Stanford Bio-X PhD Fellowships 2017

Stanford Bio-X Fellows
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 800 Stanford Faculty and over 8,000 students, postdocs, researchers, etc. are affiliated with Stanford Bio-X.

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 Bio-X Bowes Fellowships and the Bio-X Stanford Interdisciplinary Graduate Fellowships (Bio-X SIGFs), have provided 248 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. Formal workshops help the Stanford Bio-X Fellows to improve their skills in delivering scientific presentations, writing manuscripts, writing grants, filing for patents, and creating business plans. Through the Stanford Bio-X Travel Program, where we award grants to fellows who are accepted to give talks at national and international meetings, we enable our fellows to disseminate their knowledge, learn from others, and network with leaders in their field. More informally, small-group luncheons and discussions with Nobel Laureates and other distinguished faculty, as well as industry leaders, provide Stanford Bio-X fellows with expert advice regarding their current research and future careers. 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.

The generous support from donors, including the Bowes Foundation, enables the program to remain successful—at any given time, Stanford Bio-X is training approximately 60 PhD fellows, and Fall 2017 brings 27 new fellows to the program. Graduates of the program have transitioned to promising post-doctoral positions or medical training and to successful careers in academia and industry, while others have established their own start-up companies. Five of our alumni—David Camarillo, Adam de la Zerda, Andreas Loening, Guillem Pratx, and David Myung—are now faculty members at Stanford University. Additionally, our fellows, past and present, publish high-impact first-author journal articles, receive grants and fellowships from Fulbright, NIH, NRSA, and NSF among others, file patent applications, and give TEDx talks, exemplifying the importance of interdisciplinary research.

We hope you enjoy reading about the research being conducted by our students.
2005 Stanford Bio-X Bowes Fellow David Myung is now an assistant professor of ophthalmology at Stanford and the Co-Director of the Ophthalmic Innovation Program at the Byers Eye Institute. His research group takes an interdisciplinary approach toward fostering regeneration of ocular tissues. Dr. Myung also investigates the role of mobile technologies in enabling diagnostics and patient care outside of traditional health care settings, with the goal of challenging current paradigms of eye care delivery through new digital health technologies to increase access to care in resource-limited settings.

Kate Montgomery, 2009 Stanford Bio-X Bowes Fellow and 2012 William and Lynda Steere Fellow/Stanford Bio-X SIGF, is currently the lead R&D scientist at Zebra Medical Technologies, which is creating a novel imaging system to permit live cellular pathology without cutting tissue. The company’s technology, minimally invasive sarcomere 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.

Angela Wu, 2006 Stanford Bio-X Bowes Fellow, is now an assistant professor in the division of life science and department of chemical and biological engineering at Hong Kong University of Science and Technology (HKUST). Angela is passionate about creating new technology platforms for translational research that will close the gap between life science, engineering, and the clinic in order to study complex biological systems and diseases such as liver cancer and nasopharyngeal cancer. In 2015, Angela co-founded Agenovir, a genome-editing based antiviral therapeutics start-up company, where Angela managed R&D and worked with the CEO to successfully raise Series A financing. Angela was named one the MIT Technology Review’s top ten Innovators under 35 in Asia for 2017.

To learn about the successes of all of our alumni, please see the “Where are they now?” section beginning on page 29.
AMIN AALIPOUR
Stanford Bio-X Fellow
Bioengineering, MSTP
Mentors: Sanjiv Sam Gambhir (Radiology) and Crystal Mackall (Pediatrics - Hematology/Oncology, Medicine)

Tumor Selective Antigen Induction for Targeted CAR T-Cell Therapy

Chimeric antigen receptor (CAR) T-cell therapy has emerged as a potentially curative immunotherapy for liquid tumors, but limited infiltration and lack of targetable antigens have resulted in severe side-effects and poor efficacy for solid tumors. Amin will introduce a novel combinatorial immunotherapy to improve CAR T-cell efficacy in solid tumors and propose the use of real-time in-vivo imaging to determine the mechanism of tumor clearance and optimize the therapy. This strategy is a highly innovative advance in rational immunotherapy design and has significant translational potential for solid tumors.

ELIZA ADAMS
Stanford Bio-X Bowes Fellow
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

Neural circuits in the adult brain face competing demands: they must be stable enough to maintain critical functions over time, yet flexible enough to adapt to changes in an organism’s experience and environment. Maladaptive circuit plasticity following injury in the adult may account for perturbed sensory experience, such as chronic pain, while adaptive circuit plasticity can accelerate recovery of function, such as after a stroke or neurodegeneration. Eliza’s research pairs novel genetic and viral strategies with a whole brain clearing and analysis pipeline developed in the Tessier-Lavigne lab (iDISCO+/ClearMap) to visualize global changes in network activity and specific changes in axonal anatomy following sensory deprivation. These techniques enable the 3D visualization, quantification, and manipulation of activity-defined circuits across the intact adult brain, with the goal of identifying mechanisms for the therapeutic modulation of circuit plasticity.
MELONY DONG
Stanford Bio-X Honorary Fellow
Bioengineering
Mentors: Alison Marsden (Pediatrics, Bioengineering) and Marlene Rabinovitch (Pediatrics - Cardiology)

Computational modeling of pulmonary arterial hypertension to determine abnormal hemodynamic effects on endothelial gene expression

Pulmonary arterial hypertension (PAH) in children can be caused by congenital heart defects or can be idiopathic, resulting in abnormal hemodynamics and elevated pressures in the pulmonary arteries (PA). It is unknown how abnormally high shear stress alters endothelial gene regulation which causes exuberant proliferation of smooth muscle-like cells and obliteration of the distal pulmonary arteries. Melody's goal is to use computational modeling to quantify wall shear stress in pediatric PAH and determine the biological response of PA endothelial cells to abnormal shear stress. This response will be studied using RNA-Seq with validation by qPCR, western immunoblot, and confocal microscopy. By understanding the hemodynamics and corresponding biological response associated with PAH progression, she hopes to use computational modeling to understand how PAH progresses and identify clinical endpoints for patient stratification.

JOHANNES BIRGMEIER
Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF
Computer Science
Mentors: Gill Bejerano (Developmental Biology, Computer Science, Pediatrics) and Jonathan Bernstein (Pediatrics - Medical Genetics)

Continuous Reanalysis of Undiagnosed Patients with Mendelian Diseases

The comprehensive clinical interpretation of genome sequencing data is very time-consuming, taking 40-200 hours per case. The diagnosis of rare genetic diseases often requires an in-depth literature review to understand how a patient’s genetic variants may be related to their phenotype. There are already roughly 5,000 Mendelian diseases with known causative mutations in roughly 3,500 different genes, and new literature linking genes to diseases is published every week. Johannes proposes to use machine-learning and text-mining techniques to speed up analysis of undiagnosed patients. This project enables Johannes to capture the way clinicians can diagnose patients using automated algorithms.
**Pablo García-Nieto**  
Stanford Bio-X Bowes Fellow  
Biology  
Mentors: Hunter Fraser (Biology) and Ashby Morrison (Biology)  

**Population genomics of UV-induced mutations**  
Mutations are the raw materials that drive evolution, underlying the phenotypic variation upon which selection acts. Despite not being passed to offspring, somatic mutations are important factors in human aging and disease, and, more importantly, are drivers of cancer progression. Using methodologies of chromatin biology, Pablo proposes to combine the fields of genomic stability with population genomics to study the mutational process in different human populations. In particular, this project will elucidate the molecular basis of UV radiation-induced mutation hotspots, shedding light on the mechanisms that drive cancer and their variability in human populations.

