



STUDENT INNOVATION AT THE U 2015

IMAGINE 
THE UNIVERSITY OF UTAH



REAL STORIES
of Passion, Grit & Discovery *and a couple detours
along the way!*

PLUS: 12 Tips to Master the **Innovative Mindset**
at the **University of Utah** *and have fun!*

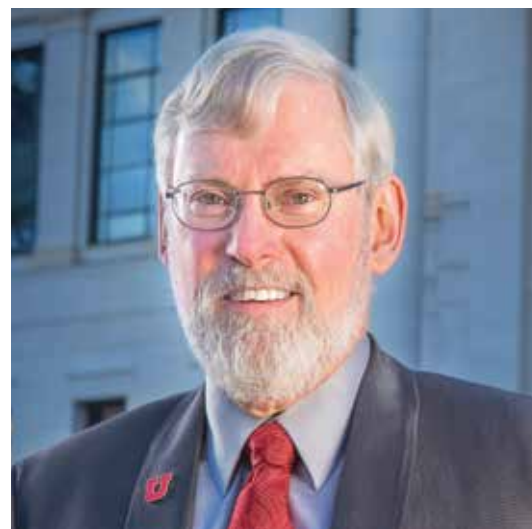
these are the stories of 
students who dare to be
makers , **artists** ,
entrepreneurs & **dreamers**
 . these are stories
worth repeating .

WELCOME FROM THE PRESIDENT

In every corner of campus, across many disciplines, students from different backgrounds are applying what they are learning and finding answers to questions they only imagined, sharing ideas and collaborating with their

“The University of Utah offers excellence in classroom education, but the amazing opportunities students are given to put their knowledge to work is the reason we are proud to describe ourselves as ‘Imagine U.’”

peers, professors and professionals to create and innovate. There is no doubt the University of Utah offers excellence in classroom education, but the amazing opportunities students are given to put their knowledge to work is the reason we are proud to describe ourselves as “Imagine U.” It’s a place where students can imagine the possibilities, then make them a reality. Inside this publication, you will find the stories of just a few of the many students making a difference by seizing their dreams. They include students who are designing products for those with disabilities, developing important phone apps, driving conversations about difficult topics and creating educational video games. You will also learn about exciting new initiatives like the Lassonde Studios, a new home for student entrepreneurs and innovators. Join us in celebrating what these students have accomplished. Spread the word. Get involved. Imagine.



— **DAVID PERSHING**, University of Utah president

ABOUT THIS 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/studentinnovation2015. Have questions? Want to nominate a student to be featured? Email lassonde@utah.edu or call 801-587-3836.

