

RUDD FAMILY FOUNDATION

BIG IDEAS @BERKELEY

2015-2016 WINNERS SUMMARIES






UNIVERSITY OF CALIFORNIA, BERKELEY





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2015-2016 BIG IDEAS WINNERS

This year's Big Ideas contest launched in September 2015. 266 student teams representing more than 750 students across 16 different campuses submitted pre-proposals. After a preliminary round and a final review, 41 teams were awarded prizes across nine different categories, with award amounts ranging from \$1,000 to \$10,000. Below is a summary of this year's winners.

 Art & Social Change	1st	FITE Film and Resource Connection	UC Berkeley
	2nd	Philippine "Labor Beat"	UC Santa Cruz
	3rd	The Medical Social Emotional Arts Project	UC Los Angeles
	Hon	Root Tongue	UC Santa Cruz
 Energy & Resource Alternatives	1st	The Alternative Iron by Ferrous	UC Berkeley
	2nd	Husk-to-Home	UC Riverside
	3rd	ViaeX	UC Berkeley
	Hon	Low Cost Disposable Battery for the Developing World	UC Berkeley
 Financial Inclusion	1st	MÄk	UC Berkeley
	1st	Empowering Women Through Entrepreneurship	UC Berkeley
	2nd	SocialForce	UC Berkeley
	3rd	PictoKit	UC Berkeley
 Food Systems	1st	Safi Organics	MIT
	2nd	Poverty Alleviation Through Poultry Education	UC Davis
	2nd	Just Ripe	UC Berkeley
	3rd	Ricult	MIT
	Hon	Unmanned Ground Vehicle for Water Leak Detection	UC Merced
	Hon	Bug Ideas	Duke University
 Global Health	1st	Open Viral Load	UC San Diego
	2nd	VIRA	UC San Diego
	2nd	FloGlow	UC Berkeley
	3rd	SHRI Community Sanitation Facilities	UC Berkeley
	3rd	PedalTap	Makerere University
	Hon	SkinIQ	UC Santa Barbara
	Hon	LiquidGoldConcept	UC Davis

 Improving Student Life	1st	SafeSpace	UC Berkeley
	2nd	Campus Cooks	UC Berkeley
	3rd	UbiSafe Technologies	UC Berkeley
	3rd	Luminavi App	UC Berkeley
 Information Technology for Society	1st	LiftEd	UC Berkeley
	2nd	Wildfire	UC Berkeley
	3rd	et al. Health	UC Berkeley
	Hon	PillPal	UC Berkeley
	Hon	MindFull Technologies, Inc.	UC Irvine
 Mobiles for Reading	1st	Dost	UC Berkeley
 Scaling Up Big Ideas	1st	The Somo Project	UC Berkeley
	2nd	Feces to Fuel	UC Berkeley
	3rd	Scaling Up the Biodiesel Project	UC Berkeley
	3rd	m-Omulimisa SMS Services	Michigan State University
	Hon	Kids Write	College of William & Mary
	Hon	Mama-OPE	Makerere University

ART & SOCIAL CHANGE

The challenge for this category is to develop innovative art projects that meaningfully engage with issues of advocacy, justice, and community-building. The projects may use any art form—visual/conceptual art, photography, new media, video, dance, theater or performance art, music, creative writing, or other forms. Art must be central to the project, and the proposal must reflect an informed understanding of the particular art form(s) being used, as well as of the communities being served.



FITE Film (From Incarceration to Education) and Resource Connection (1st Place)

Team Members: Skylar Economy, Tristan Caro

School: UC Berkeley

The FITE documentary film will combat recidivism in the prison system by motivating currently incarcerated individuals to seek higher education and mentorship opportunities. To accomplish this goal, the film will feature the success stories of relatable, formerly incarcerated students at UC Berkeley. Screening the documentary in prisons and jails around the U.S. will allow currently incarcerated individuals to learn that it's not only desirable but also realistic to attain higher education both during and after incarceration. In addition, the creation of a structured, regionally-organized resource connection will supply viewers of the film with phone numbers and contact information of trusted, already established organizations that mentor incarcerated individuals on their journey to seeking higher education.

Philippine "Labor Beat": Work, Social Media, and Documentary Futures (2nd Place)

Team Members: Daniel Rudin, Abram Stern, Jim Libiran

School: UC Santa Cruz

The Philippines is the "social media capital of the world," but it is also a place where labor violations abound. *Philippine "Labor Beat"* is a social practice project to support Filipino unionists. Currently, unionists must rely on mainstream or indie media sources to report infractions. Pushing beyond the limitations of these forms of media, *Philippine "Labor Beat"* uses cell phone cameras, media trainings, and metadata technology to build a social media ecology around workers themselves to empower them to directly document their struggle. The project harnesses the creativity of interactive documentary and the reach of social media. Union institutions will serve as a network, support group, and audience for the project. *Philippine "Labor Beat"* will create and spread labor news that benefits the Filipino community at large by facilitating worker self-representation, communication, and collaboration in ways that their communities currently lack.