**Caleb Glassman**  
Stanford Bio-X Honorary Fellow  
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**  
Coevolution of receptors and their ligands generates complex interaction networks that make up the language of cellular communication. Despite the existence of many receptor-ligand pairs, high sequence conservation among species suggests that natural protein-protein interactions are only a subset of all possible interfaces. Identification and characterization of non-native interactions could provide a means to selectively activate transferred cell populations via engineered receptor ligand interactions that do not cross-react with wild type signaling molecules. Caleb’s work aims to explore non-native interfacing chemistries using yeast display and genome editing in mammalian cells, and will help answer basic and applied questions about protein coevolution.
SHUO HAN
Stanford Bio-X Bowes Fellow
Chemistry
Mentors: Alice Ting (Genetics, Biology) and Howard Chang (Dermatology)
Proximity biotinylation for spatially resolved RNA sequencing in living cells
Spatial regulation of RNAs plays a fundamental role in cell development, brain function, and a wide variety of diseases including Parkinson’s. However, current technologies for mapping RNA localization have limitations; for example FISH/merFISH have limited throughput and require sophisticated instrumentation. Using both chemical and cell biological approaches, Shuo proposes to develop an alternative method based on the engineered peroxidase enzyme APEX. Shuo envisions that this alternative method, followed by enrichment and RNA sequencing, will generate nanometer-resolution spatial maps of functionally important RNAs.

TIMOTHY HORTON
City Hill Foundation Stanford Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF
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
Reduced beta cell mass is a pathologic hallmark of diabetes. Consequently, Timothy aims to develop a therapeutic that enhances insulin production capacity by pharmacologically expanding beta cells. Timothy hypothesizes that presentation of highly potent beta cell stimulators will enable replication and protection against diabetes. This project requires innovative tools in molecular engineering, synthetic chemistry, and biochemical and biological analysis.

“Bio-X has been my guide and resource to leading world experts and big-bet disruptive research across various disciplines. Not only has Bio-X expressed confidence and belief in my abilities, they have encouraged me to try new things, helped me find my true passion, and set meaningful professional goals. I am very fortunate to be part of the Bio-X family.”
— Denitsa Milanova, Stanford Bio-X Medtronic Fellow
**Hannah Kempton**  
Stanford Bio-X Honorary Fellow  
Bioengineering  
Mentors: Stanley Lei Qi (Bioengineering, Chemical & Systems Biology) and Garry Nolan (Microbiology & Immunology)  
*Dissecting the role of macrophage polarization in the tumor microenvironment*  
Macrophages are an understudied and under-utilized cell type with great potential in the context of immunotherapy. These cells are a large component of the tumor microenvironment, where they can be “polarized” to express different functional programs in response to local molecular signals. Hannah will combine CRISPR-based tools and multiparametric single-cell immune analysis to study this polarization in the context of solid tumors. This work can help advance the informed development of future combination immunotherapies to force macrophages towards an anti-tumoral polarization state.

**Margarita Khariton**  
Lavidge and McKinley Interdisciplinary Fellow, Stanford Bio-X SIGF  
Bioengineering  
Mentors: Bo Wang (Bioengineering) and William Talbot (Developmental Biology)  
*Glial and Immunological Regulators of Neuronal Regeneration*  
Recent developments in neuroregenerative studies present immunological responses as showing both positive and negative regulation of neuronal regrowth. Such information can be untangled in the planarian flatworm, which exhibits extraordinary neuroregenerative ability, although the cleanup processes by glial and immune cells in this system remain unknown. Characterization of these cellular cleanup roles may uncover novel mechanisms that allow for such robust neuroregeneration in the planarian. Further implication of these functional modules in the neuroregeneration of a vertebrate, the zebrafish, will help to reveal regulatory mechanisms that are transferable across species to rebuild neuronal networks after severe injury. Margarita’s project combines engineering and developmental biology by developing a set of new tools that will integrate biological systems between basal invertebrates and complex vertebrates.
CAROLYN KIM
Mona M. Burgess Fellow, Stanford Bio-X SIGF Computer Science
Mentors: Mohsen Bayati (Operations, Information, and Technology) and Michael Baiocchi (Medicine - Stanford Prevention Research Center)
Adaptive Experimental Designs for Clinical Trials
The medical community relies on randomized controlled trials to evaluate treatment effects. However, these trials may unnecessarily over-experiment because they do not utilize partial outcomes information. This issue is exacerbated by precision medicine, where treatments are targeted at subgroups. By applying computer science and statistics techniques to clinical settings, Carolyn will develop adaptive experimental designs that strategically adjust treatment assignment probabilities during the trial as outcomes information becomes available. These designs will (i) improve patient outcomes while (ii) identifying high-dimensional heterogeneous subgroups with statistical significance. Carolyn will retrospectively evaluate the designs on Women’s Health Initiative clinical trials and hopes to implement them in cardiothoracic surgery and pediatrics at Stanford hospitals.

HONG-PYO LEE
Stanford Bio-X Bowes Fellow
Mechanical Engineering
Mentors: Ovijit Chaudhuri (Mechanical Engineering) and Nidhi Bhutani (Orthopaedic Surgery)
Utilizing Hydrogels with Fast Stress Relaxation for Induction and Expansion of iPSCs
Induced pluripotent stem cells (iPSCs) hold great promise for biomedicine. iPSCs provide a theoretically limitless source of patient-derived cells of any type for use in biomedical applications such as tissue and organ engineering, drug screening, or cell therapies. However, limited reprogramming efficiency and expansion of iPSCs have restricted wide application of iPSCs. Biophysical cues or engineered biomaterials for 3D culture may play a critical role in overcoming these limitations. But the materials used currently in these studies are almost purely elastic, whereas physiological environments are viscoelastic, in which mechanical stresses are relaxed over time. Further, the impact of more physiologically relevant viscoelastic environments on induction and expansion of iPSCs remains unknown. Hong-pyo will investigate how the viscoelasticity regulates both iPSCs induction and expansion, and the underlying mechanisms. The proposed work will reveal the relationship between the hydrogel stress relaxation and induction of iPSCs, which requires expertise in both mechanics of biomaterials and iPSC biology.
Low-Cost Automated Malaria Diagnosis: Practical Solutions for Resource Constrained Environments

Throughput can often be a limitation in manual microscopy. By taking advantage of components in mass-produced consumer products and DIY electronics, Hongquan works on developing microscopes that are not only low-cost, but also automated. The automation both increases throughput and makes streamlined software processing possible. One application is in malaria diagnosis. Today malaria is still a major global health burden directly affecting hundreds of millions of people, most of whom lack access to infrastructure and health care. While malaria is curable, accurate diagnosis in the field remains an open problem. With the low-cost automated microscopy platform being developed, which is capable of screening more than one million blood cells per minute for intracellular malaria parasites, Hongquan hopes to help address the unmet needs in malaria control and elimination.

Payton Marshall
Stanford Bio-X Bowes Fellow
Immunology, Medicine

Mentors: Paul Bollyky (Medicine - Infectious Diseases, Microbiology & Immunology) and Carolyn Bertozzi (Chemistry)

Engineering Dendritic Cells for Immune Tolerance

The ability to prevent foreign tissue rejection would revolutionize transplant medicine. Payton and his colleagues have identified novel ways to prevent transplant rejection by targeting polysaccharides on the surface of cells — the pericellular matrix. Ordinarily, this pericellular “coat” stabilizes the cell-cell interactions involved in antigen presentation, thereby enhancing immune responses involved in transplant rejection. By altering this coat, it becomes possible to destabilize antigen presentation and to promote the induction of immune tolerance instead. By combining novel chemistry techniques and specialized immunological assays, Payton will engineer the pericellular matrix of immune cells called dendritic cells to promote transplant tolerance. If successful, this work could help patients with transplanted hearts and other organs live longer, fuller lives.
**Rebecca Marton**  
Seth A. Ritch Graduate Fellow, Stanford Bio-X SIGF  
Stem Cell Biology & Regenerative Medicine  
*Mentors: Sergiu Pasca (Psychiatry & Behavioral Sciences) and Bianxiao Cui (Chemistry)*  

**Capturing astrocyte and oligodendrocyte interaction in Vanishing White Matter Disease-derived neural spheroids**  
Communication between astrocytes and oligodendrocytes is essential for normal brain development and function. The breakdown of these interactions causes abnormal glial development and myelination and can result in a range of human glial disorders. As models to study human astrocyte and oligodendrocyte interactions are limited, Rebecca plans to develop the first 3D *in vitro* model to generate astrocytes and oligodendrocytes, and to apply a combination of this method and high throughput nanofabricated arrays to study glial disorders from patient-derived and CRISPR-engineered induced pluripotent stem cells. This project combines the fields of psychiatry, chemistry, and neurology to study devastating and poorly understood glial disorders *in vitro.*