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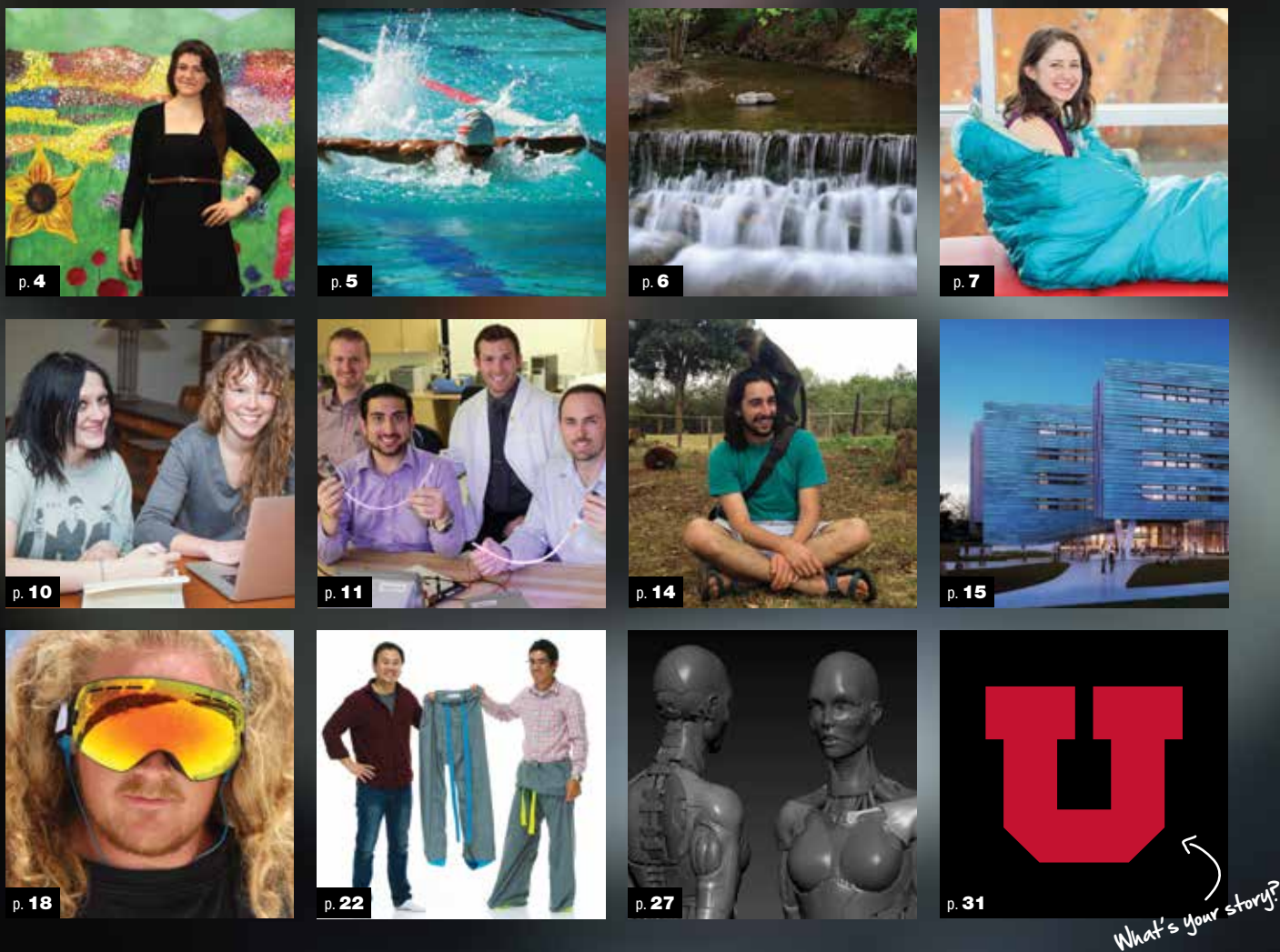
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PRESENTED BY

“Student Innovation at the U” is produced with support from the Lassonde Entrepreneur Institute, the hub for student entrepreneurs and innovators at the U, to foster a culture of innovation. More at lassonde.utah.edu.





inside: **12 tips** to master the innovative mindset at the university of utah.

← Light your fire!

The University of Utah is an amazing place to learn about innovation. Dig into this publication to find tips and examples for making the most of your time on campus. Get inspired. Decide what you want your story to be about. Then use our helpful list in the back to get involved.

INTERDISCIPLINARY



INSPIRING CHANGE FROM UTAH TO BOTSWANA

"Overachiever" doesn't even begin to describe U student **Lisa Hawkins**. A triple major in economics, political science and communication, she has pursued social change with everything from writing a grant for Salt Lake County to traveling to Botswana for the **Hinckley Institute**. Last year, Hawkins worked with the Hinckley Institute to coordinate the Council of American Ambassadors' Fall Conference: "**Africa's Future in the Global Economy**." While she was told the conference was "more informative than 30 days of State Department briefings," she's most proud of the impact it had on students. "Hearing that the conference inspired some students to change the path of their education was really rewarding," she said.

SOCIAL WORK



FROM CORPORATE CLIMBER TO SOCIAL WARRIOR

Karla Arroyo has led many lives. After working for Mexico's Department of Treasury and climbing the UPS corporate ladder, the Mexico City native earned a master's degree in social work from the U and counseled at the Rape Recovery Center. Soon, she became the executive director of South Valley Services, a domestic violence shelter, using her business and social-work skills to almost double the program. Arroyo is now finishing her Ph.D. so she can teach a new generation of social workers. She recently launched her own mental health practice, **Multicultural Counseling Center**, where she hopes to help the Latino community and trauma survivors. "I believe that domestic violence can be preventable," Arroyo said. "If we were to have more intervention, we would see a better result."