The Medical Social Emotional Arts Project: Transforming Patient-Centered Care (3rd Place)

Team Members: *Rathi Ramasamy, Hannah Leo, Gianna Raggio*

School: *UC Los Angeles*

The *Art of Healing* will train UCLA medical students and professionals to integrate creative arts programming in inpatient pediatric pain management. They will learn best practices established by the UCLArts and Healing Social Emotional Arts (SEA) Certificate Program for amplifying the innate social-emotional benefits of the arts by using mental health practices. Training will cover verbal and nonverbal communication, managing special needs, traumatic responses, and self-care. Four arts modalities (visual art, dance/movement, poetry, and music) will also be incorporated. By successfully integrating such a program in a clinical setting, the pediatric inpatient experience can become one of reflection, meaningful dialogue, and increased empathy that also fosters connection while reducing the emotional distress of all parties involved.

Root Tongue: Sharing Stories of Language Identity and Revival (Honorable Mention)

Team Members: *Anita Chang*

School: *UC Santa Cruz*

Root Tongue is an online platform for audience engagement motivated by the stories and issues raised in *Tongues of Heaven*, a feature documentary about four young, indigenous women who use personal video cameras to document the challenges of learning their ancestral languages before they go extinct. Their experiences prompt a larger conversation about linguicide and revitalization in *Root Tongue*, a forum that allows participants to share their perspectives through dialogue as well as uploads of photos, music, writings, and short videos. Users will also be able to access educational and community resources on language preservation. Indigenous people and minority language learners have a keen awareness of the demands and flux of their own communities in the context of other global societies. *Root Tongue* aims to continually illuminate their visions as they heal, energize, and rethink the personal and local.

ENERGY & RESOURCE ALTERNATIVES

The challenge for this category is to encourage the adoption of clean energy and resource alternatives that are sustainable and have the potential for broad impact. The climate change crisis calls for carbon neutral solutions at scale as urgently as possible. Proposals may focus on the design, development, or delivery of sustainable energy solutions and can be aimed at campus-based, domestic or international in scope. However, all proposals should clearly demonstrate the relationship between the proposed intervention and its impact on reducing the impacts of global climate disruption.



The Alternative Iron by Ferrous (1st Place)

Team Members: *Cameron Smith, Chris Collins*

School: *UC Berkeley*

The *Ferrous* team is driven to make sure that for the 2.6 billion people living in energy poverty, modern energy satisfies all their basic human needs including dignity. The *Ferrous* team's mission is to design and distribute sustainable, community-supportive, and capacity-building technologies. *Ferrous* is focused on addressing the current market's failure to identify and respond to culturally significant needs that the western world has overlooked. A clothing iron compatible with modern energy technology called the Alternative Iron is *Ferrous*'s first product. With this appliance, *Ferrous* can rectify the disconnect between social need and technological capacity to ensure that each and every one of its beneficiaries can claim a larger slice of dignity.

Husk-to-Home (2nd Place)

Team Members: *Jose Corbala-Delgado, Dennis Jones, Kevin Li, Jacqueline Ortega, Brian Rojas-Lerena, Brandon Leu, Colin Eckerle*

School: *UC Riverside*

In 2013, a 7.1-magnitude earthquake struck Bohol, Philippines, destroying thousands of structures and displacing nearly 350,000 Boholanos. In response, the International Deaf Education Association (IDEA) employed several teams to build temporary homes using coconut wood boards. However, the homes only lasted two years before they were deemed uninhabitable due to extensive termite damage. IDEA identified the community's need for economic and sustainable building materials, so they contacted *Husk-to-Home* to find a reliable solution. As the world's seventh largest rice-producing country, the Philippines generates an abundance of termite-resistant rice husk waste. *Husk-to-Home* intends to capitalize on this termite resistance and design a particleboard that is lightweight, water-resistant, and of comparable strength to a commercially available medium-density particleboard. The project's mission is to create a proof of concept building material composed of rice husk and an innovative binder. This will enable construction of durable homes for the Bohol Island community.

ViaeX: Biowaste to Nanofilters for a Sustainable and Clean Future (3rd Place)

Team Members: *Vivian Qu, Rahul Jain, Rui Wang, Miao-Chun Chen*

School: *UC Berkeley*

Rapid modernization and industrialization in developing nations has significantly improved global standards of living at the expense of human health and the global environment. Air pollutants are now regarded as the most widespread carcinogen and lead to 7 million deaths worldwide annually. Project *ViaeX* aims to restrict human exposure to both indoor and outdoor air pollution while also providing clean air for people of all sectors of the society. *ViaeX* is developing a novel low-cost high efficiency nano filtration technology, which can remove 99.999% of all pollutants from the air with no end-of-life environmental impacts since the product is 100% biodegradable. This technology has the potential to transform air filtration into an affordable solution for everyone because it can be used to curtail air pollution at the source or at any point where humans may be exposed to it.

Low Cost Disposable Battery for the Developing World (Honorable Mention)

Team Members: Mohamed Amine Oueslati, Benjamin Williams, Jerry Wang

School: UC Berkeley

Current lighting and phone charging solutions in off-grid regions are hazardous, expensive, and inconvenient. The *Low Cost Disposable Battery* project addresses these major drawbacks using cheap and safe materials, representing a major shift in the way traditional batteries are made. Users will purchase and assemble the batteries themselves, replacing components as necessary. This solution puts the power in the hands of families, allowing them to personally control their power usage in the safety of their home, at all times of the day, and at a low cost.