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**Kelly McGill**  
Stanford Bio-X Bowes Fellow  
Immunology  
*Mentors: Pj Utz (Medicine - Immunology & Rheumatology) and Purvesh Khatri (Medicine - Biomedical Informatics, Biomedical Data Science)*  

**Determining Sex Differences in Systemic Sclerosis Gene Expression**  
The goal of Kelly’s project is to better understand the interaction between sex and autoimmune diseases, specifically autoimmune diseases that have a strong female bias, like systemic sclerosis (SSc). Kelly will use both computational analysis of publicly available data and wet lab validation to determine the differences between female and male gene expression in SSc. Then, she will determine if similar expression patterns occur in other autoimmune diseases. By identifying new potential biomarkers and gaining a better understanding of the effects of sex on SSc pathogenesis, Kelly will enable development of more efficacious targeted treatments for patients based on their sex, and discover novel “druggable” pathways. This project integrates bioinformatics methods with immunological expertise to explore the interaction between sex and autoimmune diseases.
Caitlyn Miller
Stanford Bio-X Honorary Fellow
Bioengineering
Mentors: Jennifer Cochran (Bioengineering) and Carolyn Bertozzi (Chemistry)
Targeted Enzyme-Mediated Immunotherapy for Treatment of Pancreatic Cancer
Despite recent advances in cancer research, pancreatic adenocarcinoma remains one of the deadliest solid malignancies due in part to its resistance to systemic therapies. Studies have revealed that limited therapeutic delivery and immune evasion are two key elements contributing to this therapeutic resistance. Eliminating factors that regulate these physical and biochemical barriers is a promising approach to improve delivery, abate immune evasion, and stimulate an anti-tumor immune response. Caitlyn’s project will evaluate the efficacy of tumor-targeting agents to modulate these resistance mechanisms and to enhance immunotherapy for pancreatic cancer. This project spans the fields of protein engineering, chemical biology, and immuno-oncology.

Johanna O’Day
Stanford Bio-X Bowes Fellow
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
A severe complication of Parkinson’s disease, freezing of gait is a failure of neuromuscular control that results in unpredictable episodes of faltering gait and gait cessation, which can lead to falling and injury. There is little understanding of the neurobiological mechanisms that result in freezing behavior and no tools with which to explore such mechanisms. Johanna will develop a novel measurement system that can elucidate real-time neural signaling synchronized with objective, validated measures of movement in freely moving Parkinson’s disease patients to determine neural and biomechanical mechanisms responsible for freezing of gait. Developing this tool requires integrating bioengineering, neurology, and psychology.
PETAR PETROV
Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF
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
Single-particle tracking (SPT) allows for the full distribution of spatiotemporal behaviors of particles to be observed, revealing dynamics and heterogeneity obscured by ensemble measurements. However, significant fluorescent background has limited SPT studies in the mammalian cell nucleus. Integrating single-particle tracking and optical design with cell biology and fluorescent nanobody array labeling, Petar will develop a novel microscopy platform to perform high-precision 3D SPT in thick, live mammalian cells to quantitatively characterize the motion of chromatin sites such as telomeres, whose malfunction is associated with a change in their dynamics and has been implicated in carcinogenesis and cellular aging.

ASHWIN RAMACHANDRAN
Stanford Bio-X Bowes Fellow
Aeronautics & Astronautics
Mentors: Juan Santiago (Mechanical Engineering) and Sanjiva Lele (Aeronautics & Astronautics, Mechanical Engineering)
Electrokinetic microfluidics for rapid and automated clinical diagnostics
The dream of low-cost and personalized medicine requires innovative and multidisciplinary approaches to build and customize emerging technologies for molecular diagnostics. DNA and protein microarrays are now mature technologies in biomedicine and have proven value in research. However, lack of automation and long (~15-hour) assay times have crippled efforts to bring them to fast, automated clinical diagnostics. Ashwin’s research centers around microfluidics and electric fields to automate genetic and proteomic microarray technologies, to provide actionable diagnosis in 60 minutes with 10-times greater sensitivity than current methods. The work has potential to enable rapid clinical diagnosis of autoimmune diseases such as diabetes and connective tissue diseases (CTDs).
ALEXANDER RATNER
Morgridge Family SIGF Fellow, Stanford Bio-X SIGF
Computer Science
Mentors: Christopher Ré (Computer Science) and Daniel Rubin (Biomedical Data Science, Radiology, Medicine - Biomedical Informatics Research)

Alleviating the Labeling Bottleneck with Weak Supervision
Recent advances in machine learning have led to impressive successes in many domains; however, these methods rely on massive hand-labeled training sets. Alex’s research addresses this “labeling bottleneck” by enabling users to train machine learning models with higher level, less precise inputs, and by easily leveraging structured data resources available in domains such as bioinformatics. In the first part of his PhD, Alex developed data programming, a method for using lower-accuracy rules to train high-accuracy models, and Snorkel, a system which uses this paradigm for extracting information from text documents such as scientific articles and electronic health records. In his subsequent work, Alex seeks to develop similar techniques that extend to image and video data, focused initially on improving the performance of automated disease diagnosis using radiology and histopathology data.

ANNA SHCHERBINA
Stanford Bio-X Bowes Fellow
Biomedical Informatics
Mentors: Anshul Kundaje (Genetics, Computer Science) and Euan Ashley (Medicine - Cardiovascular Medicine, Genetics, and Biomedical Data Science)

Deep learning approaches for functional variant prioritization
Anna’s primary research interest is deciphering the genetic and molecular basis of complex diseases, i.e. how specific variations in genomic DNA sequence across individuals may predispose them to disease by affecting molecular mechanisms in cells. She aims to develop novel machine learning approaches based on deep neural networks for integrative analysis of data from a variety of complementary technologies. She will measure biochemical activity in disease-relevant cell types and genome sequence variation data from large case-control studies contrasting diseased and healthy individuals. Anna’s efforts will focus on cardiovascular disease and colorectal cancer.
“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

**STEVEN SHUKEN**  
*Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF*  
*Chemistry*  
**Mentors:** Tony Wyss-Coray (Neurology & Neurological Sciences) and Joshua Elias (Chemical & Systems Biology)  
**Proteomics of Brain Aging, Disease, and Rejuvenation in the CSF**  
Brain aging is a complex process that causes Alzheimer’s disease, but the nature of this causation is obscured by a lack of understanding of brain aging itself. Part of this problem is that not all time-associated changes matter; rejuvenation of the old brain by exposure to young blood promises a way to study functional aging in reverse. Steven is examining chemical changes in the cerebrospinal fluid (CSF) with aging and with rejuvenation in order to shed light on functional brain aging. In the brain, neurons, support cells, and immune cells send signal proteins between them that are characteristic of the brain’s age and the risk of Alzheimer’s disease; with sensitive detection techniques, these signal proteins can be detected in CSF, but many are still unknown. Steven will use modern mass spectrometry-based proteomic analysis on CSF from young and old mice and humans, as well as rejuvenated mice, to discover signal proteins that are important in functional brain aging. These proteins will be analyzed in CSF from Alzheimer’s patients to identify final candidates, which will be individually studied in order to further understand brain rejuvenation and identify opportunities for Alzheimer’s disease treatment.