PSYCHOLOGY



ADDING COLOR TO CHILDREN'S THERAPY

As a presidential ambassador and frequent collaborator with the **Lowell Bennion Community Service Center**, U student **Alexis Jessop** keeps pretty busy. But that doesn't stop her from doing more. A psychology major that is close to graduating, Jessop recently interned with SEED in South Africa and created a **play therapy room** for the Intermountain Specialized Abuse Treatment Center in Salt Lake City. Decorated with a **mural painted by Jessop** and everything from coloring books to a mini pool table, the room is a safe place where therapists help kids and teenagers work through emotional trauma with play. Jessop said she was overwhelmed by the amount of time, money and supplies that the community donated. "I learned that if you create a platform, people will give," she said.

tip 1: don't know where to start 🤔?
begin by helping others 👥 and
follow your heart ❤️.



CREATING STORIES TO COMBAT TERRORISM

Teaching students about counterterrorism requires a daring combination of creativity and storytelling, a fact discovered by four graduate students at the College of Law. Third-year law students **Jeffrey Baldrige**, **Justin Hosman** and **Thomas Pedersen**, along with masters of science in international affairs and global enterprise student **Andrew Radcliffe**, headed a project designing **terrorist simulations** for other students. "We're literally creating the fictional world where other students are going to operate for the entire semester," Pedersen said. In a law-school environment steeped in tradition, this experiential-based course uses role-playing and engaging plot lines to assess and improve students' leadership, articulation and decision-making skills. These simulations are so complex, in fact, that their story lines often develop an eerie resemblance to real-life events. "It's scary to see what you imagine replaying in real life," Baldrige said. But this type of realistic exposure prepares students for the chaos and grey-areas of counterterrorist policies unlike any other opportunity. ■



START SWIMMING, AND NEVER STOP

Biology major **Ethan Beseris** is proving all you need to compete in university athletics is the will to make it happen. Beseris founded the **U's Swim Club**, which, despite its infancy, grew quickly to 24 members who competed in monthly meets in the U.S. Masters Swim League. "I believe that with a little outreach, the U can be a leader for club swim teams in the valley," said Beseris, who worked on the project through the U's **Innovation Scholar program**. As a participant of the program, Beseris credits it for "putting him in touch with the things that really mattered" and giving him the tools necessary to create the team. The swim club gives these dedicated athletes chances they wouldn't have otherwise: the chance to compete, to be a part of a team, and to qualify for the U.S. Masters Swimming National Championships.

tip 2: sometimes, you need to stop waiting ⌚ for an opportunity and create 💡 something new.

ARCHITECTURE

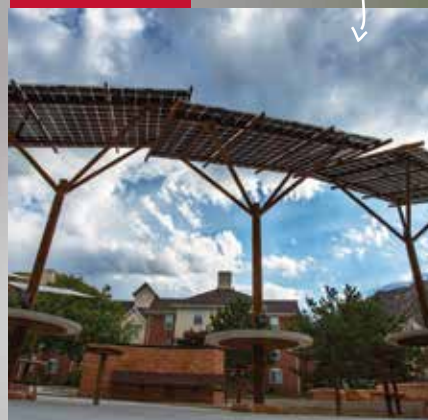


MAKING THE INVISIBLE VISIBLE

Not many people know that seven creeks run in vein-like tunnels beneath Salt Lake Valley's pavement. But students from the **Seven Canyons Trust** know about these subterranean waters. They know the beautiful, daylight course these streams traveled in the past, and they are envisioning the face of the valley in the future — and their vision is stunning. Established in 2014, the Seven Canyons Trust is a state-recognized organization established by students from an urban ecology workshop led by **Stephen Goldsmith**, professor of city and metropolitan planning. Their goal is simple: to “make the invisible visible” by bringing the creeks forced into pipelines underground back above ground, helping to restore our natural environment and the community's connection to it. The solutions, however, require long-term and far-reaching goals, and many of the students are prepared to make this a lifelong project. “The ball is starting to get rolling, and people are starting to catch hold of our vision,” said **Liz Jackson**, urban planning graduate and one of the student leaders for the project. More at sevencanyonstrust.org. ■

SUSTAINABILITY

Charge your phone here!