FINANCIAL INCLUSION

The challenge for this category is to propose novel products, services, tools or mechanisms that either address unmet needs of the financially underserved, or help extend existing services to populations at the unbanked “last mile.”



Empowering Women through Entrepreneurship (1st Place)

Team Members: Peter Bittner, Katie J. Niemeyer

School: UC Berkeley

Women living in the squatter settlements of Ulaanbaatar are among the most financially and educationally disadvantaged in Mongolia. The squatter areas—commonly known as “ger districts”—are mainly comprised of recently-migrated nomadic herders. Ger districts make up over 60% of the capital city’s population and have tens of thousands of new arrivals each year. The newly-settled nomads face difficulties in the urban job market due to stark cultural differences between rural and urban lifestyles and a mismatch of employable skills. The challenges of finding employment can result in alcoholism, domestic violence, and cyclical poverty. Women in the squatter settlements need confidence, practical knowledge, and access to capital in order to break from patriarchal gender roles that often prevent them from reaching their full potential as business and community leaders. Through structured small-group support, this project provides impoverished female migrants with information, skills, and low-interest microloans in order to develop their small businesses and foster more economically-resilient communities.

MÄk (1st Place)

Team Members: Michelle Nie, Aubrey Larson, Ankita Joshi

School: UC Berkeley

MÄk is a social enterprise devoted to empowering urban low-income high school juniors and seniors to become 3D designers. The mission of MÄk is to provide these young people with exposure to various STEAM (science, technology, engineering, art, and math) fields while also providing them with training in marketable skills and an income source so they may pursue higher education and STEAM careers in the future. Initially, the MÄk program will run on the UC Berkeley campus in order to utilize its free facilities and 3D design software. First, trained Berkeley student volunteers from MÄk's partner campus organizations will teach high schoolers from Oakland and Richmond in 3D design through a training program. Then, MÄk will hire these students as paid interns to work on 3D design projects for Bay Area technology startups and design firms. MÄk plans to simultaneously partner with other organizations to host financial literacy workshops that help students manage income wisely.

SocialForce (2nd Place)

Team Members: Susanne Schöneberg, Denisse Halm, Joh Schöneberg, Mitul Bhat, René Selanders, Vaisakh Shankar, Sid Ghosh

School: UC Berkeley

SocialForce is an impact management platform that leverages the core business competencies available locally to meet the needs of a community in a strategic and sustainable way. *SocialForce* is based on the premise that community-grounded organizations and their active members understand the needs of their communities best, but lack the ability to harvest the resources necessary to execute projects to address those needs. The team's goal is to connect mission-driven small and medium-sized enterprises (SMEs) with relevant nonprofit organizations in their communities. The strategic match of local resources to local needs facilitates long-term relationships for greater impact and unlocks the potential of communities to solve what matters most to them. Through *SocialForce*, SMEs can identify, execute, manage, and measure impact activities in their local communities in a strategic and meaningful way by building long-term relationships that are in line with their mission and vision.

PictoKit: Retirement Toolkit (3rd Place)

Team Members: Olivia Zhao, Amanda Zhao, Lynn Wang, Terrie Yang

School: UC Berkeley

The *Retirement Toolkit* is a reproducible workshop kit that through the innovative use of co-design seeks to address the gap in retirement financial literacy for low income, young working adults. The *Toolkit's* application of co-design for education allows the participants to actively shape their learning experience as opposed to conventional, one-sided forms of teaching. Through creative discussion, design activities, and active visual learning, the program not only teaches, but also empowers participants to secure their own financial futures. Furthermore, the project is highly scalable because the workshop guide and toolkit can be easily reproduced to allow third parties to hold their own retirement workshops beyond the Bay Area. Additionally, the individualized curriculum will allow participants to tailor the material to their needs. The project thus addresses the lack of effective financial literacy programs for low income, young working adults in an innovative application of co-design.

FOOD SYSTEMS

The aim of this category is to encourage the development of innovative solutions or approaches that address challenges in food systems, or that will result in progress or changes to support food security, sustainability and/or justice and health in food systems, and/or equitable access to nutritious food. Proposals may be aimed at campus-based program, local/domestic issues or international efforts.



Safi Organics (1st Place)

Team Members: Kevin Kung

School: Massachusetts Institute of Technology

Safi Organics produces a carbon-negative soil conditioner derived from biomass (farm) waste. Designed for rural smallholder farmers, the soil conditioner leads to a 30% increase in crop yield and 50% increase in income by reversing soil degradation. Biomass waste is present in most rural farms every year after harvest, and yet most of this waste is burned in open air rather than economically utilized because existing capital-intensive and centralized processing technologies often require the long-distance transport of this waste, which is very expensive. *Safi Organics* has developed patent-pending environmentally-friendly reactors and unique recipes that enable the low-cost and decentralized conversion of waste into carbon-negative soil conditioner in under 2 hours. The company's EcoCert-certified product is currently used in more than 80 acres of land in *Safi Organics'* preliminary pilot project and has generated highly positive customer reviews. In addition, this product actively sequesters 1.5 tons of CO₂ per acre into the soil each planting season thereby directly mitigating climate change.

