SIGF 2014) is the co-founder and CEO of BillionToOne, a venture capital-backed molecular diagnostics company. BillionToOne has developed a molecular counter platform that increases the resolution of cfDNA diagnostics by over a thousandfold. This technology unlocks a wide range of diagnostics from single gene noninvasive prenatal testing to quantitative liquid biopsy applications for cancer. BillionToOne has cleared regulatory requirements and launched UNITY, the only noninvasive prenatal test that uses only a sample from the pregnant mother's blood to determine whether the baby has inherited disorders such as cystic fibrosis, spinal muscular atrophy and sickle cell disease.

Aakash Basu (Stanford Bio-X Bowes Fellow 2009) is a postdoctoral fellow in the department of biophysics at Johns Hopkins University School of Medicine.

Eva Gabriela Baylon (Stanford Bio-X Skippy Frank Fellow 2014) is a postdoc in Dr. Tamara Alliston's lab in the department of orthopaedic surgery at the University of California, San Francisco, studying how osteocyte tension and the mechanical environment of osteocytes are coupled to control perilacular/canalicular remodeling in the bone.

Daniel Bechstein (Stanford Bio-X Bowes Fellow 2012) is a Sensor Architect at Apple, Inc.

Elsa Birch (Stanford Bio-X Bowes Fellow 2009) is a software engineer at Pinterest working in Business Intelligence.

Johannes Birgmeier (Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2017) will be graduating at the end of fall quarter. He will begin working for Citadel Securities in Chicago in January 2020.

Jennifer Blundo (Stanford Bio-X Bowes Fellow 2006) is the executive director of UCLA Biodesign, an early-stage innovation program for healthcare technology, and associate director of the UCLA CTSI. She is also an assistant professor in the department of medicine at the UCLA David Geffen School of Medicine and a lecturer at the Anderson School of Management, where she leads courses on disruptive technology and entrepreneurship in healthcare, as well as a co-founder of Hourglass Technologies, a Stanford Biodesign company.

Jennifer Brady (Stanford Bio-X Skippy Frank Fellow 2010) is a scientist at 23andMe, working as a project team lead for a therapeutic program.

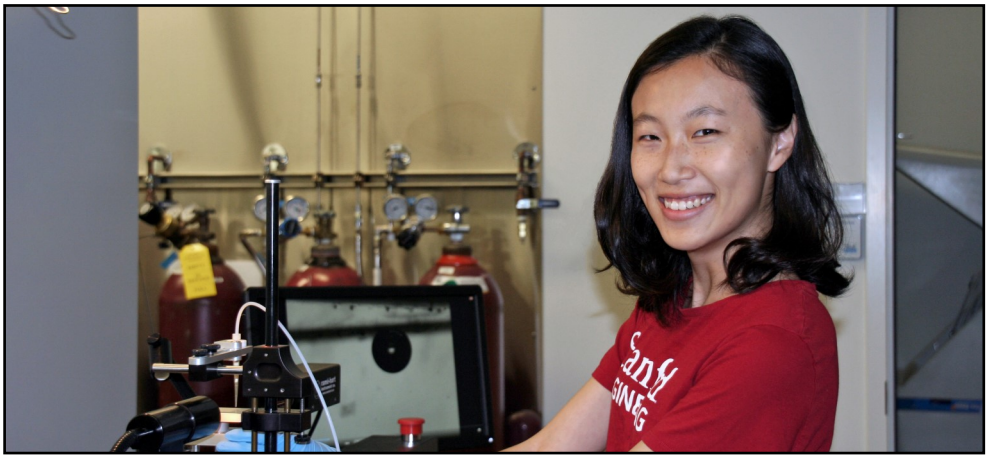
Relly Brandman (Stanford Bio-X Bowes Fellow 2004) is a project lead at GoogleX.

David Camarillo (Stanford Bio-X Bowes Fellow 2004) is an assistant professor in the bioengineering department at Stanford University.

Shengya Cao (Morgridge Family SIGF Fellow, Stanford Bio-X SIGF 2013) is an associate scientist consulting with Genentech in South San Francisco.

Mindy Chang (Stanford Bio-X Bowes Fellow 2005) is a developer at ScienceVR.

Ian Chen (Stanford Bio-X Bowes Fellow 2006) is a staff cardiologist at the VA Palo Alto Health Care System. In 2018, Ian received an American Heart Association Career Development Award.



Stanford Bio-X Bowes Fellow Chunzi Liu (see pg. 10 for research details)

Jin Chen (Lubert Stryer Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2012) is a postdoctoral fellow in Jonathan Weissman's lab at University of California, San Francisco.

Junhong Choi (Stanford Bio-X Bowes Fellow 2015) is a postdoctoral fellow in Dr. Jay Shendure's group at the University of Washington.

Fang-Chieh Chou (Stanford Bio-X Fellow 2012) is a tech lead manager at Uber.

Vincent Chu (Stanford Bio-X Pfizer Fellow 2005) is an operating partner in the engineering division of Initialized Capital in San Francisco.

Virginia Chu (Stanford Bio-X Bowes Fellow 2005) is an assistant professor of occupational therapy at Virginia Commonwealth University.

Kelsey Clark (Stanford Bio-X Bowes Fellow 2007) is an assistant research professor in the cell biology and neuroscience department at Montana State University.

Roshni Cooper (Morgridge Family SIGF Fellow, Stanford Bio-X SIGF 2012) is a software engineer at Waymo, Alphabet's self-driving car company. She is developing machine learning and computer vision techniques to enable cars to perceive the world around them.

