STUDENT INNOVATION @ THE U

TIPS TO MASTER THE INNOVATIVE MINDSET
WHAT IT MEANS TO BE A STUDENT AT THE U

The University of Utah encourages interdisciplinary collaboration and entrepreneurship. Excellence in education is paired with the support needed to pursue ideas through hands-on experience. Inside “Student Innovation at the U” you'll see how incredible students at the University of Utah, and their ideas, are prospering in this environment. You’ll also find many tips and ideas for getting involved.

We encourage all students to apply what they are learning by imagining the possibilities, then turning thought into action.

Our world-renowned faculty and staff endeavor to provide students with the best experiences possible. What is accomplished by students, who immerse in their educations, create and innovate, is remarkable. To list a few examples: Students are developing new fuels that will change the way we power the planet. They’re launching startup companies that will impact their communities. They’re inventing medical devices that will save thousands of lives, and they’re creating works of art that are already changing our perceptions.

The best way to illustrate this success is by telling students’ stories. That’s the purpose of this publication. Read it to learn more about what it means to be a student at the U. Read it as a starting place for how you will “Imagine. Then Do.”

— DAVID PERSHING, President, University of Utah
ABOUT PUBLICATION

“Student Innovation at the U” is an annual publication celebrating student innovation and impact at the University of Utah. A digital version is available at lassonde.utah.edu/studentinnovation2016. Have questions? Want to nominate a student to be featured? Email lassonde@utah.edu or call 801-587-3836.

PRESENTED BY

“Student Innovation at the U” is produced with support from the Lassonde Entrepreneur Institute, an interdisciplinary division of the David Eccles School of Business and the hub for student entrepreneurs and innovators at the U. The Lassonde Institute presents this publication to foster a culture of innovation. More at lassonde.utah.edu.

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This publication is managed by the staff at the Lassonde Entrepreneur Institute, including:

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STUDENT CONTRIBUTORS

This publication is proudly powered by many amazing student contributors from the U. They are just as innovative as the students featured.

Jai Hamid Bashir, assistant editor, writer (M.A. Environmental Humanities, 2017) – Jai is the student assistant editor of the “Student Innovation at the U” report. Her ambition is to become a published novelist, accomplished poet and science reporter.

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Cooper Ferrazio, photographer (Marketing, TBD) – Cooper is a sophomore studying marketing at the David Eccles School of Business. He enjoys creativity and innovation, especially design, videography and advertising. He hopes to work in forward-thinking, innovative roles that allow him to do stuff people care about.

Parker Gibbons, photographer (Entertainment Arts and Engineering, TBD) – Parker is a freshman studying Entertainment Arts and Engineering with a film emphasis and a minor in business entrepreneurship and has been telling stories visually his whole life. parkergibbons.com

Alexandria Haslam, copyeditor (Finance & Entrepreneurship, 2017) – Alexandria is a freelance writer and editor for the Lassonde Entrepreneur Institute. She is currently working toward a bachelor’s degree.

Allie Shaw, writer (Strategic Communications, 2018) – Allie works as a writer and ambassador for the Lassonde Institute, along with a multitude of other jobs on campus. She spends most of (all of) her spare time obsessing over dogs and eating pizza.

Bailey Shelden, writer (Writing and Rhetoric, 2017) – Bailey is a writing student at the U and will graduate with a bachelor’s of arts and a minor in creative writing. Bailey hopes to enter the video-game industry as a writer.

Abraham Tinklepaugh, writer (Communication, 2017) – Abraham is a blog editor for independent student media. He is also an editor and freelance features writer for the Lassonde Institute.

Brent Uberty, photographer (Parks, Recreation and Tourism, 2016) – Brent is the creative director and founder of B.W. Productions, a Salt Lake City-based production company. As an entrepreneur himself, Brent’s passion is working with startups and nonprofits.
Every day, Danny Stephens, a U art teaching graduate, walked through the same Park City tunnel on his way to work and saw the potential for something great. It wasn't until he took an "Art Teaching Practicum" class that an idea came alive: he was going to start an art project with a cause.

Stephens recruited fellow art teaching student Miguel Galaz, and a few of their classmates, to paint a mural in this neglected tunnel and used the opportunity to involve locals and travelers in this endeavor as well.

"I've always found that, in the community, you can teach what you want," Stephens said. "There's more enthusiasm there than there is in the classroom, where there are rules and red tape."

To involve the community, Stephens, Galaz and a series of rotating volunteers sat in the Poison Creek tunnel with spray cans and stencils, offering them to anyone who passed by.

"The focus was to bring out the artist in everyone," Stephens said. "We wanted to revive the creative person in everyone, even if their creativity had been worn down by the daily grind."

Although Stephens graduated with his degree in art teaching, he finds joy and motivation in inspiring others to be mindful and meditative. His art is a reflection of that inspiration, but he felt that this project was not indicative of his usual style. He designed something that would be more practical for the purpose of the project.

"The design was something I've been sketching on graph paper since the seventh grade," Stephens said. "I don't usually do geometric stuff, but I wanted to develop a design that would level the playing field, so I chose triangles because I felt that either an experienced artist or a child could paint their triangle, and no one would be able to tell the difference."

The mural project started small, with only a few contributors dabbling near the tunnel here and there. As artists told their friends and posted about it on the Internet, soon over 1,000 people were involved, painting and donating paint to the cause. The project was completed in August, 2015, and still stands today as a symbol of unity in its community.

The team attributes a large portion of the project's success to their experience at the U. Stephens used the library and the facilities available to him, but felt that his most valuable resources were his professors and the dialogue while he discussed his ideas in class.

The encouragement and advice of teachers not only allowed Stephens and Galaz the opportunity to paint this mural, but it was also a driving force behind their recent award in the Salt Lake UMOCA Mural Contest. Stephens hopes to continue making a difference in the world through art and meditation.