Poverty Alleviation through Poultry Education (2nd Place)

Team Members: Hana Link, Samantha Lawton, Laura Budd, Michelle-Yvette Luis, Sarah Tirrell, Marina Boucher, Kim Conway, Abigail Fosdick, June Barrera

School: UC Davis

The *One Health Nicaragua* team will address food insecurity concerns in Sabana Grande, Nicaragua, by working with children and focusing on improving poultry production. Integrative workshops for students in Sabana Grande will focus on egg production, chick care, coop management, and disease prevention. Local students will manage a demonstration flock providing them the opportunity to gain first-hand experience with effective methods for raising, handling, and vaccinating poultry. Children can then share this information with their family thereby increasing knowledge dissemination throughout the community. Introducing poultry husbandry skills in the classroom will affect changes at the family level and sustainably improve overall community poultry production in Sabana Grande. Ultimately, this will lead to greater food security within the community.

Just Ripe. (2nd Place)

Team Members: *Geertje Grootenhuis, Kayla Smith, Jessica Welsh, Claire Rosenfield, Ryan Riddle*

School: *UC Berkeley*

Just Ripe takes serving food to a whole new level. *Just Ripe's* products—soups, salads, and smoothies all created from 100% recovered, organic produce — will be pedaled around Oakland's streets on an innovative, eye-catching food bike. The team aims to hold daily "kickstands," or food bike sales, at Downtown Oakland tech companies to sell products to young professionals at prices between \$6-\$10. In addition, *Just Ripe* will distribute refreshing smoothies to Oakland middle schools and high schools free of charge in order to promote healthy eating while spreading the message: "Don't DiscriminEAT." *Just Ripe's* food bike allows convenient transportation of products through an innovative, low-cost, mobile, and environmentally-friendly alternative to a food truck. The team's passion for healthy food and their dedication to making a lasting impact inspired this quirky food bike which aims to initiate a dialogue around food waste and food access in Oakland by "Pedaling with a Purpose."

Ricult (3rd Place)

Team Members: *Aukrit Unahalekhaka, Jonathan Stoller*

School: *Massachusetts Institute of Technology*

70% of the world's poor are smallholder farmers, and they produce 80% of the global food. However, these farmers are poor and food insecure. By 2050, the world will need to produce at least 50% more food to feed 9 billion people. This dual-pronged problem of poverty and food insecurity is caused by 3 main issues in agricultural value chains: supply chain inefficiencies, financial exclusion, and information asymmetry. *Ricult* is solving these issues by establishing a multi-sided, mobile e-commerce platform that fills the holes in the agricultural supply chain by providing farmers direct access to financial instruments, input sellers, end buyers, logistics providers, and real-time crop information. As 80% of the smallholder farmers have access to mobile phones, *Ricult's* solution is accessible through both low cost feature phones without Internet connections and smartphones.

Unmanned Ground Vehicle for Water Leak Detection (Honorable Mention)

Team Members: *Jan Tanja, Brandon Yang, Brian Swain, Elizabeth Arikawa, Jad Aboulhosn*

School: *UC Merced*

The *Unmanned Ground Vehicle* (UGV) project is the future of the next generation's agricultural gadgets. Instead of the past's archaic methods of manually searching for leaks with acoustic procedures, the UGV project hopes to replace the previous methods with a more strategic appliance - a powerful camera attached onto a fully autonomous vehicle. Utilizing a combination of dynamic image-processing techniques and mobilization, this rover-camera duo is able to autonomously navigate through way-points and detect pipe leaks more frequently, efficiently, and accurately than a field worker would. Powered and guided by the Mission Planner program and the Pixhawk Autopilot System, the rover is capable of decreasing overhead costs, and most importantly, aiding in the preservation of water. The project's state of the art features are distinguished by its data collection platform, algorithm design, and user-friendly interface.

Bug Ideas: Feeding the World With Insects Without Ever Eating Insects (Honorable Mention)

Team Members: Alexander Klonick, Tess Petesch, Amanda Bushell

School: Duke University

According to the UN Environment Programme, roughly one third of the food produced for human consumption is lost or wasted. Simultaneously, forage fish stocks, which are a key component of the oceanic lifecycle, are declining due to overfishing. They are being harvested to be processed into fishmeal, which feed the aquaculture boom and livestock. Black soldier fly larvae are capable of feeding on waste and efficiently creating both the protein and fat necessary to meet nutritional requirements of feed operations. If a mere 6% of the food waste were converted into bug protein, it would offset 100% of the need for forage fish. The potential for impact is massive. *Bug Ideas* aims to centralize currently disjointed efforts and expedite FDA approval of insects as feed. The team will accomplish this objective by building a coalition of experts, founding a trade association of companies, and submitting an application for FDA approval.

GLOBAL HEALTH

The challenge for this category is to describe an action-oriented, inter-disciplinary project that would help alleviate a global health concern among low-resource communities. Proposals submitted to this category should a) demonstrate an evidence of a widespread health concern faced by low-income populations or low-resource communities, and b) develop a system, plan, or technology that addresses this problem that is both culturally appropriate within the target communities, and appropriate for low-resource settings.