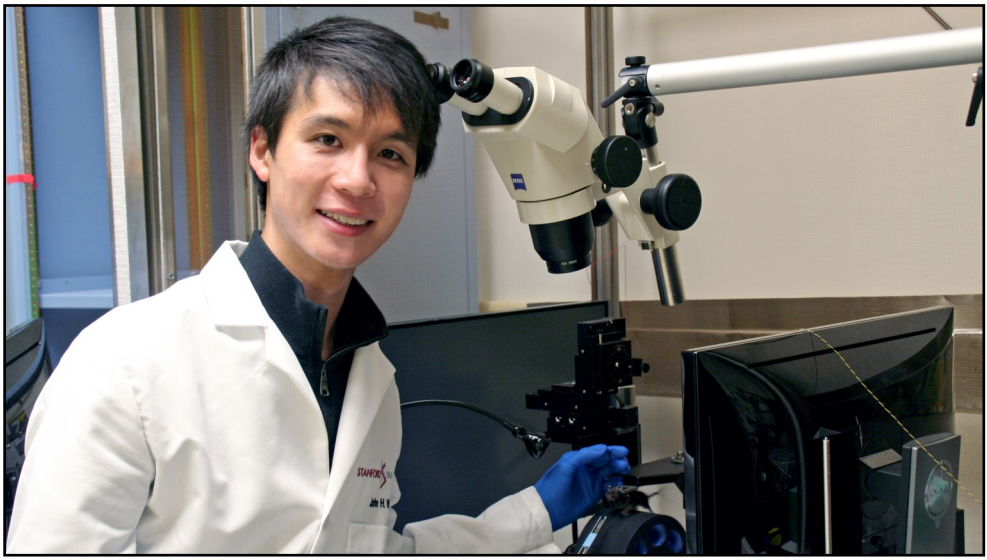
Jing-yu Cui (Stanford Bio-X Bowes Fellow 2011) is working at Google as a software engineer.

Anna Cunningham (Morgridge Family SIGF Fellow, Stanford Bio-X SIGF 2015) is a software engineer at Freenome, a mid-size biotech startup developing a blood-based assay for early detection of colorectal cancer.

Sanjay Dastoor (Stanford Bio-X Bowes Fellow 2006) is the CEO and cofounder at Skip, designing a network of lightweight electric vehicles.

Adam de la Zerda (Stanford Bio-X Skippy Frank Fellow 2008) is an assistant professor of structural biology at Stanford University.

Adi de la Zerda (Stanford Bio-X Fellow 2013) is consulting for biotech companies. Previously, she was a lecturer of materials science and engineering at Stanford.



Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF John Wen (see pg. 15 for research details)

Sarah Denny (Stanford Bio-X Honorary Fellow 2013) is a scientist with Scribe Therapeutics. She is working on developing CRISPR tools for therapeutic applications.

Darrel Deo (Mona M. Burgess Fellow, Stanford Bio-X SIGF 2016) is a postdoctoral scholar for BrainGate in the Neural Prosthetics Translation Laboratory (NPTL) directed by Dr. Krishna Shenoy and Dr. Jaimie Henderson at Stanford University.

Mario Diaz de la Rosa (Stanford Bio-X Bowes Fellow 2008) is a senior data scientist at Deloitte Consulting.

Jasmine Dickinson (Stanford Bio-X Honorary Fellow 2015) is a data analyst at Earnin.

Rebecca DiMarco (Stanford Bio-X Bowes Fellow 2009) is currently focusing on her family.

Sheng Ding (Stanford Bio-X Bowes Fellow 2007) works at Gilead, one of the world's leaders in the biopharma industry, as a senior scientist focusing on antibody based therapeutics.

Graham Dow (Stanford Bio-X Bowes Fellow 2009) is a senior scientist in the department of environmental system sciences at ETH Zurich.

Karen Dubbin (Stanford Bio-X Bowes Fellow 2013) is a postdoc researcher in the Advanced Biomanufacturing Group at the Lawrence Livermore National Laboratory. She was featured on Forbes's 30 under 30 award list for Industry and Manufacturing in 2018.

Remy Durand (Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2010) is the Vice President of Business Development at Alpine Immune Sciences (NASDAQ: ALPN) and a Principal on the investment team at Alpine BioVentures.

Christopher Emig (Stanford Bio-X Bowes Fellow 2011) is the CEO of Augmenta Bioworks, Inc. and a scientific advisor to Chimera Bio.

Nir Even-Chen (Stanford Bio-X Bowes Fellow 2015) is a research scientist at Lyft.

Gabriela Fragiadakis (Stanford Bio-X Bowes Fellow 2013) is working with Professor Justin Sonnenburg as a postdoc in the microbiology & immunology department at Stanford University.

Limor Freifeld (Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2010) is a senior lecturer (a position equivalent to assistant professor) at the Faculty of Biomedical Engineering at the Technion, Israel Institute of Technology.

Stephen Fried (Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2012) is an assistant professor at Johns Hopkins University in the department of chemistry. His lab's goals are to understand how proteins fold and assemble into complex assemblies in their native cellular context, and to exploit the protein synthesis machinery to direct the construction of novel protein-based materials. In the long term, the lab hopes to apply their discoveries to better understand protein-based human diseases and enable sustainable alternatives to plastics and other consumer materials.

Julia Fukuyama (Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2014) is an assistant professor in the department of statistics at Indiana University.

Xiaojing Gao (Enlight Foundation Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2012) will return to Stanford as an assistant professor of chemical engineering in April of 2020.

Courtney Gegg (Stanford Bio-X Bowes Fellow 2016) is a project manager at Due Diligence as well as an investment partner at EVEXIA Bio Fund.

David S. Glass (Stanford Bio-X Bowes Fellow 2013) is a postdoc in Uri Alon's lab at the Weizmann Institute with a Zuckerman Postdoctoral Fellowship. In 2018, David published a paper on his research supported by Stanford Bio-X in *Cell*.

Peyton Greenside (Morgridge Family SIGF Fellow, Stanford Bio-X SIGF 2015) received a Schmidt Science Fellows program award to conduct postdoctoral research with Dr. Emma Brunskill's group at Stanford.

Viviana Gradinaru (Colella Family Fellow, Stanford Bio-X SIGF 2008) is a professor of neuroscience and biological engineering at the California Institute of Technology (Caltech). She is also an investigator at Heritage Medical Research Institute, and the director of the Center for Molecular and Cellular Neuroscience.