"I don't see why art should be made if it doesn't make a difference," Stephens said. "Art is the tip of the spear for any social change. This mural project changed my whole outlook on art."
NEW EXPERIENCE IN LATIN AMERICAN FILM

Karem Orrego, a U film and media arts student from Lima, Peru, showed dedication to storytelling by founding the Crisol Film Initiative, "a place to see different experiences and learn something from them," Orrego said. "Crisol," a Spanish word for crucible or melting pot, is an intercultural version of Sundance. Orrego's successful production congregated intercultural audiences at several Salt Lake City theaters to celebrate a new experience in Latin American film. Contributors included student volunteers, support from KRCL and Peruvian dedicacies from Del Mar al Lago Chicha Peruana. "Crisol was my first super-big thing," said Orrego, inspired by support from friends and an acclaimed documentary film, "Memories of My Father," featured at the 2012 Film and Media Arts Festival. "I want to share stories, I want to share them visually," Orrego said. At its Urban Arts Gallery opener, one attendee wrote on the interactive mural, "Crisol means being different together.”

ART APPRECIATION: VISION OPTIONAL

For her entire life, U student Madelyn Stafford was told she didn't need to participate in art the way other students did. Despite her desire to do so, Stafford's life wasn't sure how to approach a student who was legally blind. It wasn't until she came to the U to study special education that she saw new opportunities.

Stafford was first introduced to the Touch Tour at the Utah Museum of Fine Arts (UMFA) when a class project required her to write about her observations in the museum. She set up an appointment to go on the tour and immediately recognized some improvements could be made.

"It was evident the tour had been created by someone who could see," Stafford said. "The braille was wrong, and the audio recordings just explained the history of the art, but it didn't de-

scribe the art. I wanted to know what I was standing in front of and what it looked like visually."

Stafford has teamed up with the UMFA as an intern where, for months, she has been working to make the website, museum, audio for tours and braille accessible for the visually impaired. Stafford has also been teaching Beverly Taylor Sorenson workshops to help them learn how to accommodate students with visual impairments in their classrooms.

"The reason I want to do this is because I was always so far behind," Stafford said. "The world is not meant for someone that is blind or visually impaired. I've noticed the lack of accommodations, and it's not okay. My goal is to educate as many people as I can.”

MIXING DANCE AND CREATIVE WRITING

Who says artists only have one medium? U senior Robert Goodman studies modern dance and creative writing. He is devoted to making a difference through various styles of art. "In our generation, we're connected to one another through technology," Goodman said. "We aren't quite as connected to our environment or each other, and our communication is dwindling. Art is developmental. It teaches us to connect to one another." In the past couple years, he has collaborated with several artists, written and performed monologues and poetry, and choreographed and performed many pieces at the Marriott Center for Dance (MCD) in both modern and ballet. He has danced with Ballet West and Repertory Dance Company. He also volunteers at Red Butte Garden, the Art Festival and the U's Modern Dance Department. With his experience, Goodman feels he can promote artistic involvement in the community. He hopes to find an interdisciplinary program that inspires people to interact with one another through various art forms. Be on the lookout for Goodman and his forthcoming accomplishments. He is constantly performing at the MCD on campus.
After countless hours of trying to find the right business, ideas started to come.

Tip

Be your own boss

Future's So Bright

How many of us have lost a pair of sunglasses while out on the water? U students Chase Maires (marketing) and Stuart Jardine (entrepreneurship) are no strangers to this problem. Both love to be on the water and have spent lots of time boating. Their solution? Aurora Sunglasses, a startup company providing wooden sunglasses that float at an affordable price. “After countless hours of trying to find the right business, ideas started to come, and we really just happened upon the idea for the sunglasses,” Maires said. “We found that many people really liked how they looked and also the fact that they float.” The sunglasses are for sale on their website for $35 or $45 each. Aurora Sunglasses is a company that believes in style and enjoying time out on the water. It was born out of an entrepreneurship class at the David Eccles School of Business. The class challenged their thinking and pushed them to pursue big ideas. aurorasunglasses.com
CLOTHING THAT MAKES A STATEMENT

Colby Russo, a freshman pre-business student, wants you to wear a shirt or jacket made by his company, Evok Clothing. “Yeah, you’ll look fashionable wearing it. But, more importantly, you’ll be wearing something with a message. You’ll be saying, ‘I support local artists, locally made products and fair pay for a day’s work,’” Russo explained. “The fashion industry is completely saturated with companies that exploit workers and solely are after financial gains, and that’s what we wanted to combat. We wanted to evoke a message and inspire other companies to do better.” evok.clothing

EMPOWERING WOMEN WITH EVERY SALE

SmartyPants Wear couldn’t have a better name. Selling harem-style pants, the student startup uses proceeds from each pair sold to support one month of primary school for a girl in a developing country. Co-founders Mackenzie Martin, a strategic communications student, and Brittany Becker, a business administration student, launched the company after traveling to 12 countries in the U.S. Semester at Sea program. They returned with a new appreciation for style and social justice that they are pouring into the company. “We want to create the most good we can,” Martin said. smartypantswear.com

A SIX-PACK ON YOUR BACK

Cold beverages at a sporting event or on a camping trip are generally a luxury. Luckily, U students Kelton Ekblad (political science) and Daxton Wilson (geophysics) have invented a product that will quench thirst, no matter where you are. Prohibition Technology, their newly founded company, has designed a drink-dispensing backpack — like a vending machine on your back! The pack comes equipped with three chambers: one for ice and two for beverage storage. Ekblad and Wilson are raising money to finalize their prototype. prohibitiontechnology.com
LIGHTING UP PLAYTIME

Average toys for toddlers are entertaining, but not always educational. That was the issue Ryan Ferrin faced before developing the concept for “Chameleon Car.” It’s a revolutionary toddler’s toy that promotes interaction with the world, not simply stimulus from an electronic device.

The idea: Take a basic, translucent car body and turn it into something captivating. This car, while having all the wonderful elements of your average tangible toy, also has sensor technology on its underside that detects the color it’s on. The car then lights up and reflects the color.

“I’ve always wanted to utilize new technology to add value to society,” Ferrin said, “and I saw a vast amount of potential to improve this particular market.”

He first thought up this idea at a Fourth of July celebration. He saw simple toys that were lit up and the children around him in awe at their glow. He thought, “I could make a toy that could do more than that, but with a similar design.”