Open Viral Load (1st Place)

Team Members: Hayley Chong, Kirk Hutchison, Rachel Owyung, Alex Smith, Wesly Wong

School: UC San Diego

The *Open Viral Load* project aims to develop an open-source, affordable genetic assay test for HIV that can be easily modified to test other pathogenic diseases, such as tuberculosis and the Zika virus. As part of the Global TIES organization, the *Open Viral Load* team is working with both the UC San Diego School of Medicine and the Eduardo Mondlane University in Mozambique. The team will perform preliminary testing in Tijuana, Mexico, followed by secondary testing in Mozambique. This project will allow low resource communities to receive the regular testing they need in order to know the status of their viral disease or to quickly diagnose patients with other pathogenic illnesses. This in turn will help doctors issue proper treatment to those in their community.

VIRA: A Low-Cost HIV Viral Load Quantification System (2nd Place)

Team Members: Neel Parekh, Yajur Maker, Orysa Stus, Christopher Yin, Bryce Killingsworth, Michael Wang, Jahir Gutierrez

School: UC San Diego

Viral load testing is increasingly supported as a necessary component of the HIV management cycle. Regular monitoring for treatment failure by a viral load test is endorsed by the World Health Organization as essential to a globally sustainable treatment plan. Tijuana has been identified as the potential site of an HIV epidemic due to both its rising incidence of HIV cases and to its disproportionately large populations of high-risk sex workers and intravenous drug users. A novel detection system called *VIRA* has been developed to make the viral load test financially and logistically feasible for Tijuana health clinics to incorporate into their treatment and containment strategies. *VIRA* combines a low-cost centrifuge, automated RNA extraction device, paper-based genetic circuit, and smartphone-based photometric quantification system to yield a fast, easy, and inexpensive point-of-care viral load test which may be implemented in Tijuana and readily adapted to other low-resource settings.

FloGlow: Low Cost Spirometer (2nd Place)

Team Members: Marisa Babb, Luke Stork

School: UC Berkeley

Developing countries have a dire need for measuring the respiratory health of patients with chronic obstructive pulmonary disease (COPD) and asthma. Spirometry is the gold standard in developed countries for diagnosing respiratory illnesses. However, spirometers are costly and require a reliable power supply, regular maintenance, and a computer for operation. All of these requirements are unmet by the environment of most developing countries. *Project FloGlow: A Low-Cost Spirometer* addresses this need by developing a spirometer specifically for low-resource clinics and solving key problems existing spirometers fail to address. *FloGlow* operates without the aid of a PC or smartphone, possesses on-board data storage and display, and allows simple and accurate calibration—all for less than \$35. This device has the potential to reduce misdiagnosed cases and provides clinicians the ability to improve management of both the symptoms and the disease to reduce preventable morbidity and mortality.

SHRI Community Sanitation Facilities (3rd Place)

Team Members: Anoop Jain

School: UC Berkeley

SHRI works alongside communities in rural India to increase access to essential health infrastructure by providing access to toilets that are able to convert waste into energy that runs a water filtration system. *SHRI* will sell safe drinking water at a fair price to generate revenue. This project aims to end open defecation by encouraging behavior change and positive health outcomes through education. Partnerships with local governments will ensure that allocated land and funding goes to those most in need of these services.

PedalTap: Modifying the Existing Water Tap System to Create a No Touch Cost Effective Solution in Developing Countries (3rd Place)

Team Members: Grace Nakibaala, Isah Ssevume, Molly Mbaziira Nannyonjo

School: Makerere University

This year, the *PedalTap* team is taking this Big Idea to another level. The innovative Tippy Tap was made to prevent the spread of infection at communal hand washing facilities in rural areas in Uganda. It is foot-operated, preventing the need for touch. The product is a free-standing, universally-fitting connection that can easily attach to any tap. It is operated by a foot pedal, which is made of a bicycle brake handle and system connected to a spring-loaded water cut off. It is very cheap, easy to produce, and simple to connect. It is also easy to use and water flow can be controlled. It is particularly good for use in communal and crowded spaces. The Tippy Tap builds on existing infrastructure, so there will no extra costs incurred.

SkinIQ: Precision Diagnostics of Melanoma w/ Mobile Imaging & Deep Learning (Honorable Mention)

Team Members: Abhishek Bhattacharya

School: UC Santa Barbara

SkinIQ is developing a mobile software platform and algorithm for the long-term surveillance and diagnosis of potentially cancerous skin lesions. At the moment, even the best methods of diagnosis still lack the sensitivity and specificity needed to accurately classify and distinguish one type of skin lesion from another. Furthermore, there has yet to be a widely accepted tool that connects patients across the world to their own general practitioners and dermatologists in a cost effective and innovative way. *SkinIQ* solves this problem using a proprietary deep-learning algorithm trained on thousands of images that tracks and tags dangerous skin lesions for doctors and patients. Additionally, *SkinIQ* uses non-invasive molecular profiling to sequence moles that have been tagged as concerning. *SkinIQ* hopes to provide a highly accurate diagnostic tool and platform that will decrease discrepancies in the diagnosis of melanoma and pervasive skin diseases.