Alex Grant (Stanford Bio-X Bowes Fellow 2010) is currently a software and systems engineering manager at the startup Ceribell, Inc.

Adam Grossman (Stanford Bio-X Bowes Fellow 2004) is a co-founder and VP of Modeling at Praedicat, Inc., a company that brings the world's scientific literature to bear in risk management and product stewardship, enabling a transformation of underwriting and risk management for liability insurance and corporate product stewardship practices by using big data approaches to model and understand the science that drives our understanding of risks to human health and the environment.

Gunsagar Gulati (Stanford Bio-X Bowes Fellow 2018) has defended his thesis and is now doing clinical rotations.

Lisa Gunaydin (Stanford Bio-X Bowes Fellow 2008) is an assistant professor in the department of psychiatry and the Institute for Neurodegenerative Diseases at University of California, San Francisco. She is also a Chan Zuckerberg Biohub Investigator.

Kevin Hart (Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2015) is an associate scientist at IGM Biosciences.

Fidel Hernandez (Stanford Bio-X Honorary Fellow 2013) is an engagement manager at McKinsey & Company.

Jennifer Hicks (Stanford Bio-X Bowes Fellow 2007) serves as the Director of Data Science of the Mobilize Center at Stanford University, and the associate director of the National Center for Simulation in Rehabilitation Research, an NIH-funded center also at Stanford that brings state-of-the-art engineering tools to rehabilitation scientists. She oversees the center's Visiting Scholar Program, Pilot Projects, workshops, webinars, and online resources, and is the research and development manager for the OpenSim software platform.

Tyler Hillman (Stanford Bio-X Bowes Fellow 2008) is a gynecologic oncology fellow at the University of Texas MD Anderson Cancer Center.

Zahid Hossain (Morgridge Family SIGF Fellow, Stanford Bio-X SIGF 2014) is working at the Facebook Reality Lab as a team lead manager.

Eva Huang (Stanford Bio-X Bowes Fellow 2014) is a scientist at PACT Pharma.

Jacob Hughey (Stanford Bio-X Bowes Fellow 2007) is an assistant professor of biomedical informatics and biological sciences at Vanderbilt University.

Haisam Islam (Stanford Bio-X Bowes Fellow 2010) is an MRI software engineer at HeartVista, Inc.

Johnny Israeli (Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2016) serves as the manager of Deep Learning Genomics at Nvidia.

Ivan Ivanov (Tusher Family Stanford Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2015) is a research and development engineer at the Chan Zuckerberg Biohub.

Xiaofan Jin (Stanford Bio-X Bowes Fellow 2014) is a postdoc in Dr. Katie Pollard's lab at the Gladstone Institute at the University of California, San Francisco.

Rachel Kalmar (Stanford Bio-X Bowes Fellow 2005) is an affiliate at the Berkman Klein Center for Internet and Society at Harvard University, and a staff product manager at Tableau Software. Rachel is also one of the founders of Dr. Brainlove, a science education non-profit and giant climbable brain jungle gym. She is an alumna of Rock Health, Misfit Wearables, and Empirical Systems.

Mihalis Kariolis (Stanford Bio-X Bowes Fellow 2008) is an antibody and protein engineering scientist at Denali Therapeutics.

Katy Keenan (Stanford Bio-X Bowes Fellow 2006) is the Project Leader in Quantitative MRI at the National Institute of Standards and Technology (NIST) in Boulder, Colorado.

Jongmin Kim (Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2011) is a postdoctoral fellow in Professor Robert Kingston's lab at Massachusetts General Hospital.

Jun Woo Kim (Stanford Bio-X Bowes Fellow 2013) is a postdoc with Dr. Julien Sage at Stanford.

Samuel Kim (Stanford Bio-X Bowes Fellow 2004) is a biomarker scientist at Gilead Sciences.

Daniel Kimmel (Affymetrix Bio-X Fellow, Stanford Bio-X SIGF 2006) recently completed his residency in psychiatry and neuroscience at Columbia University. He continues his research on the neural basis of emotion and decision-making as a Leon Levy Neuroscience Fellow and T32 Fellow in Affective Disorders at Columbia, while practicing psychiatry.

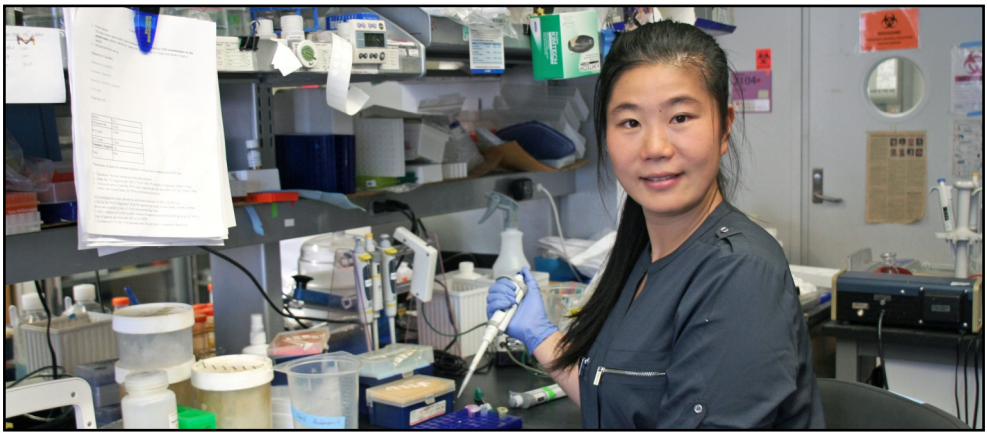
Ryosuke Kita (Stanford Bio-X Bowes Fellow 2013) is a product scientist at 23andMe.

Benjamin Kotopka (Stanford Bio-X Bowes Fellow 2015) is a co-founder at BrainKey, a startup working to make brain MRI images more accessible and interpretable.