ELIMINATING THE DIRTY WORK

Did you know that farmers hire people to monitor their crops to know when to water? For U mechanical engineering student Jacob Harris, he spent his childhood on the family farm doing just that. He decided to take his expertise in robotics and control and create a device that could do the monitoring for him. “It’s a module you will place in the field, and it will feed you daily or hourly text updates to your cell phone,” Harris said. “It will tell you how your crops are doing so you know when to water.” The system is in development and will be in production by July, 2016.

BUSINESS FRONT, PERSONALITY BACK

As a freshman, Nathalie Linge recognized a need for more attractive, functional ties and began collaborating. Over the next year, INK Menswear was created. The idea: a tongue-and-tail designed tie with a sleek, sophisticated front and a pop of pattern on the back. The design caters to those who must look professional for work or other obligations, but who still want to add a little flair to their style. Once the idea was in place, Linge started reaching out to the Lassonde Entrepreneur Institute at the U to get the business on its feet. She also contacted her past instructors and other administrators in the program to get advice and individualized help. “Having classes where I can work on developing my company really helps to blend my college classes and my efforts at INK together,” Linge said. inkmenswear.com
THE CURE FOR BIKE THEFT: BAMBÚ

In the hustle to get where you’re going, the last thing you want is for someone to steal your bike. Yet, despite all of the sturdy bike locks out there, this is a major problem across college campuses and worldwide. So James Haskell, a marketing student and co-founder of Bambú, decided to take a stand.

Bambú is an extendable bike lock system that not only locks up your frame and front tire, it ensures that your entire bike frame and wheels are protected from those relentless thieves. “I originally used a U-Lock and a cable myself, but I found that it was cumbersome to carry around both objects,” Haskell said. “I wanted something more compact and more secure.”

The design is similar to that of a U-Lock, but has an extendable interior element. This lends to its portability (fits in your backpack or bag), but also can be extended to cover each potentially removable component of your bicycle.

The idea was born in the “Entrepreneurial Marketing” class at the David Eccles School of Business. Haskell had recently had one of the tires from his bike stolen and was livid. So he pitched the idea to a group of students in his class, and they collaborated to develop this all-encompassing product. The team is made up of Haskell, Tait Meskey, Emi Deiss and Serge DuPreez.

In October, 2015, the Bambú team pitched their product at the Lassonde Entrepreneur Institute’s Get Seeded event, which provided them with $1,000 to develop a prototype.

“Our professor [Jackson Jayara] was an integral part of this process,” Haskell said. “He told us that we don’t need to be professionals to launch a successful company; we just need an idea, the ability to work in a team and the right resources. I feel like the Lassonde Institute gave us those resources.”
GET CONNECTED TO THE ENVIRONMENT

Do you ever stare at your phone aimlessly, even when there's nothing to look at? Recent U communication graduate Keillian Meyer has created an app to help. It eliminates wasted time — and wasted resources. Social Organic Innovative Learning (SOIL) will connect users to environmental events and information for their local community. "That's the most efficient form of sustainability — building a community so you're less reliant on non-renewable resources and more dependent on each other," Meyer said. SOIL is in development with plans to launch in early 2016.

IMPROVING WI-FI FOR EVERYONE

We've all been there — checking a text, settling a debate by looking up which actor was in that one movie or mindlessly scrolling through Instagram — and you get that pop-up "Select a Wi-Fi Network." Let the eye-roll commence. Of course you want to connect with Wi-Fi! Your data is at stake, but sadly, you don't know the Wi-Fi password, or have anyone to ask, and in all likelihood the Wi-Fi is probably really slow. Tive is a startup that has built a solution that makes free Wi-Fi easy to connect to and profitable for businesses to provide. Started by U students, Tive has grown from an idea to monetizing and customizing networks at hotels, restaurants, coffee shops and more to benefit both the user and the provider. The Lassonde Entrepreneur Institute awarded Tive more than $2,000 towards building a scalable cloud software product that could handle the high traffic and large demand Tive had created. "We created Tive because we hate the ridiculous process associated with logging in to free Wi-Fi networks," said Christian Wutz, CMO and U student. "Recently I had to wait in line at a coffee shop to get the Wi-Fi password for 10 minutes, just to then remember how to spell dinosaur!" [link]

GEAR

EXPECT MORE FROM YOUR LIGHT BAR

Aaron Hatch wanted a light bar for his ATV that would light his way without draining his wallet. But after searching everywhere, the operations management student gave up and decided to build his own. From this effort, his company, WD Electronics, was born. He is now selling premium, but reasonably priced, LED light bars and kits for people to make their ATVs street legal. "I now have three dealers that sell my products in their showroom, and I cannot make my street-legal kits fast enough for my orders I have coming in," Hatch said. [link]
MAKING NUCLEAR ENERGY SAFE

The U is becoming a world leader in nuclear safety culture due in large part to the tireless work and creative energy of Ryan Schow, a nuclear engineering Ph.D. student and supervisor of the U's nuclear reactor.

“We are the only research university focusing on nuclear safety culture; we are the leader,” said Schow, who in addition to studying and maintaining the U’s nuclear reactor, has helped develop and taught courses at the Utah Nuclear Engineering Program for the past two years.

Schow teaches graduate courses that require mastery of reactor physics, operation, regulatory policy and law. He volunteers to teach students reactor operation, writes grant proposals and is actively canvassing support for facility upgrades.

Schow is a Utah native whose nuclear path began after receiving a bachelor’s in mechanical engineering from the U in 2001. Since then, he has been a Naval ROTC officer and a commissioned nuclear engineering officer on the U.S. Ohio.

After leaving the Navy, Schow earned his reactor operator license at the Donald C. Cook Nuclear Generating Station in St. Joseph, Mich. But his passion is homegrown, “I’ve always wanted my Ph.D. in nuclear engineering,” said Schow. “This was a chance to work, and work on my degree, in Utah with family.”

Describing the importance of nuclear safety culture to address future energy and global nuclear safety concerns, Schow said, “Nuclear isn’t just nuclear power plants. We use nuclear forensics for mineral analysis and neutron activation analysis to track environmental pollution. There’s nuclear medicine; there’s whole different aspects of nuclear you can study in our program.”