LiquidGoldConcept: Breast Massage Knowledge Bank (Honorable Mention)

Team Members: Anna Sadovnikova, Jeff Plott, Rachel Atwood

School: UC Davis

In 2011, only 18.8% of US mothers reached the six-month exclusive breastfeeding goal set by the World Health Organization. If 90% of mothers breastfed for the recommended six months, the US would save \$13 billion per year. Breast massage can improve, prevent, or alleviate the most common breastfeeding problems and prolong breastfeeding duration. The purpose of the *Breast Massage Knowledge Bank* (BMKB) is to identify and match unique BMTs to specific breastfeeding problems and breast shapes/sizes. The sixteen BMTs identified in academic literature will serve as the baseline from which the BMKB will grow. The platform allows for feedback collection from breastfeeding experts and mothers. This data is analyzed to develop evidence-based education tools for diverse populations of parents and providers. *LiquidGoldConcept* is the only research-driven, for-profit company (with a sustainable, non-advertisement based revenue model) creating evidence-based, tailored breast massage videos focused on educating parents and health providers.

IMPROVING STUDENT LIFE

The challenge for this category is to describe a new policy, program, course, initiative, or service that improves the UC Berkeley student experience in a meaningful way. Projects can serve students on-campus and/or engage students in off-campus activities that also benefit the larger community. Proposals must also be aligned with the strategic priorities of the Associated Students of University of California



SafeSpace (1st Place)

Team Members: *Monica Casanova, Ann Nguyen, Claire Lee, Noel Frazier, Jaya Mantovi, Daniela Grinblatt, Natasha Hoherchak, Valentine Wallace, Yifan Li*

School: *UC Berkeley*

Poor mental health is a widespread issue plaguing college students across the country. *SafeSpace* is a website and mobile application for UC Berkeley undergraduates to comfortably share their similar mental health issues through an anonymous, peer-led chat. By keeping it anonymous, students do not have to worry about being stigmatized. *SafeSpace* will facilitate the transition of first year, transfer, and minority students (including those with disabilities) into Cal by providing them with an outlet for psychological support. The project plans to initially target these groups, although it will not be exclusive to these populations. *SafeSpace* will serve as a means for students to adapt to the challenges associated with attending a large university, understand that there is a community of people out there like themselves, and have a comfortable space to share their issues with someone who is able to relate to their struggles.

Campus Cooks (2nd Place)

Team Members: *Helia Bidad, Vikram Sivaraja, Donna Ni, Vijitha Sridhar, Tanya Krishnakumar*

School: *UC Berkeley*

In 2014, one in four students said they had to “skip meals in order to save money.” *Campus Cooks* (CC) seeks to provide students with resources to help alleviate hunger and food insecurity. These two issues contribute to the deterioration of physical and mental health, increased stress, and hindered academic success. The *Campus Cooks* application includes cooking recipes with concise and informative text, appealing photos, and engaging videos. CC includes a breakdown of the cost of ingredients for recipes as well as nutrient information for the complete dishes. Food assistance programs are detailed on the app in an effort to make students aware of food pantries, urban farms, and other programs that can provide immediate relief. Whether a student is the next Rachael Ray or cannot crack an egg, *Campus Cooks* consolidates the resources necessary to mitigate one of the most pressing issues for students.

UbiSafe Technologies: Reimagining Personal Safety for UC Berkeley (3rd Place)

Team Members: (Tom) Seung Kun Lee, Woo Yong Charlie Choi

School: UC Berkeley

UbiSafe provides discreet personal protection that is accessible at your fingertips. With crime rates rising year after year, consumers are flooded with new-fangled safety gadgets from something as simple as a whistle or a stun gun to something more high-tech like emergency apps. The thing is, they don't work. Whistles and stun guns, when misused, escalate the situation, and you do not have time to unlock your phone and start an app when someone has you at gunpoint. *UbiSafe's* team decided to take advantage of how people always have their phones in hand, whether in use or not, to allow for a faster and more discreet system of emergency reporting. *UbiSafe's* Nappi utilizes an NFC-powered tactile button connected to your smartphone via mobile application. Simply press, hold, and release the button, and the police and your family will be alerted of your precise location and sent a message without potentially aggravating the attacker.

Luminavi App (3rd Place)

Team Members: Melody Ng

School: UC Berkeley

Luminavi is a dynamic anonymous reporting and data collection app that will allow the campus community to identify spaces on campus where sexual misconduct is prevalent. Using the information aggregated from the app, service providers like the Restorative Justice (RJ) Center can more effectively direct services to those spaces. The RJ Center will promote opportunities for the community to dialogue in these "spaces" so that victims, offenders, and bystanders have a meaningful opportunity to voice their concerns and can be better informed about how to change the social as well as cultural dynamics in those spaces that enable sexual misconduct. Through access to data provided by app users that illuminate trends in particular spaces, *Luminavi* can help institutions use big data to adjust their overall response strategy to address sexual misconduct. Over time, *Luminavi* can catalyze more evidence-driven, community-based responses to sexual misconduct.

INFORMATION TECHNOLOGY FOR SOCIETY

The challenge for this category is to describe an innovation project that demonstrates the capacity of IT to help address a major societal challenge. The goal of this category is to stimulate new thinking on a broad range of social benefits of information technology in areas such as: open data, health, education and life-long learning, democratic governance, response to natural and man-made disasters, transportation, delivery of government services, quality of life for people with disabilities, economic opportunity for low-income communities, arts and culture, and the effectiveness of non-profit organizations.