Brad Krajina (Stanford Bio-X Bowes Fellow 2015) recently graduated and is in the process of applying for a postdoctoral position.

Gaurav Krishnamurthy (Stanford Bio-X Medtronic Fellow 2008) is the VP of Engineering and Operations at Half Moon Medical (the newest startup out of the Foundry, a preeminent medical device incubator in the Bay Area).

Thomas Lampo (Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2013) is a data scientist at Uber.



Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF Xinzhi Zou
(see pg. 16 for research details)

Frances Lau (Stanford Bio-X Bowes Fellow 2007) is a manager of Systems Engineering at Facebook, working on brain-computer interfaces.

Melinda Cromie Lear (Paul Berg Interdisciplinary Biomedical Graduate Fellow, Stanford Bio-X SIGF 2008) is a principal biomechanical engineer at Seismic in Menlo Park, California. Seismic is introducing Powered Clothing™, a fusion of apparel and discreet robotics, designed to help everyone move better by adding strength, stability, and power.

Paul Lebel (Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2011) is a senior R&D engineer at the Chan Zuckerberg Biohub.

Andrew Lee (Stanford Bio-X Bowes Fellow 2010) is finishing his M.D. at Stanford University, and is the founder and managing director of the StartX-QB3 joint technology venture, a co-founder of StartX Med, and also a co-founder of the biotech spin-out startup, Stem Cell Theranostics.

Soah Lee (Stanford Bio-X Bowes Fellow 2012) is a postdoctoral student in Dr. Sean Wu's lab at Stanford Cardiovascular Institute. Her postdoctoral research focuses on studying molecular mechanisms of abnormal heart rhythm in patients with devastating heart muscle diseases (e.g. hypertrophic cardiomyopathy) using patient-derived stem cells and bioengineering tools. After her postdoctoral training, Soah aims to become an independent multi-disciplinary researcher in the cardiovascular field with her solid knowledge base and skills in stem cell biology, cardiac development, and bioengineering. She received an NIH F-32 postdoctoral fellowship to support her work until 2021.

Stephen Lee (Stanford Bio-X Bowes Fellow 2005) is a senior director of product strategy and innovation of the EMEA region at Discovery, Inc., based in London.

Austin Lee (Stanford Bio-X Bowes Fellow 2011) is a project leader with the Chicago office of the Boston Consulting Group. He is a member of the firm's Health Care Practice Area and serves clients on a number of topics ranging from organizational design to commercial strategy.

Michael Leung (Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2016) is a founding engineer at a stealth startup company in Palo Alto with the goal of preventing blindness by converting primary care nurses into ophthalmologists using a telemedicine-enabled camera.

Ye (Henry) Li (William and Lynda Steere Fellow, Stanford Bio-X SIGF 2013) is a data scientist at Uber working on intelligent decision systems.

Liang Liang (Lubert Stryer Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2009) will be starting as an assistant professor of neuroscience at Yale University in January of 2020.

Orly Liba (Stanford Bio-X Bowes Fellow 2014) works at Google as a research scientist developing computational photography algorithms.

Prasheel Lillaney (Stanford Bio-X Bowes Fellow 2005) is an associate director of customer journey innovation at Jazz Pharmaceuticals.

Sungwon Lim (Stanford Bio-X Bowes Fellow 2011) is the founder and CEO of ImpriMed, Inc., a start-up that develops a personalized drug test service for pet cancer patients.

Chao Liu (Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2015) recently graduated and is figuring out the next steps in her career.

Andreas Loening (Stanford Bio-X Bowes Fellow 2004) is an assistant professor in the department of radiology at Stanford University.

Mark D. Longo (Morgridge Family SIGF Fellow, Stanford Bio-X SIGF 2011) is the head of Data Science at a stealth-stage medical AI start-up founded by young Stanford graduates.

Stanford Bio-X Honorary Fellow Rebecca Culver (see pg. 6 for research details)

Bertrand Lui (Lubert Stryer Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2006) is a co-founder of a start-up that focuses in the area of machine learning and sales.

Li Ma (Larry Yung Fellow, Stanford Bio-X SIGF 2009) is an associate professor of statistical science at Duke University. Li received an NSF Career Award in 2018.

Niru Maheswaranathan (Stanford Bio-X Honorary Fellow 2013) is an engineer on the Google Brain team doing machine learning research.

Amanda Malone (Stanford Bio-X Bowes Fellow 2004) is the CSO for Eupraxia Pharmaceuticals, Inc.

Ian Marshall (Stanford Bio-X Bowes Fellow 2008) is an assistant professor (tenure track) at the Section for Microbiology, Department of Bioscience, at Aarhus University in Denmark.

Trevor Martin (Stanford Bio-X Bowes Fellow 2012) is the CEO and a co-founder of Mammoth Biosciences. They have received series A funding to move this venture forward.

Rebecca Marton (Seth A. Ritch Graduate Fellow, Stanford Bio-X SIGF 2017) is a senior scientific researcher at Genentech.

Melina Mathur (Stanford Bio-X Bowes Fellow 2010) is a principal at Asset Management Ventures.

Joanna Mattis (Stanford Bio-X Bowes Fellow 2010) completed her neurology residency at the University of Pennsylvania. She is now a neurology instructor and a research fellow in the department of neurology. Her research on epilepsy circuitry is funded by the NIH NINDS R25 award and a private research grant from the Children's Hospital of Philadelphia Women's Committee.

Aaron Mayer (Stanford Bio-X Honorary Fellow 2015) recently graduated and is pursuing translational research opportunities in molecular imaging and machine learning.

Allister McGuire (Stanford Bio-X Bowes Fellow 2013) is a scientist at Verily Life Sciences in South San Francisco.

Cory McLean (Stanford Bio-X Bowes Fellow 2007) leads the genomics team at Google Brain, located in Cambridge, Massachusetts.

Christine McLeavey (Stanford Bio-X Bowes Fellow 2009) is a research scientist at OpenAI, a non-profit AI research company researching and enacting a path to safe artificial general intelligence. After Stanford, she worked for six years as a classical pianist, and co-founded Ensemble SF with members of the SF Symphony and Ballet.