**ALICE STANTON**  
*Stanford Bio-X Bowes Fellow*  
*Bioengineering*  
**Mentors:** Fan Yang (Orthopaedic Surgery, Bioengineering) and Ovijit Chaudhuri (Mechanical Engineering)  
**Uncovering the role of Biochemical Cues on Modulating Pluripotent Stem Cell Mechanosensing and Differentiation: A Biomaterials-based Approach**  
Matrix stiffness has been shown to modulate adult stem cell differentiation via mechanosensing. However, how biochemical cues modulate mechanosensing and differentiation of pluripotent stem cells (PSCs) remains unknown due to a lack of biomaterials tools that support hPSC attachment on hydrogels and poor conjugation efficiency of biochemical cues. Alice aims to address this bottleneck by developing hydrogels with robust conjugation efficiency and tunable biochemical cues to uncover the role of biochemical cues in modulating mechanosensing and differentiation of hPSCs. This work will be guided by an interdisciplinary team composed of basic and clinician scientists with complimentary expertise in biomaterials, stem cells, mechanobiology and tissue engineering. The outcomes of the research will substantially advance knowledge in mechanobiology and accelerate clinical translation of pluripotent stem cell-based therapies for tissue repair.
Bio-X is this amazing group of people that want to change the world and actually have the capacity to do that through innovative research. The connections I have made through this award with other fellows have already affected my research tremendously and made it so fun! I can't imagine a better, more eclectic group of people to be affiliated with and do fun stuff with. Thank you, Bio-X, for welcoming me into this amazing family!”

— Adi de la Zerda, Stanford Bio-X Honorary Fellow
**Avin Veerakumar**  
Lubert Stryer Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF  
Bioengineering, Medicine  
Mentors: Mark Krasnow (Biochemistry) and David Kingsley (Developmental Biology)  
*Identifying genetic and cellular events underlying the evolution of the human speech circuit*  
The ability to speak is critical for everyday communication but can be disrupted by genetic and acquired neurological and psychiatric disorders. During vocalization, over 40 laryngeal muscles, respiratory muscles, and orofacial muscles are precisely coordinated by the brain to produce phonemes (a unit of sound), but how the brain accomplishes this feat is poorly understood. The goal of Avin's project is to understand how the brain generates the muscle activation patterns of vocalization. Avin is investigating how neural circuits in the mouse brain generate simple vocalizations. In addition, he is investigating mechanisms by which similar circuits changed during human evolution to give us the ability to voluntarily control vocal cord muscles, a change which expanded our vocal range and enabled the eventual development of language. By developing a detailed understanding of how the brain generates vocalization, this research could enable the development of new therapies for speech and language disorders.

**Alexander Yoshikawa**  
Stanford Bio-X Bowes Fellow  
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*  
Cancer cells exploit immune checkpoints to evade destruction by the immune system. Manipulation of these immune checkpoints has proven to be a powerful new tool in the fight against cancer. Cell surface sugars and their cognate receptors are emerging as a promising class of immune checkpoints to target for cancer immunotherapy. In this work, Alexander proposes the development of oligonucleotide based affinity reagents containing unnatural chemical modifications that can inhibit these immune checkpoints to increase antitumor immunity.
Stanford Bio-X Graduate Fellowships 2004-2016
(in alphabetical order)

**SHELLEY ACKERMAN**
Stanford Bio-X Bowes Fellow 2014
Bioengineering
Mentor: Edgar Engleman (Pathology)
“Simultaneous delivery of antibody and adjuvant strengthens anti-tumor immunity”

**ATISH AGARWALA**
Stanford Bio-X Bowes Fellow 2015
Physics
Mentors: Daniel Fisher (Applied Physics) and Gavin Sherlock (Genetics)
“Modeling the evolutionary consequences of interacting genes”

**RACHEL AGOLGLIA**
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”

**KATHERINE AMBERG-JOHNSON**
William and Lynda Steere Fellow, Stanford Bio-X SIGF 2016
Microbiology & Immunology
Mentors: Ellen Yeh (Biochemistry, Pathology, Microbiology & Immunology) and
Matthew Bogyo (Pathology, Microbiology & Immunology)
“Novel inhibitors of malaria parasites”

**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”

**EVA GABRIELA BAYLON**
Stanford Bio-X Skippy Frank Fellow 2014
Mechanical Engineering
Mentors: Marc Levenston (Mechanical Engineering) and Garry Gold (Radiology)
“Characterization of the role of osmotic swelling stress in the mechanical behavior of meniscus fibrocartilage”
**Salil Bhaté**
Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2016  
Bioengineering  
Mentors: Garry Nolan (Microbiology & Immunology) and Stanley Lei Qi (Bioengineering, Chemical & Systems Biology)  
“Data-driven engineering of cellular phenotypes for cancer immunotherapy using single-cell, quantitative, multiparameter CRISPR screening”

**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”

**Shengya Cao**
Morgridge Family SIGF Fellow, Stanford Bio-X SIGF 2013  
Biochemistry  
Mentors: Aaron Straight (Biochemistry) and Andrew Spakowitz (Chemical Engineering)  
“What makes an extremely stable chromosome associated protein stable?”

**Elizabeth Chen**
Rogers Family Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2013  
Stem Cell Biology and Regenerative Medicine  
Mentors: Michael Clarke (Medicine) and Stephen Quake (Bioeng. and Applied Physics)  
“Epigenetic regulation of self-renewal processes in stem cell populations”

**Junhong Choi**
Stanford Bio-X Bowes Fellow 2015  
Applied Physics  
Mentors: Joseph Puglisi (Structural Biology) and Zev Bryant (Bioengineering)  
“Understanding modulation in translation elongation dynamics that changes decoding of the genetic code”

**Adi de la Zerda**
Stanford Bio-X Fellow 2013  
Materials Science & Engineering  
Mentors: Sarah Heilshorn (Materials Science & Engineering) and Paul Bollyky (Medicine)  
“Tissue biomechanic affect T cells response”

**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”

**Darrel Deo**
Mona M. Burgess Fellow, Stanford Bio-X SIGF 2016  
Mechanical Engineering  
Mentors: Allison Okamura (Mechanical Engineering), Krishna Shenoy (Electrical Engineering), and Paul Nuyujukian (Bioengineering)  
“The role of haptic feedback in brain-computer interface systems”
Jasmine Dickinson
Stanford Bio-X Honorary Fellow 2015
Biology
Mentors: Gregory Scherrer (Anesthesiology, Perioperative & Pain Medicine, Neurosurgery) and Mark Schnitzer (Biology, Applied Physics)
“The Anterior Cingulate Cortex projection neuron pathway to the dorsal Periaqueductal Gray modulates pain behavior”

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”

Nir Even-Chen
Stanford Bio-X Bowes Fellow 2015
Electrical Engineering
Mentors: Krishna Shenoy (Electrical Engineering) and Kwabena Boahen (Bioengineering)
“Neural control of a robotic arm using an adaptive brain-machine interface enabled by error detection feedback”

Courtney Gegg
Stanford Bio-X Bowes Fellow 2016
Bioengineering
Mentors: Fan Yang (Orthopaedic Surgery, Bioengineering) and Stuart Goodman (Orthopaedic Surgery)
“Regenerating cartilage with zonal organization using injectable, macroporous hydrogels with spatially patterned cues”

Peyton Greenside
Morgridge Family SIGF Fellow, Stanford Bio-X SIGF 2015
Biomedical Informatics
Mentors: Anshul Kundaje (Genetics, Computer Science) and Thomas Quertermous (Cardiovascular Medicine)
“Interpretable deep learning approaches to understand the genetic and regulatory basis of coronary artery disease”
**Amalia Hadjitheodorou**  
Stanford Bio-X Bowes Fellow 2014  
Bioengineering  
Mentor: Julie Theriot (Biochemistry, Microbiology & Immunology)  
“The cytoskeletal circuitry underlying directional decisions during neutrophil migration”

**Kevin Hart**  
Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2015  
Biology  
Mentors: James Nelson (Biology, Molecular & Cellular Physiology), Beth Pruitt (Mechanical Engineering), William Weis (Structural Biology, Molecular & Cellular Physiology, Photon Science), and Alex Dunn (Chemical Engineering)  
“E-Cadherin and LGN align epithelial cell divisions with tissue tension independently of cell shape”

**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”

**Eva Huang**  
Stanford Bio-X Bowes Fellow 2014  
Chemical Engineering  
Mentors: Alexander Dunn (Chemical Engineering) and Vittorio Sebastiano (OB/GYN)  
“Role of Hippo pathway-mediated mechanical signaling in human embryonic stem cell self-renewal”