Schow outlined an immersive safety culture at the U. “Your role as a nuclear operator is to protect the health and safety of the public,” he said.

He added: “Nuclear safety culture is a buzzword in nuclear power. The magnitude of the Fukushima natural disaster could have been prevented if they had better nuclear safety culture.”

The U currently offers a master’s and doctorate in nuclear engineering as well as a minor, under the leadership of chair Tatjana Jevremovic.

“There’s a possibility that the Nuclear Regulatory Commission will regulate what we’re doing and look to us to be a leader,” Schow said. “There are different aspects of nuclear students can study here. That will set them apart from other students.”
	nuclear.utah.edu
THE FUTURE TO SCALE

Engineering undergrads at the U, Jeff Thomas and Bryan Tran have created a new way to teach high school and college students about nanotechnology. They call the method “MEMS Class on a Chip.” MEMS stands for micro-electromechanical systems. Many universities teach microfabrication, but not about designing on the microscale (1 to 1,000 nanometers). “Things behave differently when you scale them down,” Tran said. “Nanotechnology is the future.” Thomas and Tran use microchips containing micro-mechanical systems to demonstrate how physical rules change at the micro- and nano-scales. “Our goal is to teach students to think of nanotechnology more intuitively,” Tran said.

CATALYST FOR A CLEANER WORLD

Chemical engineering student McKenna Buck works with one of the U’s newest faculty, Dolly Chitta, developing a super-efficient catalytic process designed to reduce the carbon footprint, Buck said. Describing the potential impact of the catalyst, she added, “It’s renewable, not like oil, which we will run out of one day.” The catalyst is a chemical, designed to combine with regrowable biomass, like algae, in a method that creates a synthetic lubricant capable of replacing those made at petroleum plants, where fracking is increasingly common. Summarizing, Buck said, “Oil uses lots of energy, affecting the environment, giving off greenhouse gases, the things that affect our air, and that’s bad.” Now in the trial phase, this catalyst could reduce the amount of energy required to produce industrial lubricants by decreasing the number of production steps to one. “I want to change the world in a good way,” Buck said.

NEXT STANDARD IN TB DETECTION

A new “TB Breathalyzer” sensor created by a Ph.D. student at the U aims to provide a point-of-care solution for millions at risk of getting tuberculosis, a fatal lung disease. “Ten million people are affected by tuberculosis every year,” said its creator, Dhiman Bhattacharyya, whose work involves functionalized titanium dioxide nanotubes to detect disease biomarkers from breath. “Three million of those people don’t have access to basic care because current TB-detection methods are lab-based and expensive,” Bhattacharyya said. His device works like an alcohol breathalyzer. Manufactured by NanoSynth Materials & Sensors, it will provide immediate results for just a few dollars per use. The far-reaching impact of Bhattacharyya’s invention is clear. Millions at risk for tuberculosis will soon have access to low-cost detection of a deadly health-care concern. “Sensitivity and specificity of skin tests are very low, and don’t confirm TB,” Bhattacharyya said. “Time of detection in low-resource settings is critical.”

No matter what discipline students belong to, research is for them. It can really help and inspire undergraduate experience, or just being a student. UROP [the Undergraduate Research Opportunities Program] funds research just about every discipline you can possibly think of.

Being at the U facilitates research you wouldn’t find elsewhere. Peer participation adds a new aspect that’s beneficial, so students can see research is doable. Research has been one of my top-three most meaningful experiences during my undergraduate career. It’s given me extra depth.

Everyone benefits from research. It usually starts with, ‘I have no idea how to do research.’ The strongest part of my application to med school has been the research I’ve been a part of. I sit down with my research mentor once a week and trade ideas with a world-class researcher.
LASSONDE STUDIOS

The Lassonde Studios is the new home for student entrepreneurs and innovators at the University of Utah. Opening in fall 2016, the building will provide space for living, creating and launching new companies and initiatives. All students are welcome to use the “garage” on the first floor and apply to live here. Residents join the exclusive Lassonde 400 community of change-makers, disruptors and founders. lassonde.utah.edu/studios

#livecreatelaunch
THE GARAGE
The first-floor garage is open to all students at the U. It will have tools, co-working space, a cafe and more.

TOOLS & EQUIPMENT
Get access to tools and equipment in the garage to fabricate and test your ideas.

COPPER SIDING
Lassonde Studios is covered in copper that will change color over time.

SECOND-FLOOR BALCONY
All residents will be welcome to use the balcony off the second floor.

THEMED FLOORS
Residents collaborate on any of the four themed floors. Themes include games, product design, sustainability and gear.

SINGLE & DOUBLE ROOMS
Classic single and double rooms are arranged in cluster communities.

POD SUITES
Students can live in a pod suite in groups of 20. This is one of the most unique housing options.

URBAN LOFTS
Live in an open space where you can move around the furniture and live with three friends.
Cervical cancer is almost eradicated in the developed world, where detection is made quickly and treatments are readily available. But, in the developing world, where doctors and equipment are scarce, many more women die of the disease — as many as 90 percent of the 250,000 women who die of it annually.

A transdisciplinary team of University of Utah students hopes to solve this problem with a new, portable, hand-held treatment device.

They started building the device with a $500 grant as part of the Bench-2-Bedside competition run by the University’s Center for Medical Innovation, the Lassonde Entrepreneur Institute and the College of Engineering. Now, they’re rapidly moving toward commercialization with a $15,000 first-place award from Bench-2-Bedside, vast support from industry experts, becoming the World Health Organization lead for cervical cancer and a new $2.4 million grant from the National Cancer Institute to study the device in Zambia.

"Relative to other cancers, cervical cancer stays precancerous for 10-20 years, but once it becomes cancer, it becomes very aggressive and few survive," said Tim Pickett, one of the students on the team who graduated with a master’s in bioengineering in May, 2015. "Because of the grace period, it’s basically curable in the developed world."

Others on the team include: Ashley Langell and Ashley Trane, medical students; Jenwood Chen and Sarah Lombardo, surgical residents; Brian Charlesworth, multi-disciplinary design student; and Kris Loken, MBA and bioengineering graduate.