Arek Melkonian (Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2016) is finishing his M.D. at Stanford.

Leslie Meltzer (Stanford Bio-X Bowes Fellow 2004) is the vice president of medical affairs at Orchard Therapeutics in Boston, Massachusetts.

Samir Menon (Colella Family Fellow, Stanford Bio-X SIGF 2011) is the founder and CEO of Dexterity, Inc., a start-up focused on robotics solutions for logistics, warehousing, and supply chain operations.

Amanda Miguel (Stanford Bio-X Honorary Fellow 2013) recently defended and joined the application company Steady as a data scientist.

Denitsa Milanova (Stanford Bio-X Medtronic Fellow 2011) is a technology development fellow at Harvard's Wyss Institute.

Murtaza Mogri (Stanford Bio-X Bowes Fellow 2006) is the Director of Business Development and Market Access for V-Wave, a start-up developing minimally-invasive implantable devices for treating patients with chronic heart failure. V-Wave has received strategic investments from Johnson & Johnson and Edwards Lifesciences, and raised $70M in Series C funding to support a pivotal study of their heart failure therapy.

Kate Montgomery (Stanford Bio-X Bowes Fellow 2009 and William and Lynda Steere Fellow, Stanford Bio-X SIGF 2012) is the manager of science and market development at Enspectra Health. The company's technology, minimally invasive cellular imaging, was supported as an academic project by a Stanford Bio-X grant when it was early stage and high-risk, and is now being commercialized to improve human health.

Sergio Moreno (Stanford Bio-X Bowes Fellow 2004) is currently searching for job opportunities.

Paola Moreno-Roman (Stanford Bio-X Bowes Fellow 2014) is pursuing a career in philanthropy, where she can be a bridge between communities that need resources and foundations that serve them.

David Myung (Stanford Bio-X Bowes Fellow 2005) holds an M.D. as well as his Ph.D and is currently an assistant professor of ophthalmology at the Byers Eye Institute (BEIS) and the VA Palo Alto Health Care System, and, by courtesy, of chemical engineering at Stanford. He is also a co-director of the Ophthalmic Innovation Program and the Director of Teleophthalmology at BEIS. David's laboratory is focused on ophthalmic regenerative medicine and drug delivery, specifically directed at the treatment of severe corneal and ocular surface injury and disease. He is the recipient of a Stanford SPARK Translational Research Grant and Career Development Awards from the National Eye Institute at the NIH and the Research to Prevent Blindness Foundation.

Stanford Bio-X Fellows 2014 group photo

Daniel Newburger (Morgridge Family SIGF Fellow, Stanford Bio-X SIGF 2011) works as a software engineer at Google.

Elaine Ng (Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2016) is a postdoctoral fellow in Shan X. Wang's lab, co-mentored by Jianghong Rao, working on *in vivo* and *in vitro* therapy monitoring in advanced stage lung cancer patients.

Wendy Ni (Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2012) is a data scientist at Facebook working on site integrity. Her product area covers malware, phishing, spam, and more.

William Noderer (Stanford Bio-X Bowes Fellow 2010) is working for the Boston Consulting Group as a principal.

James Notwell (Affymetrix Bio-X Fellow, Stanford Bio-X SIGF 2013) is the head of informatics at Alvarado Therapeutics, which was founded by Stanford Bio-X faculty Karl Deisseroth and Robert Malenka.

Peter Olcott (Presidential Fellow, Stanford Bio-X SIGF 2009) is working as a fellow at Reflexion Medical, developing the next generation of radiotherapy devices for the treatment of cancer.

Carmichael Ong (Stanford Bio-X Bowes Fellow 2011) is currently exploring for the next opportunity to develop and use computational tools to improve human movement.

Shawn Ouyang (Affymetrix Bio-X Fellow, Stanford Bio-X SIGF 2009) is a principal scientist at the biotech startup SUMO Biosciences and a Principal Investigator of three NIH SBIR grants.

Sung Jin Park (Stanford Bio-X Bowes Fellow 2013) is a consultant at IQVIA working on projects in the healthcare industry.

William Parsons (Presidential Fellow, Stanford Bio-X SIGF 2010) is an assistant professor of chemistry and biochemistry at Oberlin College.

Bethany Percha (Morgridge Family SIGF Fellow, Stanford Bio-X SIGF 2013) is an assistant professor of genetics and genomic sciences at the Icahn School of Medicine at Mount Sinai, and CTO of the Precision Health Enterprise at the Mt. Sinai Health System. She recently received the AMIA Doctoral Dissertation Award for her PhD thesis dissertation, "Biomedical text mining in context", which was funded by the Bio-X fellowship.

Steven Petsche (Stanford Bio-X Bowes Fellow 2011) works as a software engineer for Google in Irvine, California.

Benjamin Poole (Seth A. Ritch Graduate Fellow, Stanford Bio-X SIGF 2014) is a research scientist at Google Brain.

Guillem Pratx (Stanford Bio-X Bowes Fellow 2006) is an assistant professor in radiation oncology at Stanford University. His research focus is on biomedical imaging for radiotherapy.

Teresa Purzner (Felix and Heather Baker Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2015) is completing the final years of her neurosurgery residency. She is also the co-PI on a NIH-funded clinical trial run by the Pediatric Brain Tumor Consortium, which is investigating the role of CK2 inhibitors in the treatment of SHH medulloblastoma. This trial was a direct result from her Stanford Bio-X funded thesis studies. Teresa also serves as CSO of Cerebelly, a nutritious baby food line that she co-founded while at Stanford.

Jeffrey Quinn (Stanford Bio-X Bowes Fellow 2012) is a Ruth L. Kirschstein Postdoctoral Fellow in Dr. Jonathan Weissman's Lab at the University of California, San Francisco.