**Haisam Islam**  
Stanford Bio-X Bowes Fellow 2010  
Bioengineering  
Mentors: Gary Glover (Radiology) and John Pauly (Electrical Engineering)  
“High-resolution imaging methods for functional MRI applications”

**Johnny Israeli**  
Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2016  
Biophysics  
Mentors: Anshul Kundaje (Genetics, Computer Science) and Douglas Vollrath (Genetics)  
“Functional genomic variation in the retinal pigment epithelium and its relevance to age-related macular degeneration”

**Ivan Ivanov**  
Tusher Family Stanford Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2015  
Chemical Engineering  
Mentors: Zev Bryant (Bioengineering), Andrew Spakowitz (Chemical Engineering), Chaitan Khosla (Chemistry, Chemical Engineering), W. E. Moerner (Chemistry), and Adam de la Zerda (Structural Biology)  
“Development and application of high-resolution multimodal methods for investigating nucleoprotein complex dynamics”
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”

Xiaofan Jin
Stanford Bio-X Bowes Fellow 2014
Bioengineering
Mentors: Ingmar Riedel-Kruse (Bioengineering) and Alfred Spormann (Civil & Environmental Engineering)
“Patterning bacterial communities to investigate microbial interactions”

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”

Benjamin Kotopka
Stanford Bio-X Bowes Fellow 2015
Bioengineering
Mentors: Christina Smolke (Bioengineering) and Rhiju Das (Biochemistry)
“Designing new promoters for gene expression control in yeast”

Brad Krajina
Stanford Bio-X Bowes Fellow 2015
Chemical Engineering
Mentors: Andrew Spakowitz (Chemical Engineering), Sarah Heilshorn (Materials Science & Engineering), Sebastian Doniach (Applied Physics, Physics, Photon Science), and Joseph Wu (Cardiovascular Medicine, Radiology)
“Topological control of DNA organization”

Deepak Krishnamurthy
Stanford Bio-X Bowes Fellow 2015
Mechanical Engineering
Mentors: Manu Prakash (Bioengineering) and Giulio de Leo (Biology)
“Biophysics of swimming and host-seeking in Schistosomiasis cercariae”

Michael Leung
Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2016
Electrical Engineering
Mentors: Audrey Bowden (Electrical Engineering), Barry Behr (Obstetrics & Gynecology), and Sindy Tang (Mechanical Engineering)
“Clinical classification methods for in vitro fertilization (IVF) embryos in order to increase the rate of singleton births”
**Steven Leung**
Stanford Bio-X Bowes Fellow 2013  
Bioengineering  
Mentors: Kim Butts Pauly (Radiology) and Gary Glover (Radiology)  
“Computational modeling of high intensity focused ultrasound therapies”

**Orly Liba**
Stanford Bio-X Bowes Fellow 2014  
Electrical Engineering  
Mentors: Adam de la Zerda (Structural Biology) and Sanjiv Sam Gambhir (Radiology)  
“A new in vivo molecular imaging technology with single cell resolution based on optical coherence tomography”

**Chao Liu**
Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2015  
Biochemistry  
Mentors: James Spudich (Biochemistry) and Beth Pruitt (Mechanical Engineering)  
“Modulating the heart’s contractility by small molecule drugs and cardiomyopathy mutations in single molecules of human cardiac myosin”

**Aaron Mayer**
Stanford Bio-X Honorary Fellow 2015  
Bioengineering  
Mentors: Sam Sanjiv Gambhir (Radiology), Irving Weissman (Pathology, Developmental Biology), William Greenleaf (Genetics), and Ron Levy (Medicine - Oncology)  
“A molecular imaging toolbox for monitoring cancer immunotherapies”

**Allister McGuire**
Stanford Bio-X Bowes Fellow 2013  
Chemistry  
Mentors: Bianxiao Cui (Chemistry), Yi Cui (Materials Science & Engineering), and Zhenan Bao (Chemical Engineering)  
“Engineering a nanoelectrode to measure cardiac response to drugs”

**Arek Melkonian**
Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2016  
Chemical Engineering, Medicine  
Mentors: Chaitan Khosla (Chemical Engineering, Chemistry), Calvin Kuo (Hematology), Joshua Elias (Chemical & Systems Biology), and Elizabeth Mellins (Pediatrics)  
“Antigen presentation in coeliac disease”
AMANDA MIGUEL
Stanford Bio-X Honorary Fellow 2013
Bioengineering
Mentor: KC Huang (Bioengineering)
“High-throughput exploration of the phenotypic space in Escherichia coli shape mutants”

PAOLA MORENO-ROMAN
Stanford Bio-X Bowes Fellow 2014
Biology
Mentor: Lucy O’Brien (Molecular & Cellular Physiology)
“Investigating a novel link between tissue structure and cell differentiation during organ self-renewal”

ELAINE NG
Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2016
Bioengineering
Mentors: Shan Wang (Materials Science & Engineering, Electrical Engineering), Paul Utz (Immunology, Rheumatology), and Samuel So (Surgery - General Surgery)
“High-throughput biomarker detection of early hepatocellular carcinoma in high-risk Hepatitis B Virus-infected patients using automated point-of-care giant magnetoresistive sensor array platform”

CARMICHAEL ONG
Stanford Bio-X Bowes Fellow 2011
Bioengineering
Mentor: Scott Delp (Bioengineering and Mechanical Engineering)
“Using optimal control theory to understand and improve human movement”

SUNG JIN PARK
Stanford Bio-X Bowes Fellow 2013
Bioengineering
Mentor: Jennifer Cochran (Bioengineering)
“Engineering protein scaffolds for targeted therapeutics”

BENJAMIN POOLE
Seth A. Ritch Graduate Fellow, Stanford Bio-X SIGF 2014
Computer Science
Mentors: Surya Ganguli (Applied Physics) and Thomas Clandinin (Neurobiology)
“Computational tools for large-scale calcium imaging of neural systems”
Arjun Prabhakar
Biophysics
Mentors: Joseph Puglisi (Structural Biology) and Peter Sarnow (Microbiology & Immunology)
“Probing the dynamics of translation termination and recycling”

Teresa Purzner
Felix and Heather Baker Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2015
Developmental Biology
Mentors: Margaret Fuller (Developmental Biology, Genetics, Obstetrics & Gynecology), Josh Elias (Chemical & Systems Biology), and James Chen (Chemical & Systems Biology, Developmental Biology)
“Using developmental phosphoproteomics to identify therapeutic targets in medulloblastoma”

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 and Rheumatology), and Amato Giaccia (Radiation Oncology)
“Combining radiation and targeted immunotherapy for metastatic cancer”

Heather Rogan
Rogers Family Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2016
Bioengineering
Mentors: Fan Yang (Orthopaedic Surgery, Bioengineering), Constance Chu (Orthopaedic Surgery), and Bo Wang (Bioengineering)
“Harnessing stem cells to catalyze cartilage regeneration”

Adam Rubin
William and Linda Steere Fellow, Stanford Bio-X SIGF 2015
Stem Cell Biology & Regenerative Medicine
Mentors: Paul Khavari (Dermatology) and Anshul Kundaje (Genetics, Computer Science)
“Epigenomic dynamics in epithelial cancer and stem cell differentiation”

Rachel Hagey Saluti
Mona M. Burgess Fellow, Stanford Bio-X SIGF 2014
Microbiology & Immunology
Mentors: Jeffrey Glenn (Microbiology & Immunology) and Rhiju Das (Physics)
“Identification and targeting of a novel pangenotypic RNA secondary structural element that mediates influenza A virus packaging and disease”
Andrew Savinov
Paul Berg Interdisciplinary Biomedical Graduate Fellow, Stanford Bio-X SIGF 2014
Biophysics Program
Mentors: Steven Block (Biology and Applied Physics) and William Greenleaf (Genetics)
“Investigating how a model RNA enzyme folds into shape and performs its biochemical function using complementary single-molecule and massively parallel high-throughput experiments”