Their device, called CiuLuma, looks like an ordinary battery-powered drill with a heating element on the end. It applies heat to the cervix, and in just 45 seconds, through the process of thermocoagulation, eliminates lesions before they can become cancer. Unlike other treatments on the market, their device is inexpensive, reusable and battery-powered, so doctors don’t need a stable source of electricity.

"The probe just heats up to 100 degrees Celsius, or whatever temperature settings we program it for, and holds for 45 seconds," Pickett said. "It’s a really simple device. It’s just a small heating element. Forty-five seconds can save your life."

Team mentors include John Langell, a surgeon and director of the Center for Medical Innovation, and Dean Wallace, a doctor and entrepreneur who first identified the need to find a better treatment for cervical cancer in developing countries.

"We see our transdisciplinary student teams doing remarkable things in all of our medical innovation programs, including our Bench-2-Bedside competition," Langell said. "The University of Utah is a global leader in medical innovation, and we are proud to carry on this tradition. Faculty and students are both contributing in big ways. What is most impressive is the foundation for technology acceleration we have created at the U.
through resources like the Crocker Innovation and Design Lab, where this device was conceived and created. We took this technology from concept to full FDA filing in just seven months, something unheard of even at the largest international medical technology companies."

The Cmluma device is now managed by Wallace’s company, Cure Medical, where they have deep industry knowledge and technical skills to guide the development and regulatory process. However, the students continue to contribute.

The company has many developments underway. It filed for a U.S. patent on the device’s portability. It is working on the same protection in the European Union. Clinical studies will start soon at the U. And it has requested permission to sell the device from the U.S. Food and Drug Administration.

While the device is moving rapidly into the hands that need it, and the students look forward to helping save countless lives, they also appreciate the learning opportunity all of this has given them.

“It has been amazing to be part of an interdisciplinary team working on a prototype and device that may someday be used across the world,” Ashley Langell said. “As a medical student, I’m only starting my career, so I hope to be a part of many efforts like this one.”
DEPRESSION TREATMENT FOR COUPLES

Before attending the U as a graduate student in occupational therapy (OT), Jackie Emerson worked on farms through AmeriCorps and volunteering, focusing on justice. She views the relationship between OT and farming as "the simplicity of improving people's lives." Working with professor Alexandra Terrill, Emerson assists with research focusing on post-stroke depression, specifically in couples coping with stroke. Individuals with post-stroke depression can exhibit a lack of motivation, disinterest in activities and low mood. Research has suggested that when one partner has depression it can have a negative effect on rehabilitation and recovery for both individuals. In their research, they ask couples to complete weekly behavioral activities based in positive psychology, such as expressing gratitude and practicing acts of kindness. "Being able to get people back to being able to brush their hair, walk the dog or take a shower gives these patients a sense of hope," Emerson said. "It gives me a sense of purpose too." She hopes to continue her passion for helping others by pursuing a Ph.D.

MAKING CHEMOTHERAPY PORTABLE

What if cancer patients could receive chemotherapy in a less painful and more effective manner in the comfort and stability of their homes? Amir Orome, an undergraduate senior in physics at the U, is doing just that. Working for Bard Access Systems, a Salt Lake City-based medical device company, Orome developed and designed the shape and mechanics of the Implantable Access Port. Already being patented, tested and used in the field, this device is implanted in the chest of the patient and connected to the circulatory system, allowing the patient to inject his or her own chemotherapy drug at home. The new treatment method reduces the frequency of hospital visits and bills. It also provides greater agency for patients in their recovery and time to focus on interpersonal wellness. Orome believes that the best equipment simultaneously helps both patients and medical practitioners with aiding in the battle against cancer. "The most important part of this process," Orome said, "is being in charge of my work and going to help others."

REDEFINING PERSONAL CARE

Bret Heale, a biomedical informatics master's student, led the development of a search interface to personalize a patient's experience in genetics clinics worldwide. "Clinicians are highly educated, but they don't always have all the information they need to answer every question," Heale said. "The ClinGen genomics search interface was designed to assist them in caring for patients." The interface uses a context-aware information retrieval reference standard, "OpenInfoButton," to provide searches of credible online resources to aid clinicians in providing specialized care. Context such as age, gender and medical history can be used in the standard. "We hope that folks will use the interface in clinical practice to retrieve the right genetics-related information at the right time," Heale said. The software is now available for public use. clinicalgenome.org/tools/web-resources

SURVIVAL GUIDE TO COLLEGE COOKING

When you've been studying for 10 hours, cooking can be a chore. Luckily, 12 students have created a class to make it easy, affordable, healthy and delicious. "Thrive" was born as a project in an Honors Praxis Lab where the focus was on redefining health and wellness. The students voted and decided this was the best way to promote wellness on campus. Dane Goodwin, a senior in the print-making program, was one of the students involved. "Each student was given a responsibility," Goodwin said. "I helped develop the social media and marketing, other students wrote the curriculum and came up with recipes. We all worked together to bring this class to life." Goodwin added that participating in the development of the class helped him be more aware of his own health and feels that those who take the class will benefit similarly.
LEARNING ABOUT YOURSELF THROUGH WRITING

“This class is not for the faint of heart,” reads the end of the course description for a new, nationally recognized course developed by professor Michael Gills of the Honors College at the U. Gills, an accomplished novelist, originated and led the course based on his own methodology.

Selected from a group of 40, 10 students signed contracts to be part of a rigorous 30-week writing schedule. The schedule included practices such as waking at 4:30 a.m. five days per week to post on the course site, writing two to three pages daily, meeting each week for two to three hours and the aspiration of writing a full-length novel (250-300 pages) to be turned in instead of an exam during finals spring semester. “The students had mostly never engaged such a process of rising before light, writing several hours on a daily basis, which affects all areas of life, and it was hard, quite difficult, a real hard row to hoe,” Gills said.

Students were encouraged to have their writing also be reflective and meditative of their personal journey of being engaged in the process, to “dig themselves to the bone” for inspiration and sought to convey that the evolution of their novel as inexorable from their evolution as a person. “I discovered the person I want to be by writing the person I didn’t want to be,” said Anna Drysdale, a language and literature student, one of the students selected for the course, about her journey. “I can go back and see where I was emotional in my writing.”