Alexander Ratner (Morgridge Family SIGF Fellow, Stanford Bio-X SIGF 2017) is currently the CEO at Snorkel AI, a startup supporting and commercializing the open source Snorkel framework (snorkel.org) for programmatically building and managing training data for machine learning, which he developed as part of his thesis work. In September 2020, he will be starting as an assistant professor in computer science at the University of Washington in Seattle.

Manuel Rausch (Affymetrix Bio-X Fellow, Stanford Bio-X SIGF 2012) is an assistant professor in the department of aerospace engineering & engineering mechanics at University of Texas at Austin. He recently received the American Heart Association Career Development Award.

Andreas Rauschecker (Stanford Bio-X Bowes Fellow 2008) is a neuroradiology fellow at UCSF and received a 2018 Radiological Society of North America Roentgen Resident Research Award.

Heather Rogan (Rogers Family Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2016) is an associate at Headland Strategy Group, a biotech consulting firm focused on assisting healthcare companies with commercial, corporate (BD/M&A), and portfolio and R&D strategy.

Adam Rubin (William and Lynda Steere Fellow, Stanford Bio-X SIGF 2015) is a postdoc at the Broad Institute in the lab of Dr. Aviv Regev.

Sanaz Saatchi (Stanford Bio-X Amgen Fellow 2009) is the co-founder and president of CrownPoint Medical, LLC (CPM) which provides strategic services that accelerate healthcare innovation and commercialization, working at the intersection of R&D and Marketing to help clients understand the product-customer interface and product-market fit. Previously, at Medtronic, Sanaz was an engineering program manager and marketing product manager and led a cross-functional and multi-company team through needs finding, product development, and commercial global launch of two cardiovascular medical device. Sanaz also participated in Medtronic's Global Innovation Fellowship program, with a project focused on improving diabetes awareness and detection in South Africa.

Joel Sadler (Stanford Bio-X Bowes Fellow 2012) has co-founded and is president of a creative computing startup, Piper Inc., which aims to inspire kids to make electronic devices that "spark every child's inner inventor" in education. Joel's company was inspired by his Stanford Bio-X research and PhD thesis on the "Anatomy of Creative Computing".

Rachel Hagey Saluti (Mona M. Burgess Fellow, Stanford Bio-X SIGF 2014) has just graduated and is continuing in Jeffrey Glenn's lab at Stanford as a staff scientist, to work towards bringing a therapeutic that she designed and patented into the clinic.

Jayodita Sanghvi (Stanford Bio-X Bowes Fellow 2007) is the director of data science for Grand Rounds, a start-up in San Francisco aiming to navigate patients to more relevant and high-quality healthcare.

Andrew Savinov (Paul Berg Interdisciplinary Biomedical Graduate Fellow, Stanford Bio-X SIGF 2014) is a postdoctoral researcher in Dr. Stan Fields's lab at the University of Washington in Seattle.

Alia Schoen (Stanford Bio-X Bowes Fellow 2009) has most recently worked as a public policy manager at Bloom Energy, a stationary fuel cell manufacturer whose vision is to make clean, reliable energy affordable for everyone in the world. Dr. Schoen has leveraged both her interdisciplinary education as well as her time in the California State Assembly as a CCST Science Policy Fellow in her career in policy.

Mark Sellmyer (Stanford Bio-X Bowes Fellow 2008) is an assistant professor of radiology with a secondary appointment in biochemistry and biophysics at the University of Pennsylvania. His lab focuses on molecular and chemical tool development for applications in cancer biology and infectious disease. Clinically, Mark is an attending physician in nuclear radiology. He was recently awarded the Burroughs Wellcome Fund Career Award for Medical Scientists (CAMS) and the NIH Director's Early Independence Award (DP5).

Stanford Bio-X Bowes Fellow Laksshman Sundaram (see pg. 13 for research details)

Jake Sganga (Stanford Bio-X Bowes Fellow 2014) is a senior software engineer at Artificial, a robotics startup building a platform for distributed automation and robotics.

Pankaj Sharma (Stanford Bio-X Bowes Fellow 2012) is a R&D staff engineer at Stryker Corporation.

Handuo Shi (Rosenberg Ach Family Fellow, Stanford Bio-X SIGF 2016) is a postdoctoral scholar in Dr. Justin Sonnenburg's lab at Stanford. Her research focuses on the biophysical modeling of human gut bacterial communities.

Herbert Silva (Stanford Bio-X Bowes Fellow 2013) is working at Johnson Space Center (NASA) as a structural dynamics analyst.

Joo Yong Sim (Stanford Bio-X Bowes Fellow 2010) works in the biomedical IT convergence research department of the Electronics and Telecommunications Research Institute, a Korean national laboratory.

Steven Sloan (Stanford Bio-X Bowes Fellow 2014) has just started his own lab at Emory University as an assistant professor in the department of human genetics.

Ruth Sommese (Paul Berg Interdisciplinary Biomedical Graduate Fellow, Stanford Bio-X SIGF 2011) is a principal scientist at Pfizer.

Min-Sun Son (Stanford Bio-X Bowes Fellow 2007) is working as an R&D staff engineer at Abbott.

Ryan Squire (Stanford Bio-X Bowes Fellow 2010) is a product and data scientist at SafeGraph, a start-up that builds truth sets to power machine learning and AI by working with companies to securely manage, enhance, and monetize data. SafeGraph has raised $16M in Series A fundraising.

Johanna Sweere (Lubert Stryer Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2015) graduated in January of 2019. The main body of her research was published in *Science* in March of 2019, and was highlighted in the June edition of the microbiology podcast *This Week in Microbiology*, for which Johanna was interviewed by the president of the American Society for Microbiology. Johanna was also second author on a April 2019 publication in *Science Translational Medicine* and has another first-author publication in press in *Advances in Wound Care*. She currently works as a consultant at a life sciences consulting firm in San Francisco.

Pakpoom Subsoontorn (Stanford Bio-X Bowes Fellow 2008) is a lecturer in the department of biochemistry, faculty of medical science, at Naresuan University in Thailand.