Tim Schnabel
Stanford Bio-X Bowes Fellow 2015
Bioengineering
Mentor: Elizabeth Sattely (Chemical Engineering)
“Plant and rhizosphere pathway discovery and engineering towards improved crop performance including stress tolerance and growth promotion”

Jake Sanga
Stanford Bio-X Bowes Fellow 2014
Bioengineering
Mentors: David Camarillo (Bioengineering), Paul J. Wang (Cardiovascular Medicine), and Allison Okamura (Mechanical Engineering)
“Flexible surgical robotics”

Handuo Shi
Rosenberg Ach Family Fellow, Stanford Bio-X SIGF 2016
Bioengineering
Mentors: KC Huang (Bioengineering, Microbiology & Immunology) and Justin Sonnenburg (Microbiology & Immunology)
“Systems physiology of stress: How bacteria respond to environmental changes”

Avanti Shrikumar
Stanford Bio-X Bowes Fellow 2016
Computer Science
Mentors: Anshul Kundaje (Computer Science, Genetics) and Helen Blau (Microbiology & Immunology)
“Interpretable deep learning approaches for regulatory genomics”

Herbert Silva
Stanford Bio-X Bowes Fellow 2013
Mechanical Engineering
Mentors: Drew Nelson (Mechanical Engineering), Jason T. Lee (Vascular & Endovascular Surgery), and Staff Scientist Chris Tassone (SLAC)
“A novel approach for studying the mechanical behavior of atherosclerotic plaque”

Johanna Sweere
Lubert Stryer Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2015
Immunology
Mentors: Paul Bollyky (Medicine - Infectious Diseases), Lynette Cegelski (Chemistry), and David Stevens (Medicine - Infectious Diseases)
“Immune modulation by filamentous bacteriophage in bacterial biofilms”

Matthew Titchenal
Stanford Bio-X Bowes Fellow 2015
Mechanical Engineering
Mentors: Constance Chu (Orthopaedic Surgery), Thomas Andriacchi (Mechanical Engineering, Orthopaedic Surgery), Garry Gold (Radiology), and William Robinson (Medicine - Immunology & Rheumatology)
“Biomechanical, biological, and structural interaction in the development of osteoarthritis following anterior cruciate ligament reconstructive surgery”
**BARIS UNGUN**  
Stanford Bio-X Bowes Fellow 2014  
Bioengineering, Medicine  
Mentors: Lei Xing (Radiation Oncology) and Stephen Boyd (Electrical Engineering)  
“Radiation therapy treatment planning using convex optimization”

**MATHIAS VOGES**  
Stanford Bio-X Bowes Fellow 2013  
Bioengineering  
Mentor: Elizabeth Sattely (Chemical Engineering)  
“Engineering interactions between plants and plant growth-promoting microbes”

**MICHAEL WAINBERG**  
Stanford Bio-X Bowes Fellow 2016  
Computer Science  
Mentors: Anshul Kundaje (Computer Science, Genetics) and Michael Bassik (Genetics)  
“Finding the genetic drivers of cancer with CRISPR/Cas9 genome editing”

**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)  
“Developing a high-resolution and minimally invasive approach to diagnose endometrium receptivity”

**ANDREW WEITZ**  
Stanford Bio-X Bowes Fellow 2012  
Bioengineering  
Mentor: Jin Hyung Lee (Neurology and Bioengineering)  
“Dissection of large-scale brain networks using optogenetic fMRI”

**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”
ANNE YE
Stanford Bio-X Bowes Fellow 2012
Bioengineering
Mentor: Jennifer Cochran (Bioengineering)
“Engineering a new enzyme for precise protein labeling”

PATRICK YE
Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2013
Bioengineering
Mentors: Kim Pauly (Radiology) and Stephen Baccus (Neurobiology)
“Elucidating the mechanisms of in vivo ultrasound neuromodulation”

JENNIFER YONG
Morgridge Family SIGF Fellow, Stanford Bio-X SIGF 2012
Mechanical Engineering
Mentors: Scott Delp (Bioengineering and Mechanical Engineering) and Michael Fredericson (Orthopaedic Surgery)
“Barefoot running: changes in injury mechanisms between forefoot and rearfoot strikers”

NOAH YOUNG
Stanford Bio-X Bowes Fellow 2012
Bioengineering
Mentors: Karl Deisseroth (Bioeng. and Psychiatry) and Surya Ganguli (Applied Physics)
“Observing and perturbing dynamics with calcium imaging, optogenetics, and virtual reality in zebrafish”

DANQING ZHU
Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2015
Bioengineering
Mentors: Fan Yang (Bioengineering, Orthopaedic Surgery), Sarah Heilshorn (Materials Science & Engineering), R. Lane Smith (Orthopaedic Surgery)
“Mimicking cartilage tissue zonal organization by engineering hydrogels with gradient niche cues”

Jennifer Cochran (Bioengineering)
Where are they now?

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

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

Jaimie Adelson (Stanford Bio-X Honorary Fellow 2010) is a research investigator at the Washington State Department of Social and Health Services, after being a Global Health Leadership intern at Unite for Sight earlier in 2017.

Afsheen Afshar (Stanford Bio-X Bowes Fellow 2005) is a managing director and the Chief Data Science Officer at JPMorgan, Corporate and Investment Bank. In this role, he has global responsibilities for data and analytics across all lines of business.

Ron Alfa (Stanford Bio-X Bowes Fellow 2011) is the director of translational biology at Recursion Pharmaceutical.

Edith Arnold (Stanford Bio-X Bowes Fellow 2006) is working at Apple, Inc. as an engineering manager.

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.

Oguzhan Atay (Colella Family Fellow, Stanford Bio-X SIGF 2014) is the co-founder and CEO of BillionToOne, a Y Combinator company that is focusing on prenatal genetic testing for every expecting mother.

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

Daniel Bechstein (Stanford Bio-X Bowes Fellow 2012) is a sensor design engineer at Apple, Inc.

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

Jennifer Blundo (Stanford Bio-X Bowes Fellow 2006) is an adjunct assistant professor at the UCLA David Geffen School of Medicine and a lecturer at the Anderson School of Management. She oversees the UCLA Bodesign Program for innovation and entrepreneurship in healthcare and teaches classes on medical device development, digital health, and entrepreneurship. Jennifer also serves as the Director of the MedTech Innovator Accelerator & Competition, a non-profit industry-driven platform for medtech and digital health start-ups that is supported by J&J, Baxter, Amgen, and other leading manufacturers.
Jennifer Brady (Stanford Bio-X Skippy Frank Fellow 2010) is a scientist at Surrozen, Inc. The company is focused on harnessing the Wnt pathway to identify novel therapeutics for regenerative medicine.

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

Craig Buckley (Stanford Bio-X Bowes Fellow 2011) is a postdoc in Alex Dunn’s lab at Stanford.

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

Mindy Chang (Stanford Bio-X Bowes Fellow 2005) is a data scientist at Airbnb.

Ian Chen (Stanford Bio-X Bowes Fellow 2006) is an instructor at the Stanford Cardiovascular Institute.

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

Fang-Chieh Chou (Stanford Bio-X Fellow 2012) is a data mining engineer at Yelp.

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. There, she is developing machine learning and computer vision techniques to enable cars to perceive the world around them.

Melinda Cromie (Paul Berg Interdisciplinary Biomedical Graduate Fellow, Stanford Bio-X SIGF 2008) is a research engineer at Superflex in Menlo Park, CA. She is leading a project to make wearable robotic suits to help kids with disabilities.

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 on the computational biology team at Driver, a small company building a platform to match cancer patients to clinical trials based on their medical records and biological data.

Sanjay Dastoor (Stanford Bio-X Bowes Fellow 2006) is co-founder at Boosted, where they design fun, fast, and simple electric vehicles.
Adam de la Zerda (Stanford Bio-X Skippy Frank Fellow 2008) is an assistant professor of structural biology at Stanford University.

Sarah Denny (Stanford Bio-X Honorary Fellow 2013) has just defended and is figuring out her next steps.