The course produced a number of significant successes for the students’ work such as receiving the Marriott Honors Thesis Award, acceptance for publication by a national press and publication in national literary journals, such as “Ocean State Review” and “Texas Review.” Additionally, professor Gills wrote a novel along with the students — now under consideration at his publisher.

The class may not be for the faint of heart, but it encouraged students to follow their own passions. “The course pushed me past my absolute breaking point, but I’m coming out the other end with a published novel and a skill-set I never would have gained otherwise,” said Laurel Myler, whose novel “Big Sky” has been picked up by Dog Star Books and will be published under a different title in 2016. “This experience has given me the courage to pursue my dream of being a novelist professionally.”

honors.utah.edu/students/engaged-learning/novel/
NOT AN IDLE GROUP

The Sustainability and Urban Ecology Scholars are not idling. From implementing and developing new ways on campus to reduce energy and water consumption to bringing educational awareness on how to be “idle free,” these students, with city and metropolitan planning professor Stephen Goldsmith, are constantly seeking innovative ways to make a change. “We want students to start thinking about how they conduct their lives and their behavior, and create a culture of change and responsibility,” said Olivia Juarez, an environmental and sustainability student. With their most recent initiative on creating an “idle free campus,” the scholars are handing out stickers and kind words to promote better air quality. “We believe in rewarding a good action,” Lilly Bosworth said. In spring 2016, with the generous donation of Chartwells, the Honors Scholars will begin distributing cookies to help spread additional awareness. “Breathing clean should be, and is, a human right,” said Kat Nix, an environmental and sustainability student.

REAL FOOD MOVEMENT

After finding his research experience in the most unlikely of places — a poster on a wall — Willem Schott, a recent pre-med graduate, took his research project to a whole new level. When interning with the US Dining Services for a year, followed by receiving funding through the Undergraduate Research Opportunities Program to do more research, Schott realized just how much of an impact food had on students’ health. After pulling together a group of students, Schott and the group wanted to implement the Real Food Movement at the U, which commits the university to having 20 percent of its food be real by 2020. We know what you’re thinking: “What in the world is ‘real’ food?” Let Willem explain: “To qualify as a real food, it must meet one of the four food attributes — local, fair, ecologically sound and humane.” In March, 2015, they got U President David Pershing to sign on, making the U the largest and first school in the Pac-12 to join the initiative. “If we invest in food, we invest in health,” Schott said.
unleash a movement
CATALYZING CHANGE FOR LGBTQ COMMUNITY

What is metallurgical engineering? Lauryn Hansen laughs: she gets asked that question often. “I went into college knowing I was going to study something that would offer me long-term stability, not necessarily to explore my passions,” Hansen said.

A first-generation college student and currently a senior at the U, Lauryn has always been interested in scientific problem-solving. She has been published in multiple scientific journals, presented her research to Utah state legislators and has completed internships with Newmont Mining, Rio Tinto Kennecott and various laboratories on campus.

Hansen extends elements of change and creation beyond just the laboratory. Her experience in the STEM field, which continues to marginalize queer women, has prompted her to seek institutional change.

“Extracurriculars became a means of survival in trying to find community and understanding.” Hansen said about what prompted her to become a student organizer and advocate.

She was one of the first student co-chairs of the U’s Pride Week planning committee and is the president of the U’s oSTEM (Out in Science, Technology and Mathematics) chapter. Her successes include attracting notable trans* activist and actress Laverne Cox to lecture at the U, gaining Pride Week an annual line-item budget, and advocating for Rebecca Kling, a trans* activist and speaker, to be included in Women’s Week at the U.

Hansen’s many efforts led her to receiving the prestigious national Point Scholar award, which recognizes exceptional LGBTQ students who are creating visibility and change in their communities.

“The most valuable part of being at the U has been the relationships I have made,” Hansen said. “I’ve often been too fearful to stand up for myself, but now I have a network of new family and friends that support and empower me.”

She hopes to continue in making both identity and political bounds in STEM. “I’ve redefined success as being a community justice leader and making a difference,” Hansen said.

FOR THE LOVE OF ANIMALS

Standing six feet tall with intricate tattoos, including the titular character of the Roald Dahl classic, “The BFG” (The Big Friendly Giant), U student Natalie Blanton is full of unique personal and academic determination. Raised around animals in Heber City, Natalie has used her time as an undergraduate and now graduate student in sociology to focus on the intersections between gender theory, animal studies and justice. Her work includes founding an animal rights activism group, You for Animal Liberation, that is creating greater vegan awareness on campus; speaking at various city-wide protests for animal activism; being a volunteer at Ching Farm Rescue & Animal Sanctuary; and sitting on the board of Sage Mountain: An Advocate for Farm Animals. Additionally, Natalie organized a campus event for food justice, attended by about 150 people. Recently, she was awarded a fellowship in foreign language studies to learn Hindi to further her research surrounding the treatment of animals, globally. “Our globalized world is built on the backs of animals and marginalized communities of people,” Blanton said. “Every meal, every purchase, every decision can be made to honor, respect and not harm living beings.”
MUST HAVE

FAST Wi-Fi
BATTLE FOR NET NEUTRALITY IN NEW GAME: 404SIGHT

Net neutrality is one of the hottest topics today, and a team of 12 graduate students is helping bring attention to it in an unusual way. They created a video game, 404Sight, as part of the top-ranked Entertainment Arts and Engineering program. Its success has exceeded their expectations.

They released the game for free in spring 2015. Since then, it has been downloaded more than 100,000 times; it has more than 1,000 reviews and an impressive 83-percent approval rating on Steam, a popular video-game publishing platform; and it has been featured in publications across the world, including “Wired Germany,” “Verge” and “Motherboard.”

“We weren’t sure where this would go,” said Tina Kalinger, a producer. “We were just students. But we published, and we received great feedback, and it has accomplished everything we wanted to accomplish.”

Set in cyberspace, players use parkour moves to smash through obstacles dished out by the evil Internet service provider to slow down the Web. The object of the game is to move through each level as quickly as possible, while overcoming data caps and slow lanes in your way.