Patricia Suma (Stanford Bio-X Bowes and Stanford Bio-X Amgen Fellow 2011) is a health education specialist at Health Connected: Sex Ed Starts Here, a non-profit that teaches age appropriate and comprehensive sexual and reproductive health.

Jong Min Sung (Stanford Bio-X Bowes Fellow 2009) has a postdoctoral position with Ron Vale's lab at University of California, San Francisco.

Jiongyi Tan (Enlight Foundation Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2014) has a postdoctoral position with Dr. Dyche Mullins at University of California, San Francisco.

Grace Tang (Stanford Bio-X Bowes Fellow 2008) is a staff data scientist at LinkedIn.

Noureddine Tayebi (Stanford Bio-X Bowes Fellow 2009) is a senior research scientist and team lead at Intel Research Labs, Intel Inc.

Rebecca Taylor (Stanford Bio-X Bowes Fellow 2007) is an assistant professor of mechanical engineering at Carnegie Mellon University. She recently received a 2018 Air Force Office of Scientific Research VIP award.

Matthew Titchenal (Stanford Bio-X Bowes Fellow 2015) is beginning his post-graduate career as a technical consultant at InSciTech in Los Altos, California. Matt will be working with the team at InSciTech to provide rigorous, accurate, and reliable analyses of technical problems involving injury biomechanics and accident reconstruction.

Carolina Tropini (Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2011) is an assistant professor in the school of biomedical engineering and the department of microbiology and immunology at the University of British Columbia.

Baris Ungun (Stanford Bio-X Bowes Fellow 2014) is doing research in industry for the startup Insitro.

Jules VanDersarl (Stanford Bio-X Bowes Fellow 2005) works at Meso Scale Diagnostics as a director of engineering.

Mathias Voges (Stanford Bio-X Bowes Fellow 2013) has just graduated and is looking into research positions in the host-microbiome space.

Michael Wainberg (Stanford Bio-X Bowes Fellow 2016) is a bioinformatics scientist in the lab of Lee Hood and Nathan Price at the Institute for Systems Biology in Seattle.

Graham Walmsley (Stanford Bio-X Fellow 2015) is a general partner at Logos Global Management, a fundamental biotechnology-focused hedge fund that seeks to combine in-house data analytics with scientific and clinical expertise to identify transformative therapies in healthcare.

Aaron Wang (Stanford Bio-X Bowes Fellow 2006) is part of a private practice in Pittsburgh, Pennsylvania, as a corneal specialist. He received a Heed Ophthalmic Foundation Fellowship during his postgraduate studies.

Christine Wang (Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2014) is currently working in consulting at IQVIA.

Jack Wang (Stanford Bio-X Bowes Fellow 2011) is a neurocritical care physician at the Stanford University Medical Center.

Larry Wang (Stanford Bio-X Bowes Fellow 2007) is a launch program manager at Pebble Technology.

Yen-Hsiang Wang (Stanford Bio-X Bowes Fellow 2009) is the director of strategy for the Center of AI Healthcare of Tencent in China.

Aaron Wenger (Morgridge Family SIGF Fellow, Stanford Bio-X SIGF 2010) is a bioinformatics research scientist at Pacific Biosciences, developing applications of long-read genome sequencing.

Lucien Weiss (Stanford Bio-X Bowes Fellow 2012) is a postdoc in Dr. Yoav Shechtman's lab at the Technion, Israel Institute of Technology.

Andrew Weitz (Stanford Bio-X Bowes Fellow 2012) is a data scientist at Culvert Engineering, a boutique technical consulting firm that partners with startups and Fortune 500 companies to turn ideas into products.

Kitchener Wilson (Stanford Bio-X Bowes Fellow 2007) is an instructor in pathology at Stanford with a clinical specialization in molecular genetic pathology. When not in the clinic, in his research he is merging next generation sequencing with primate iPS cell models of development in order to discover novel genes and processes that have enabled humans to evolve over millennia. Kitch's research is supported by an NIH K08 career development grant, the Stanford Cardiovascular Institute, and the department of pathology.

Brian Wilt (Stanford Bio-X Bowes Fellow 2008) is a senior manager in Data Science at Facebook.

Katrina Wisdom (Stanford Bio-X Honorary Fellow 2016) is a postdoctoral fellow in the bioengineering department at the University of Pennsylvania.

Remus Wong (Stanford Bio-X Bowes Fellow 2010) is a scientist at Nkarta Therapeutics, where he performs research on engineered NK cells. He works on pre-clinical and IND-enabling studies for the company's NK cell therapy product.

Angela Wu (Stanford Bio-X Bowes Fellow 2006) is an assistant professor in the division of life science and the department of chemical and biological engineering at Hong Kong University of Science and Technology (HKUST). Angela is passionate about the development of new technologies at the interface of basic biology and engineering, and using these interdisciplinary approaches to investigate biological mechanisms and human diseases. Early in her scientific career, she was named a Siebel Scholar in 2010, and was also awarded a Bio-X Bowes Fellowship for her research. In 2015, Angela also co-founded Agenovir Corporation, a CRISPR-based therapeutics company targeting infectious diseases for a complete cure. While at Agenovir, she helped to successfully raise Series A venture capital funding of US$10.6M. Agenovir was recently acquired. As recognition of her achievements in technology and innovation, Dr. Wu was named one of MIT Technology Review Innovators under 35 Asia in 2016, and a World Economic Forum Young Scientist in 2018.

Lyndia Wu (Stanford Bio-X Bowes Fellow 2014) has started a tenure-track assistant professor position in the mechanical engineering department at the University of British Columbia in Vancouver, Canada.

Nan Xiao (Stanford Bio-X Bowes Fellow 2007) works for Heartflow, Inc. in Redwood City as a computational scientist.

Helen Yang (Lavidge and McKinley Interdisciplinary Fellow, Stanford Bio-X SIGF 2014) is a postdoctoral scholar at Harvard Medical School with Dr. Rachel Wilson. Helen recently received a postdoctoral fellowship from The Jane Coffin Childs Memorial Fund for Medical Research.