USING SUNLIGHT TO BUILD COMMUNITY

Students can now recharge themselves and their tablets with a little barbecue, bonfire and solar energy thanks to the new **Student Solar Plaza** at the U's Shoreline Ridge apartments. The plaza features eight canopies lined with 32 panels that provide students with shade and an environmentally friendly energy source that helps decrease campus electric costs. Environmental and sustainability studies major **Jenna Matsumura** spearheaded the project, securing a \$35,000 grant from the **Sustainable Campus Initiative Fund** to help fund the project. Producing 8,681 kWh of energy per year, which could power the average family home for almost a year, the plaza is a success in terms of sustainability. But, as Matsumura noted, it's also “helped foster a strong community presence and engagement.”

tip 3: this is the only earth. embrace sustainability , and help lead the way to a better future .

It's easier than you think.

tip 4: dig in deep by
designing  a new
product or device. it's a
great way to apply what
you learn in class  ...
and it looks great on your
resume  .

and wow a new boyfriend
or girlfriend!

@sleepingutes

Brooke Keene was one of the multi-disciplinary design students who participated in the "Adaptive Sports Studio." She invented the "Adaptive Outdoor Blanket" for people with spinal cord injuries.

ADAP

The "Adaptive Outdoor Blanket" features magnets instead of zippers, so getting warm is a snap.

The blanket has pouches for hands and feet and a hood to keep you extra cozy.



DESIGN

TIVE BY DESIGN

People without disabilities take a lot for granted — especially when it comes to enjoying the great outdoors. Pedaling a bike, using a sleeping bag and even planting flowers can be difficult for people with physical limitations. The challenges came as a shock to students in the U's new **Multi-Disciplinary Design** program when they started the "**Adaptive Sports Studio**," a semester-long, applied-learning experience. The students teamed with the U's Spinal Cord Injury Program at the Rehabilitation Center to study these difficulties, propose solutions and build prototypes. Their work resulted in **13 unique products**, some with potential for commercial development. A few examples: devices for pedaling a bike with your hands; a sleeping bag with foot and hand pouches and magnets instead of a zipper; a climbing harness for protecting legs and knees; and a garden shovel for people with limited hand dexterity. "This group really took a challenging problem, moved through a creative process and came up with a bunch of compelling product possibilities that none of us could have imagined," said program director and professor **Jim Agutter**, who describes the studio course as an "intense, immersive product-design exploration." More at design.utah.edu. ■

CHEMICAL ENGINEERING

HYDROGEN-POWERED CAR WINS NATIONAL PRIZE

Who says toy cars are for kids? Add strict guidelines, alternative fuels and global competition, and you have a perfect opportunity for university students to test their skills. A team of U students proved the point when they won first place and \$2,000 at the national **Chem-E-Car competition** hosted by the American Institute of



Chemical Engineers in Atlanta in fall 2014. "The win speaks volumes about the Chemical Engineering Department at the U, how strong we are, and about the entire College of Engineering," said **Victor Crane**, the team leader and a chemical engineering student. Teams could pick any type of fuel, but the U team chose hydrogen because of its reliability. Building the Chem-E-Car, dubbed "Helena Handbasket," required 500 man-hours, Crane estimated. Beyond refining the chemical processes that start and stop the car, they also fabricated a fiberglass body and devised a custom drivetrain. "The experience gave me a chance to learn more than the pencil and paper that are part of the curriculum," Crane said.