Mario Diaz de la Rosa (Stanford Bio-X Bowes Fellow 2008) is a Data Scientist Fellow at Galvanize.

Rebecca DiMarco (Stanford Bio-X Bowes Fellow 2009) is a Senior Quality and Development Engineer at Cytovalle.

Sheng Ding (Stanford Bio-X Bowes Fellow 2007) works for Pfizer-Rinat, one of the world’s leaders in biopharma industry, as a Senior Scientist focusing on antibody engineering.

Graham Dow (Stanford Bio-X Bowes Fellow 2009) is a research assistant professor in the department of biology at Boston University.

Karen Dubbin (Stanford Bio-X Bowes Fellow 2013) just defended and has joined Aether, a 3D bioprinting startup in San Francisco, as their Science Director.

Remy Durand (Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2010) is a VP at Frazier Healthcare Partners where he focuses on investment identification, due diligence, and deal closing.

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

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 Research Associate in the Blinder lab at Tel-Aviv University, Israel, and a Research Affiliate in Ed Boyden’s lab at MIT’s Media lab.

Stephen Fried (Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2012) is nearing the end of his tenure as a Junior Research Fellow at King’s College, Cambridge, where his work has focused on developing a new understanding of how the genetic code works to effectively translate genetic information into the protein language. Next year, Stephen will start as an assistant professor at Johns Hopkins University.

Julia Fukuyama (Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2014) has taken up a postdoc position at the Fred Hutchinson Cancer Research Center working in Dr. Erick Matsen’s lab.

Xiaojing Gao (Enlight Foundation Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2012) is working with Professor Michael Elowitz as a postdoctoral student in the Biology department at Caltech.

David Glass (Stanford Bio-X Bowes Fellow 2013) has just defended and is a postdoc in Professor Ingmar Riedel-Kruse's lab.

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

Alex Grant (Stanford Bio-X Bowes Fellow 2010) is currently working as a a principal R&D engineer at the startup Ceribell, Inc.
Adam Grossman (Stanford Bio-X Bowes Fellow 2004) is co-founder and a senior scientist at Praedicat, Inc., a company transforming the underwriting and risk management of liability insurance by using big data approaches to model and understand the science that drives products liability.

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.

Fidel Hernandez (Stanford Bio-X Honorary Fellow 2013) is an Associate 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 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 a senior software engineer at the company Meta Co.

Jacob Hughey (Stanford Bio-X Bowes Fellow 2007) is an instructor of biomedical informatics at Vanderbilt University School of Medicine.

Rachel Kalmar (Stanford Bio-X Bowes Fellow 2005) is a Fellow at the Berkman Klein Center for Internet and Society at Harvard University. 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 Singularity University, Rock Health, and Misfit Wearables.

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 an MRI research engineer 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 working as a postdoctoral fellow in Dr. Jennifer Cochran’s lab, and will be transitioning to postdoctoral work in Dr. Julien Sage’s lab in 2018.

Samuel Kim (Stanford Bio-X Bowes Fellow 2004) is a postdoctoral researcher in Professor Adam Abate’s group at the University of California-San Francisco.

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 medical student at Stanford University.

Gaurav Krishnamurthy (Stanford Bio-X Medtronic Fellow 2008) is an R&D manager at Medtronic Neurovascular.
Thomas Lampo (Stanford Interdisciplinary Graduate Fellow (Anonymous Donor), Stanford Bio-X SIGF 2013) is a data scientist at Uber.

Frances Lau (Stanford Bio-X Bowes Fellow 2007) is an engineering lead in Facebook’s Building 8 division.

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 a 4th-year medical student at Stanford University. He is 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 cardiovascular field with solid knowledge base and skills in stem cell biology, cardiac development, and bioengineering.

Stephen Lee (Stanford Bio-X Bowes Fellow 2005) is a Strategy Director for Discovery Networks Southern Europe based in London.

Austin Lee-Richerson (Stanford Bio-X Bowes Fellow 2011) is currently on LOA from the Boston Consulting Group while he pursues an MBA from the Kellogg School of Management at Northwestern University. He just graduated in the top 10% of his graduating class.

Jonathan Leong (Stanford Bio-X Bowes Fellow 2010) is pursuing an internship in internal medicine at Brigham and Women’s Hospital, followed by a residency in radiology at Massachusetts General Hospital.

Ye (Henry) Li (William and Lynda Steere Fellow, Stanford Bio-X SIGF 2013) is a postdoc in Edgar Engleman’s lab at the Stanford Blood Center, focusing on immunotherapy-related research.

Liang Liang (Lubert Stryer Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2009) is in Chinfei Chen’s and Mark Andermann’s labs at Boston Children’s Hospital as a postdoctoral fellow.

Prasheel Lillaney (Stanford Bio-X Bowes Fellow 2005) is a manager on the Benefit Risk Team at Jazz Pharmaceuticals.

Sungwon Lim (Stanford Bio-X Bowes Fellow 2011) is a visiting scholar in Dr. Jennifer Cochran’s lab, developing protein-based therapeutics that efficiently induce angiogenesis in ischemic diseases.

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 working as an applied data science lead at Quid, Inc., an analytics start-up in San Francisco.

Bertrand Lui (Lubert Stryer Interdisciplinary Graduate Fellow, Stanford Bio-X SIGF 2006) is a member of the SMB Revenue Innovations team at Google.

Li Ma (Larry Yung Fellow, Stanford Bio-X SIGF 2009) is an assistant professor in the department of statistical science at Duke University.

Niru Maheswaranathan (Stanford Bio-X Honorary Fellow 2013) just defended his thesis and is now doing machine learning research as an engineer on the Google Brain team.

Amanda Malone (Stanford Bio-X Bowes Fellow 2004) is the CSO for Eupraxia Pharmaceuticals Inc.
Ian Marshall (Stanford Bio-X Bowes Fellow 2008) is a postdoctoral fellow in the Center for Geomicrobiology at Aarhus University in Denmark.

Trevor Martin (Stanford Bio-X Bowes Fellow 2012) is CEO and co-founder, with another recent Stanford PhD, of Mammoth Diagnostics, which has received seed funding and is in the diagnostics space.

Melina Mathur (Stanford Bio-X Bowes Fellow 2010) defended in Spring of 2017, and will be working as an Associate at Asset Management Ventures during the next few months.

Joanna Mattis (Stanford Bio-X Bowes Fellow 2010) is a neurology resident at the University of Pennsylvania.

Cory McLean (Stanford Bio-X Bowes Fellow 2007) is a software engineer at Google Brain.

Christine McLeavey (Stanford Bio-X Bowes Fellow 2008) is a pianist and co-founder of Ensemble SF. She is also going back to her neuroscience roots through deep learning and artificial intelligence at Game Developer, which works on educational games.

Leslie Meltzer (Stanford Bio-X Bowes Fellow 2004) is vice president and head of medical affairs at Keryx Biopharmaceuticals in Boston, MA.

Samir Menon (Colella Family Fellow, Stanford Bio-X SIGF 2011) is a postdoctoral scholar at the Stanford Robotics Lab, working on robotics-based methods to study the brain’s motor control system.

Denitsa Milanova (Stanford Bio-X Medtronic Fellow 2011) is a postdoctoral fellow in the department of genetics at Harvard Medical School and at the Wyss Institute for Biologically Inspired Engineering. Her PI is Professor George Church.

Murtaza Mogri (Stanford Bio-X Bowes Fellow 2006) is the Director of Business Development and Market Access for V-Wave, a start-up developing percutaneous implantable devices for treating patients with chronic heart failure. V-Wave has received strategic investments from Johnson & Johnson and Edwards Lifesciences.