The students worked hard to make a game that was both fun to play and informative — “we didn’t want to deliver a message at the cost of the game and vice versa,” Kalinger said. Download and play the game to see if they succeeded.

404Sight.com
When approached by U President David Pershing to work with the Tibetan Community Center, architecture professor Lisa Benham had no question in her mind that this was the project her community architecture students would tackle. "It is rare that you get a project so focused and so crystallized," Benham said.

The project, initiated by Pema Chagpoestang, a member of the local Tibetan community, as well as a driving force behind the project, was looking to transform the Tibetan warehouse space into a religious space. The primary student contributors for the project were Matt Green, Matthew VanWagner and Tales Martinez Brito, all senior architecture majors. They wanted to find a way to reflect the Tibetan community through the space.

"We approached the design from a very traditional angle, analyzing a wide array of Tibetan architectural precedents in search of architectural consistencies and common spatial circumstances," VanWagner said.

After the students researched Tibetan culture, including its religion, clothing and architecture, the design process began. "No matter how much you know about construction and design, great architecture can only be conceived through successfully engaging your client and attuning yourself to their culture and needs," Brito said.

The students produced and implemented a beautiful design for the warehouse. The center includes a worship space, a shrine, a small shop, a library, a conference room and more.

"The more students engage as individuals within the community, what they learn, whether it's empathy, whether it's the process they went through or the experience they had, they bring that back to campus," Benham said. "I want to allow students to see architecture through a different lens."
DIFERENT KIND OF LEARNING ABROAD

In fall 2015, 12 students graduated from the U’s new Case Management Certificate online program while living in refugee camps in Africa. They are the first cohort to complete the program offered by the College of Social Work. The certificate takes nine months to complete and consists of the same curriculum taught onsite at the U. One of those students, Bigirima Christope, said, “I use the knowledge to handle cases and to teach my community members how to live together and advocate for people most vulnerable — like orphan children or unaccompanied minors.” The program was a success and more classes will be taught, but there is a bigger goal in mind for Rosey Hunter. Hunter helps oversee the Case Management Certificate program and is working with other groups to help refugees further their higher education. Hunter envisions refugee students earning an associate’s degree by completing credits through a partnership with Jesuit Commons: Higher Education on the Margins and Salt Lake Community College. The students would then continue on and transfer to the U to complete a bachelor’s degree. Hunter explained, “Through this path, higher education would be offered to those who normally would not have access.” Hunter believes these degrees will help refugees make their communities better. The program seeks to educate the next generation of social workers, equipping them to improve their home communities.

BETTER COMMUNITIES THROUGH BANKING

A team of U students went from knowing very little about community banks, which serve local communities, to winning a national case study competition and meeting Federal Reserve Chair Janet Yellen. Team members included Jenny Flatberg-Lambson, Changsu Lee, Kurt Alan Moore, Brett Welker and Brent Uberty, working with business professor Jack Brittain. They researched how the Bank of American Fork survived the Great Recession and entered a report and video into the national Conference of State Bank Supervisors Case Study Competition. They were all surprised when they learned they had won the competition, which earned them scholarships and the chance to present their findings at the Community Banking Research and Policy Conference in St. Louis. They met Yellen at the conference, where she was the keynote speaker. Because of what we learned from the bankers, I will always have a much deeper understanding and appreciation of the fundamental role that community banks play in our economy,” Flatberg-Lambson said.

WOMEN OF THE WORLD

When refugee families arrive, the husbands find a job and the children find a school, but the women often get left with nothing to do. Abby Bossart is working to make sure that does not happen in Salt Lake. Bossart, an aspiring medical student at the U, is part of Women of the World (WOW), a nonprofit organization dedicated to helping women refugees thrive after resettlement. Bossart meets with women and their families after being resettled and helps set them up for long-term success. By focusing on quality rather than quantity, Bossart is able to help each woman that comes to her. She either finds the best job possible or urges the women to go back to school. She also educates women on what rights they have and will step in if their rights are being violated. “By looking at each woman as an individual, I can help them in a long-term way,” Bossart said. She and WOW ensure refugee women and their families have the resources they need to prosper in their new home.

LASSONDE.UTAH.EDU/STUDENTINNOVATION2016
You’ve been on the slopes for hours, and the sun starts to peek through the clouds. “Oh man, I’ve got to switch out my lens,” you think. Not anymore! Material engineering graduate Max Gallant and his team have developed a transparent film that can change tint on command by applying a small amount of electricity. The idea for the thin film was developed in a materials ceramics class. Gallant and his classmates were learning about crystal structures and their unique properties. They discovered that this could be applied to tint-changing film that could be applied to goggles and larger-scale windows, eliminating the need to swap out goggles on cloudier days, and reducing energy consumed by air conditioning in homes. “There are many different materials that display this property, so we’re working to find one that is easiest to process, and we think we’ve found one,” Gallant said.

**Tip 10: Dream it. Create it.**

It’s noon, your phone buzzes, and you’re reminded that this time tomorrow you should be in the doctor’s waiting room. Samuel Vincent, a nursing Ph.D. student, identified that most members of the homeless population have no access to such modern convenience. Vincent, together with a team of U undergrads spearheaded by capstone student Hannah Hendrickson and professor Stephen Goldsmith, is working on the creation of an electronic wristband that can be programmed by the doctor’s office to provide accurate health-care reminders in the most direct way possible. They hope to have a working prototype by early 2016. “I believe in social equality and trying to compensate for inequality,” Vincent said.
BETTER BIOSENSORS

Making bioreactors cheaper is an important hurdle to making better drugs. Chemical engineering Ph.D. student Tram Nguyen is addressing this need by helping University of Utah startup Applied Biosensors create disposable sensors for single-use bioreactors. This will allow companies to reduce their capital and operation costs as well as improve their production times, safety and product changeover flexibility. Under the direction of Jules Magda, a chemical engineering professor, Nguyen is developing the “smart gels” used in the sensors to measure glucose, lactate, pH and osmolality. “The work is important to me because it allows me to bring research into practice and help improve current technology,” said Nguyen, a native of Vietnam, who received her bachelor’s degree in Russia.