Yufeng Yang (Stanford Bio-X Bowes Fellow 2005) is a professor/investigator in the Institute of Life Sciences at Fuzhou University.

"I have had an amazing experience with Bio-X. The program has introduced me to students, faculty, and industry leaders in departments with names I could barely recognize; it exposed me to cutting edge research and ideas that seem almost magical in their complexity; and, most importantly, it has enabled me to apply my expertise and passions in engineering to meaningful research in neuroscience. I am incredibly grateful for this opportunity provided to me by Bio-X."

— Roshni Cooper, Morgridge Family SIGF Fellow and Stanford Bio-X SIGF

Peggy Yao (Stanford Bio-X Bowes Fellow 2006) is a research scientist at Facebook working on machine learning.

Sara Z. Yao (Stanford Bio-X Bowes Fellow 2004) founded DeviceDebut, LLC after exploring medical device R&D for over 5 years. DeviceDebut helped U.S. medical device manufacturers register with CFDA, enter the Chinese market, and receive funding from the Chinese investors. In the past three years, Sara also served as Mandarin Specialist at the Khan Lab School. Currently, Sara works as an independent consultant in the medical device field.

Anne Ye (Stanford Bio-X Bowes Fellow 2012) recently graduated and is looking for protein engineering positions in Bay Area biotech companies.

Patrick Ye (Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2013) is a senior scientist at BillionToOne, a molecular diagnostics startup in Menlo Park, CA.

Michael Yip (Stanford Bio-X Bowes Fellow 2013) is an assistant professor in the department of electrical and computer engineering at University of California, San Diego.

Jennifer Yong (Morgridge Family SIGF Fellow, Stanford Bio-X SIGF 2012) is a biomechanical engineer at Seismic, a start-up that is designing robotic apparel to support human movement.

Ryan York (Stanford Bio-X Bowes Fellow 2013) is a postdoc in Dr. Tom Clandinin's lab at Stanford.

Bo Zhang (Mona M. Burgess Fellow, Stanford Bio-X SIGF 2013) is the VP of chemistry and cofounder of Apostle. Apostle, Inc. is a biotechnology company in Sunnyvale, California, which has just been accepted by the Stanford StartX accelerator. It's in the business of the research, development, licensing, and sales of novel MiniMax magnetic nanoparticle technology, Triton cancer genome deep learning technology, AI-enabled nanoDiagnostics (AID) technology, and the related intellectual properties, products, and services for diagnosis and treatment of human diseases, to fundamentally improve the accuracy of cancer diagnosis at early stage. Bo also now has an associate professor position at Southern University of Science and Technology of China.

Xiaoxue Zhou (Larry Yung Fellow, Stanford Bio-X SIGF 2010) is a postdoctoral associate in Angelika Amon's lab at MIT. She received a Helen Hay Whitney Postdoctoral Fellowship to support her work.

Danqing Zhu (Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2015) works in Dr. David Schaffer's group at University of California, Berkeley as a postdoctoral scholar.

Stanford Bio-X Fellows 2016 group photo

Stanford Bio-X Postdocs

The Stanford Bio-X Postdoctoral Fellowships are made possible through the support of our industry contacts. To date, eight students have been postdoctoral fellows, and those who ended their appointments have transitioned to successful careers.

Tiffany Chung (Stanford Bio-X Postdoctoral Fellow 2005) is a chemist for the Hong Kong government.

Anna Geraghty (Stanford Bio-X Genentech Postdoctoral Fellow 2015) is a Bio-X postdoctoral fellow in the neurology & neurological sciences department. With the guidance of Michelle Monje-Deisseroth (Neurology), she is working on her research entitled, "*Neurotrophin regulation of adaptive gliogenesis and remyelination post pediatric chemotherapy*."

Subhaneil Lahiri (Stanford Bio-X Genentech Postdoctoral Fellow 2012) is a research associate in Surya Ganguli's group in the applied physics department at Stanford University.

Yu-Shan Lin (Stanford Bio-X Postdoctoral Fellow 2009) is an associate professor of chemistry at Tufts University.

Elena Rykhlevskaia (Stanford Bio-X Lubert Stryer Interdisciplinary Postdoctoral Fellow 2008) is a decision science manager at Facebook working on product marketing analytics for Facebook media products, including Facebook Watch.

Shilpa Sambashivan (Stanford Bio-X Genentech Postdoctoral Fellow 2007) is currently the head of biology at Proneurotech in South San Francisco.

Sergey Solomatin (Stanford Bio-X Postdoctoral Fellow 2005) is the director of research at Impossible Foods, a company that was founded by Stanford biochemistry professor emeritus, Pat Brown, and has raised over $250M. Its goal is to revolutionize the food industry and to roll back the adverse effects that factory farming of animals has on the environment and on us.

Tristan Ursell (Stanford Bio-X Genentech Postdoctoral Fellow 2009) is an assistant professor of physics at the University of Oregon working on microbial community biophysics.

In Memoriam

Maria Birukova, 1990-2016:
Maria was a fourth-year graduate student in the M.D.-Ph.D program. Her research in Dr. Paul Bollyky's lab, in collaboration with Dr. Yan Xia, investigated antibiotic- and immune-resistant biofilms, with the hopes of enhancing hospital safety and wound-healing. She also volunteered at the Stanford Healthcare Consulting Group, helping to manage projects focused on improving patient care. Maria will be remembered as a passionate scientist and member of the community.

Jonathan Leong, 1983-2019:
After earning his doctorate for his fellowship work characterizing the visual system of *Drosophila*, Jonathan was pursuing an internship in internal medicine at Brigham and Women's Hospital, which was to be followed by a residency in radiology at Massachusetts General Hospital. Jonathan remained tirelessly dedicated to his patients even as his health declined. He was an inspirational and devoted physician-scientist.

Stanford Bio-X PhD Fellowships 2019

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contact-biox@stanford.edu