LiftEd (1st Place)

Team Members: Andrew Hill

School: UC Berkeley

LiftEd is an iPad application that enables special education professionals to measure students' academic & behavioral performance on individualized learning goals, analyze learning trends to modify instruction and intervention methods real-time, and ultimately share student progress with districts & parents on-demand. It resembles an EHR and acts as a centralized repository for a student's case team to track progress, collaborate, and maintain a transferrable record longitudinally. *LiftEd* aims to strategically focus on schools to provide aggregate data for administrators that can aid in compliance with federal funding mandates. In addition to significantly saving educators time and providing the ability to work remotely, *LiftEd* also increases the transparency of student data for parents in order to mitigate risk of lawsuits. It also enables a real-time analysis of progress and modification to classroom activities in order to accelerate student learning. All of these features are accessible from a tablet. The flexible data collection methods and intuitive applied behavior analysis caters to all educators, not just advanced professionals in clinical settings.

Wildfire (2nd Place)

Team Members: Hriday Kemburu, Vinay A. Ramesh, Jay Patel, Tim C. Hyon

School: UC Berkeley

When breaking news happens around you, how do you hear about it? Whether it's a mugging, fire, or shooting nearby, there aren't effective ways of notifying the immediate community in real time. *Wildfire* sends real-time notifications to your phone when a user reports dangerous activity nearby. With *Wildfire*, breaking local news is delivered to you, and you don't even have to unlock your phone. Getting informed on *Wildfire* is not about who your friends are or who you follow, rather notifications are sourced from people nearby. If an emergency occurs, users can write an alert that is sent directly to their emergency contacts, their nearby community, and a dashboard monitored by public safety officials—all with one button. A user's emergency contacts do not even have to download the app to receive their alert via SMS. Before walking home, users can also view recent incidents in their area.

et al. Health (3rd Place)

Team Members: John Semerdjian, Ricky Holtz, William Chambers, Ellen Van Wyk

School: UC Berkeley

People diagnosed with rare diseases often have a lot of trouble finding a doctor that can effectively care for them. This means that they're spending more time learning about how to find treatment than actually getting treatment itself. Through the use of machine learning, open health data, and a user-centered design philosophy, *et al. Health* is developing the world's first doctor search tool based on each doctor's clinical research experience. By providing honest, accurate, and friendly information about physicians who study rare diseases, *et al. Health's* mission is to help patients get useful and objective information that will help them get the treatment they need.

PillPal (Honorable Mention)

Team Members: James Bui, Sofia Noori

School: UC Berkeley

PillPal is a simple application that integrates drug prices with a patient's particular health insurance benefits to calculate a patient's out-of-pocket costs. The application will feature three important services: upfront cost estimates, value-based suggestions, and price comparisons by location. *PillPal* will give patients easy access to information about their drug regime and pricing structures that will allow patients to understand their out-of-pocket costs easily and make better decisions about how to spend their money. With more and more costs shifted over to the patients, there is a need for patients to better understand their healthcare. *PillPal* will help patients make smart, value-based decisions with their healthcare dollars and spur a price transparency revolution in the current foggy and confusing healthcare pricing system.

MindFull™ Technologies, Inc. (Honorable Mention)

Team Members: Ramin Rajaii, Brandon Brown, Bardia Bahadori

School: UC Irvine

More than 10 million Americans experience depression each year. Globally, mental illnesses are projected to cost \$16 trillion indirectly through lost labor and capital output. Additionally, subpar mood also reduces the quality of life of those affected. However, the gold-standard in the U.S., one-on-one therapy, is too costly and labor-intensive to keep up with the expected growth of demand. At this point, innovative solutions are needed to improve mental health care delivery and patient self-management. Because 85% of the world's population has wireless access, mobile technologies are poised to deliver personalized self-care and relieve workforce shortages. *MindFull™* is a mobile application created by medical students to boost mood and assist in the self-management of depression, anxiety, and stress. It presents evidence-based treatments as daily tasks the user can accomplish. These are portrayed as interactive, "flippable tiles" that display more information, provide scientific citations, and suggest local resources.

MOBILES FOR READING

The challenge for this category is to develop novel, mobile technology-based innovations or methods that can improve reading outcomes for children in developing countries. Innovative topics proposed may focus on the enhancement of and/or the development and creation of new tools/methods. Proposals may use existing mobile-based technologies or literacy assessment methods to improve and measure reading by adapting or applying those technologies and assessment methods in new and innovative ways.



Dost: A Mobile Platform to Promote Parent Engagement and Early Childhood Education (1st Place)

Team Members: Sneha Sheth, Sindhuja Jeyabal, Devanshi Unadkat

School: UC Berkeley

Dost will give low-income moms a leg-up on their child's primary school readiness and amplify the impact of existing early childhood education programs. Through short, prerecorded voice messages delivered via a call to feature mobile phones, *Dost* offers moms a low-cost and highly scalable approach to access the knowledge they crave and unleash their child's potential. *Dost* is unique because it delivers action-oriented content and can reach illiterate moms using technology already in their hands. *Dost's* theory of change is to improve educational outcomes for children by empowering functionally illiterate moms to participate in their child's education.