HIGHER-SPEED INTERNET

Most smart phones are capable of smoothly streaming five high-definition videos at one time. Ever experienced that? Probably not. It might be because we all share the same cellular tower to receive Internet on our phones. Jonathan Hedstrom and George Yuen, U electrical engineering student/graduate, have been working to improve wireless connectivity for everyone. “We’re not just creating a product, we’re developing an entirely new way to solve the problem of shared access,” Hedstrom said. “Through a clever mathematical shortcut, we can maximize the amount of data a community can use on the same network.” The team has learned how to increase the performance of a wireless network eight times over. When their technique is fully developed, they hope to partner with communication companies to improve wireless connections worldwide. farhangwireless.com

WAKE UP IN A GOOD MOOD

Waking up is agonizing for all of us. Heath French, U computer science major, figured he had what it took to redefine the agony. “I’m creating an alarm deck with a micro SD card on the back so I can put as much music in it as I want and create my own playlists,” French said. He believes these features will add variety to the process of tearing off your sheets in the morning. He expects to have it completed by the early 2016.
PROGRAM DIRECTORY

ArtsBridge: An interdisciplinary arts education outreach program. artsbridge.utah.edu

ArtsForce: A two-day conference for art students to learn about how to share their creative work. arsforceutah.com

Bench-2-Bedside: A competition for medical, engineering and business students to collaborate to develop or improve a medical device. bit.ly/0Ubz5b

bioDesign: Teams of engineering students work with clinicians to develop prototypes and test medical devices. biodesign.utah.edu

bioInnovate: Graduate program providing a comprehensive biomedical, device-design training program. bioininnovateutah.edu

bioWorld: A two-semester course enabling students to develop a business plan for a medical device in a developing country. bioworld.utah.edu

Business Scholars: An experiential program for high-achieving students offered by the David Eccles School of Business. scholars.business.utah.edu

Designbuildbuff: A year-long program for graduate students in architecture who design and build homes in southern Utah. designbuildbuff.org

Campus Founders Fund: Apply for an investment from this unique fund or apply to be a student leader. campustfounders.com

Entertainment Arts & Engineering: Interdisciplinary program where students design and develop video games. eaeg.edu

Entrepreneur Certificate: The David Eccles School of Business offers an undergraduate Interdisciplinary Certificate in Entrepreneurship. ventrp.com

Foundry at the Lassonde Entrepreneur Institute: An experience-based educational community where entrepreneurs can act on their business ideas and access resources to help. foundry.utah.edu

Get Seeded: Pitch your business idea to your peers to receive seed funding for your venture. lassonde.utah.edu/getseeded

Global Public Health: Promotes health and medical development leading to measurable improvements. globalhealth.utah.edu

Global Health Scholars: Students get exposed to a variety of perspectives on global health practices. bit.ly/globalhealthscholars

High School Utah Entrepreneur Challenge: A statewide business idea competition for all students ages 14-18. More than $20,000 in prizes. lassonde.utah.edu/hsuec

Hinkley Internship Programs: Internship opportunities are available to students interested in politics. hinkley.utah.edu

Honors Praxis: Students work together to find original solutions to problems our society faces while a faculty mentor guides the work of each group. honors.utah.edu

Innovation Scholar: Students learn how to match their passion with a purpose and create a personal plan of impact. innovation.utah.edu

International Exchange/Study Abroad: Students participate in hundreds of programs all over the world based on their interests and career goals. learningabroad.utah.edu

International Leadership Academy: Students examine global leadership in business, government and nonprofit organizations. Community mentors assigned. Email lehman@polisci.utah.edu

James Lee Sorensen Global Impact Investing Center: Provides in-depth experience tackling global issues by investing in innovative startups dedicated to solving social and environmental problems. gipccenter.com

Lassonde Entrepreneure Institute: The hub for student entrepreneurs and innovators at the University of Utah. Many programs and opportunities open to all students. lassonde.utah.edu

Lassonde New Venture Development: Graduate students are paired with a faculty investor and spend a year preparing a business plan. lassonde.utah.edu/newventure-development

Lassonde Student Development: New programs from the Lassonde Institute, including Workshops, Meetups and Hours with Experts. lassonde.utah.edu/lds

Lassonde Studios: The home for student entrepreneurs and innovators. Opens fall 2016. All students are welcome to live, create and launch here. lassonde.utah.edu/studios

Legal Scholars: Students interested in law school learn about current legal issues and how to prepare for law school. bit.ly/legal-scholars

My U Signature Experience (MUSE): A database of research, leadership, community engagement, scholarships and internship opportunities across campus. muse.utah.edu

Opportunity Quest: A business-plan competition for students across the state, addressing the executive-summary stage of business development. lassonde.utah.edu/quest

Robotus: Students interested in robotics participate in competitions. robotus.utah.edu

Sorensen Center for Discovery and Innovation: Helps unleash the creative genius within the U and the community to innovate the way we live, work and play. bit.ly/sorenseninnovation

SPARK: An online community all about ideas—inspiring students to collect, sort and finally implement them. spark.utah.edu

Sustainability Scholars: Students work across disciplines to research, imagine, create and implement strategies that will positively affect sustainability practices at the U. bit.ly/sustainabilityscholars

Sustainable Campus Initiative Fund Program (SCIF): Innovative and motivated students are awarded grants to team up with a faculty or staff member to bring about sustainable changes to the campus. bit.ly/sustainablefund

The Gapp Lab: A student game-development center for health-related video games and apps. eax.edu/the-gapp-lab

Undergraduate Research Opportunities Program (UROP): Students are paired with faculty members and work closely with them in research experiences. urop.utah.edu

University Venture Fund: Students work with entrepreneurs and investors to learn about investments and see how successful companies are managed. uventurefund.com

Utah Entrepreneur Challenge: One of the largest business-plan competitions in the nation. Students across Utah develop full, comprehensive business plans. $40,000 grand prize. lassonde.utah.edu/uec

Utah Real Estate Challenge: Real estate development competition for undergraduate and graduate students throughout Utah. bit.ly/realstatechallenge

SOMETHING MISSING?
Do you want to add something to this list? We want to hear from you. Email us at lassonde@utah.edu