Kate Montgomery (Stanford Bio-X Bowes Fellow 2009 and William and Lynda Steere Fellow, Stanford Bio-X SIGF 2012) is the lead R&D scientist at Zebra Medical Technologies. The company’s technology, minimally invasive sarcomere imaging, was supported as an academic project by a 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 working in Michael Levitt’s lab while he is in the process of interviewing.
David Myung (Stanford Bio-X Bowes Fellow 2005) is an Assistant Professor of Ophthalmology at the Byers Eye Institute and the VA Palo Alto Health Care System, and is Co-Director of the Ophthalmic Innovation Program at Stanford. The technology he co-developed as a Bio-X Fellow was licensed out of Stanford and is the focus of a venture-backed orthopaedics-focused biomaterials company that he co-founded that is currently in pre-clinical development. During his ophthalmology residency, he led the invention of a smartphone-based eye imaging system that was licensed to DigiSight Technologies and is now FDA registered as a 510(k) Class II ophthalmic camera, and is being used both in the US and abroad, most notably in collaboration with the Himalayan Cataract Project in rural Nepal. David's laboratory at the Byers Eye Institute is focused on ophthalmic regenerative medicine and drug delivery, specifically directed at the treatment of severe corneal and ocular surface injury and disease. He was recently awarded a Stanford SPARK Translational Research Grant and a Career Development Award from the National Eye Institute at the NIH.

Daniel Newburger (Morgridge Family Fellow, Stanford Bio-X SIGF 2011) is a software engineer at Coursera.

Wendy Ni (Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2012) is a data scientist at Facebook working on product analytics in ads measurement.

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

James Notwell (Affymetrix Bio-X Fellow, Stanford Bio-X SIGF 2013) is a computational scientist at Circuit Therapeutics, Inc.

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

Patricia Ortiz-Tello (Stanford Bio-X Bowes and Stanford Bio-X Amgen Fellow 2011) is currently making a decision on her next professional endeavor.

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 two NIH SBIR grants.

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 Mt. Sinai School of Medicine, head of R&D at the Health Data and Design Innovation Center at Mt. Sinai, and part of the founding team of a new applied research center in Silicon Valley.

Steven Petsche (Stanford Bio-X Bowes Fellow 2011) works as a Development Engineer for MSC Software in Newport Beach.

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.

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.

Manuel Rausch (Affymetrix Bio-X Fellow, Stanford Bio-X SIGF 2012) is an assistant professor in the department of aerospace engineering and engineering mechanics at University of Texas-Austin.

Andreas Rauschecker (Stanford Bio-X Bowes Fellow 2008) is in his last year of radiology residency at the University of Pennsylvania, and will be starting a neuroradiology fellowship position at UCSF in July 2018 for two years. He’s looking forward to moving back to the Bay Area!
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.

Sanaz Saatchi (Stanford Bio-X Amgen Fellow 2009) is the Co-Founder and President of Crown Point Medical. Previously at Medtronic, she was an engineering manager and technical lead on a cross-functional and cross-company team driving two cardiovascular medical device products from needs finding, through product development, transfer to manufacturing, and commercial global launch. Sanaz also participated in Medtronic’s Global Innovation Fellowship program which focused on expanding healthcare to under-served populations. Her project focused on improving diabetes awareness and detection in South Africa.

Joel Sadler (Stanford Bio-X Bowes Fellow 2012) has cofounded and is CTO of a creative computing startup Piper Inc to inspire kids to make electronic devices to “spark every child’s inner inventor” in education. Joel’s company was inspired by his Bio-X research and PhD thesis on the “Anatomy of Creative Computing”.

Jayodita Sanghvi (Stanford Bio-X Bowes Fellow 2007) is a data science manager for Grand Rounds, a health start-up in San Francisco.

Alia Schoen (Stanford Bio-X Bowes Fellow 2009) works 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 is dedicated to the application of interdisciplinary scientific understanding and communication to societal challenges. She is leveraging both her interdisciplinary education as well as her time in the California State Assembly as a CCST Science Policy Fellow in her career at Bloom.

Mark Sellmyer (Stanford Bio-X Bowes Fellow 2008) is in his fellowship year in Nuclear Radiology (PGY-6) at the University of Pennsylvania, working on small molecule optical and nuclear tools for disease diagnosis and treatment. He was recently awarded the RSNA Roentgen Resident/Fellow Research Award and gave the Charagundla Lecture at the UPenn Department of Radiology Pendergrass Day.

Pankaj Sharma (Stanford Bio-X Bowes Fellow 2012) is a senior design engineer at Stryker Corporation.

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 returned to clinics to finish the last two years of medical school at Stanford as part of the MSTP program.

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

Min-Sun Son (Stanford Bio-X Bowes Fellow 2007) is working for Exponent, Inc., an engineering and scientific consulting company.

Ryan Squire (Stanford Bio-X Bowes Fellow 2010) is a product and data scientist at SafeGraph.

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

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) will be defending his thesis in Fall 2016, after which, he will begin a postdoctoral position with Dr. Dyche Mullins at University of California-San Francisco.

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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) has just completed her first year as an assistant professor of mechanical engineering at Carnegie Mellon University.

Carolina Tropini (Bruce and Elizabeth Dunlevie Fellow, Stanford Bio-X SIGF 2011) has a postdoctoral position with Justin Sonnenburg at Stanford funded by the McDonnell postdoctoral fellowship on complex systems.

Jules VanDersarl (Stanford Bio-X Bowes Fellow 2005) works at Meso Scale Diagnostics as an engineering scientist.

Graham Walmsley (Stanford Bio-X Fellow 2015) is an Investment Professional at Versant Ventures focused on the creation and development of biotechnology and healthcare companies. Since joining Versant in 2016, Graham helped build and launch BlueRock Therapeutics, a regenerative medicine company formed in partnership with Bayer through one of the largest Series A investments in biotech history. Graham has been actively involved in several other Versant portfolio companies including Jecure Therapeutics, a first-in-class NASH and fibrosis company, where he currently leads business development.

Aaron Wang (Stanford Bio-X Bowes Fellow 2006) is a fellow at University of California-San Diego in ophthalmology, subspecializing in cornea.

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

Jack Wang (Stanford Bio-X Bowes Fellow 2011) is a resident physician at University of California-Los Angeles.

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


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) has just defended and is beginning a postdoc in Yoav Shechtman’s Lab at the Technion, Israel Institute of Technology.

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. In 2018, he expects to be setting up his own lab as an assistant professor.

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

Remus Wong (Stanford Bio-X Bowes Fellow 2010) is working temporarily in a biotech start-up while considering his next professional opportunity.
Angela Wu (Stanford Bio-X Bowes Fellow 2006) is an assistant professor in the division of life science and department of chemical and biological engineering at Hong Kong University of Science and Technology (HKUST). Angela is passionate about creating new technology platforms for translational research that will close the gap between life science, engineering, and the clinic. Her research group is using single-cell genomics and other engineering tools to study complex biological systems and diseases such as liver cancer and nasopharyngeal cancer. In 2015, Angela also co-founded Agenovir, a genome-editing based anti-viral therapeutics start-up company currently based in South San Francisco. During Angela’s time at Agenovir, in addition to managing R&D, she worked directly with the CEO on business development strategies and fund-raising to successfully raise Series A financing. Recently, Angela was named one of ten MIT Technology Review’s Innovators under 35 in Asia.

Lyndia Wu (Stanford Bio-X Bowes Fellow 2014) currently has a postdoctoral position with Dr. Ada Poon in Electrical Engineering and Dr. Emmanuel Mignot in Sleep Medicine. In the summer of 2018, she will be starting a tenure-track assistant professor position in the Mechanical Engineering Department at the University of British Columbia, 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.

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

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 helps US medical device manufacturers register with CFDA, enter the Chinese market, and receive funding from the Chinese investors. She is also a Mandarin Specialist at the Khan Lab School to help each student find the answer to why, what and how of Mandarin learning.

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

Ryan York (Stanford Bio-X Bowes Fellow 2013) is a postdoc in 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, Inc., a biotechnology company in Sunnyvale that is 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.

Xiaoxue Zhou (Larry Yung Fellow, Stanford Bio-X SIGF 2010) is a postdoctoral associate in Angelika Amon’s lab at MIT.

“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
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 currently 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 2013) 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 assistant 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 2008) is a senior scientist at Amgen, Inc.

**Sergey Solomatin** (Stanford Bio-X Postdoctoral Fellow 2005) is a scientist 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.
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