SCALING UP BIG IDEAS

The challenge for this category is for previous Big Ideas award winners to (1) demonstrate that they have generated excellent results in implementing their original winning project idea, and (2) describe plans to "scale up" their project. For the purposes of this category, "scaling up" is defined as outreaching to a new geographic area or underserved population, or adding additional services to an ongoing project serving the same geographic area described in the team's original winning proposal.



The Somo Project (1st Place)

Team Members: Amelia Phillips

School: UC Berkeley

The *Somo Project* was started to invest in social entrepreneurs committed to changing their own under-resourced communities by providing the necessary training and tools they need to succeed. In Swahili, "somo" means "to learn lessons." The organization is called the *Somo Project* because of the team's belief that talented and visionary entrepreneurs exist in the poorest settlements around the world — but their contributions are often overlooked in development initiatives. *Somo* identifies people with intimate knowledge of their communities and the relevant social context to address problems such as sanitation, children's nutrition, job training, and educational opportunity. At the organization's core is the belief that local context matters and people know their communities and what they need, but often lack the resources to grow and scale a venture. *Somo* enables people to find their own solutions rather than dictating what their communities need.

Feces to Fuel (2nd Place)

Team Members: Ken Lim, Fiona Gutierrez-Dewar, Emily Woods

School: UC Berkeley

Feces to Fuel is pioneering a project that unlocks the potential of human feces and other waste streams by transforming them into an affordable household cooking fuel. *Sanivation* provides in-home toilets to low-income households and a service to collect and treat human waste. The project aims to create charcoal briquettes from human and agricultural waste. These briquettes can be sold for less than conventional charcoal and produce less smoke than traditional household cooking fuels. This in turn reduces the users' exposure to toxic fumes and indoor air pollution. Simultaneously, the briquettes have a lower carbon impact than traditional fuel. They offer a renewable energy source that reduces greenhouse gas emissions and deforestation by the charcoal industry. Additionally, these briquettes have the potential to be successful in the market and provide revenue needed to complete *Sanivation's* waste reuse business model.

Scaling Up the Biodiesel Project (3rd Place)

Team Members: Andrew Cho, Christiaan Khurana, Xingkai Li, Zhi Luo

School: UC Berkeley

The goal of the *Biodiesel Project* is to provide UC Berkeley with a sustainable means of acquiring biodiesel as a cleaner alternative energy source for use in campus vehicles and equipment. This will be accomplished through recycling of waste cooking oil from local campus dining facilities. This self-sustaining initiative will provide a fulfilling hands-on experience for Berkeley engineers, educate Berkeley students about renewable energy resources, and reduce the consumption of fossil fuels. The process involves filtering the recycled oil and producing a biodiesel product through a chemical reaction. The biodiesel product will then be stored and made ready for campus distribution.

m-Omulimisa SMS Services: Mobile Extension Officers in Uganda (3rd Place)

Team Members: Linlin Liang, Tian Cai

School: Michigan State University

With *m-Omulimisa*, farmers can use their phones to ask questions in languages that they understand and receive comprehensible feedback from extension officers in the region via text messages. Farmers have to register when they use the platform for the first time. To register, they input their district, sub-county, and full name. They also type in a language keyword to indicate which language they use. To ask a question, farmers begin a text message with their specified language keyword. Then, they type their questions in the text, and send them to 8228. Upon sending the query, the text messages are instantly delivered to a web-based platform. Registered extension officers then check and respond directly to the questions on the platform. The answers are then sent back instantly to the farmers' phones.

Kids Write (Honorable Mention)

Team Members: *Sandra "Sora" Edwards-Thro, Nick Rance, Lydia Boike*

School: *College of William & Mary*

Through *Kids Write*, Haitian students in grades 1 to 4 can grow their literacy skills by reading and writing in their mother-tongue language, Haitian Creole, for 30 to 45 minutes every day. Students use tablets to download and read books from a digital library, and to write their own books. *Kids Write* provides training and support to these students. The project also shares exemplary student work between schools. To increase access, *Kids Write* loans equipment to schools and offers them a one year trial to decide whether they want to continue with the program before they start paying for equipment. Parents at participating schools pay a small fee of \$6.21 per year. A recent pilot of the program found that it increased reading scores by 0.8 standard deviations, or 10 correct words per minute.

Mama-OPE (Honorable Mention)

Team Members: *Besufekad Shifferaw, Olivia Koburongo, Rodney Sekate, Angella Namwase, Brian Turyabagye*

School: *Makerere University*

The information obtained from listening to lung sounds using a microphone is limited. In order to reveal lung capacity and identify the different fluids that may be in a patient's lungs, *Mama-OPE* is building upon software developed to analyze data and aid in the diagnosis of lung diseases. Health workers demonstrated the need to know the severity of diseases using the same device. In a statement about the product, a health worker at Mulago hospital said, "One of the most important things I first find out about the pneumonia patient is if they need oxygen supplementation or not and it would be great if I [could] get that using your same device." *Mama-OPE's* product will be able to detect oxygen saturation in the blood based on calorimetric principle.

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