MECHANICAL ENGINEERING

MINIMALIST BOTTLE OPENERS ... AND BEYOND

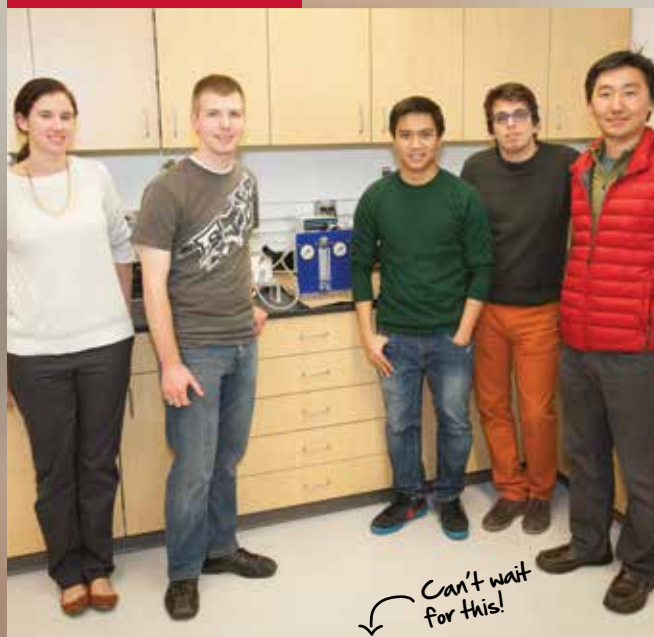
Mechanical engineering student **Carter James** has been designing and selling real products for almost as long as he's been studying at the U. He started his first project designing a **minimalist bottle opener** several years ago. James raised \$11,409 for that product through crowdfunding and fulfilled about 450 orders. "Most bottle openers are pretty much free junk that people give away, so I thought it would be an easy first product to improve on," James said. He parlayed that project into another successful crowdfunding campaign, raising \$12,277 for a **titanium key shackle**. Now, his sights are set on developing a next-generation **pollution mask** for cyclists. Maybe this one will be his million-dollar idea. "The key to making you a millionaire is to find a big problem in a big market," James said.





MY COMPUTER READS POETRY TOO!

Advanced computing is typically only a tool for scientists and engineers, but some U researchers decided to crank it up a notch. Under the guidance of English professor **Katharine Coles**, scientific computing professor **Mirian Meyer** and a postdoctoral scholar in English literature, **Julie Lein**, a team of students from humanities and computer science are collaborating to start a poetic affair between these two fields. The efforts of **Nina McCurdy**, a second-year doctoral student of computer science, have resulted in the software “**Poemage**.” The idea for the software was conceived by the senior members of the team in 2012, and it was designed and created by McCurdy. It uses a novel algorithm to visualize sonic elements in poetry. “This is a unique project that is trying to bring the fields of humanities and computer science together,” said **Jules Penham**, an undergraduate in computer science, who is helping to debug and release a stand-alone version of this software with support from the U’s **Undergraduate Research Opportunities Program**.




THE GREAT SALT LAKE: AN UNEXPECTED ENERGY SOURCE

Did you know the Great Salt Lake could become a huge source for clean energy? A team of student researchers at the U are working to make this a reality, with help from the **Undergraduate Research Opportunities Program**. Ph.D. students **Thomas Tran**, **Carlo Bianchi** and undergraduate **Joseph Melville** of the Mechanical Engineering Department are working on this research. Under the guidance of professors **Amanda Smith** and **Kay Park**, they plan to use the “**pressure retarded osmosis process**.” This process generates energy from the fluid flow due to the difference in the salt concentration when fresh water meets salt water. “A breakthrough with this new way to generate energy could be so helpful to my home country (Vietnam),” Tran said. The student researchers are currently focusing on proving earlier research results to make way for an industrial setup that can make this new source of hydroelectric power a reality.

tip 5: there’s no place like a university
to dive into a **research project** 🔬 to
discover your potential ★.

This is the best
time in your life to
experiment.

tip 6: it's not easy to
invent a medical device
 , but you'll learn a
lot and might have a huge
impact  on millions
of people  .

ZAPP!



A CATHETER THAT KILLS BACTERIA WITH LIGHT

After hearing his aunt, a primary care nurse, tell stories of catheters causing clotting and infections, **Nate Rhodes**, a recent graduate, decided to come up with a solution. With a few classmates, he developed a new type of catheter — a tube inserted into patients to remove and deliver fluids — that emits bacteria-killing light to prevent infections from occurring. The product is called the **Light Line Catheter**, and the **team of bioengineering and medical students** has gone on to win substantial grants and accolades, including: first place and \$75,000 at the International Business Model Competition hosted by Brigham Young University; \$20,000 in grants from the U's Bench-to-Bedside competition, Utah Entrepreneur Challenge and Entrepreneur Club milestone funding program; and second place among graduate students and \$15,000 in the Collegiate Inventors Competition in Washington, D.C. "Our invention started with a goal to help primary care providers reduce the risk of infection when using catheters," Rhodes said. "The Light Line Catheter has the potential to save thousands of lives every year." ■

"Our invention started with a goal to help primary-care providers reduce the risk of infection when using catheters."

MEDICINE

BIOENGINEERING



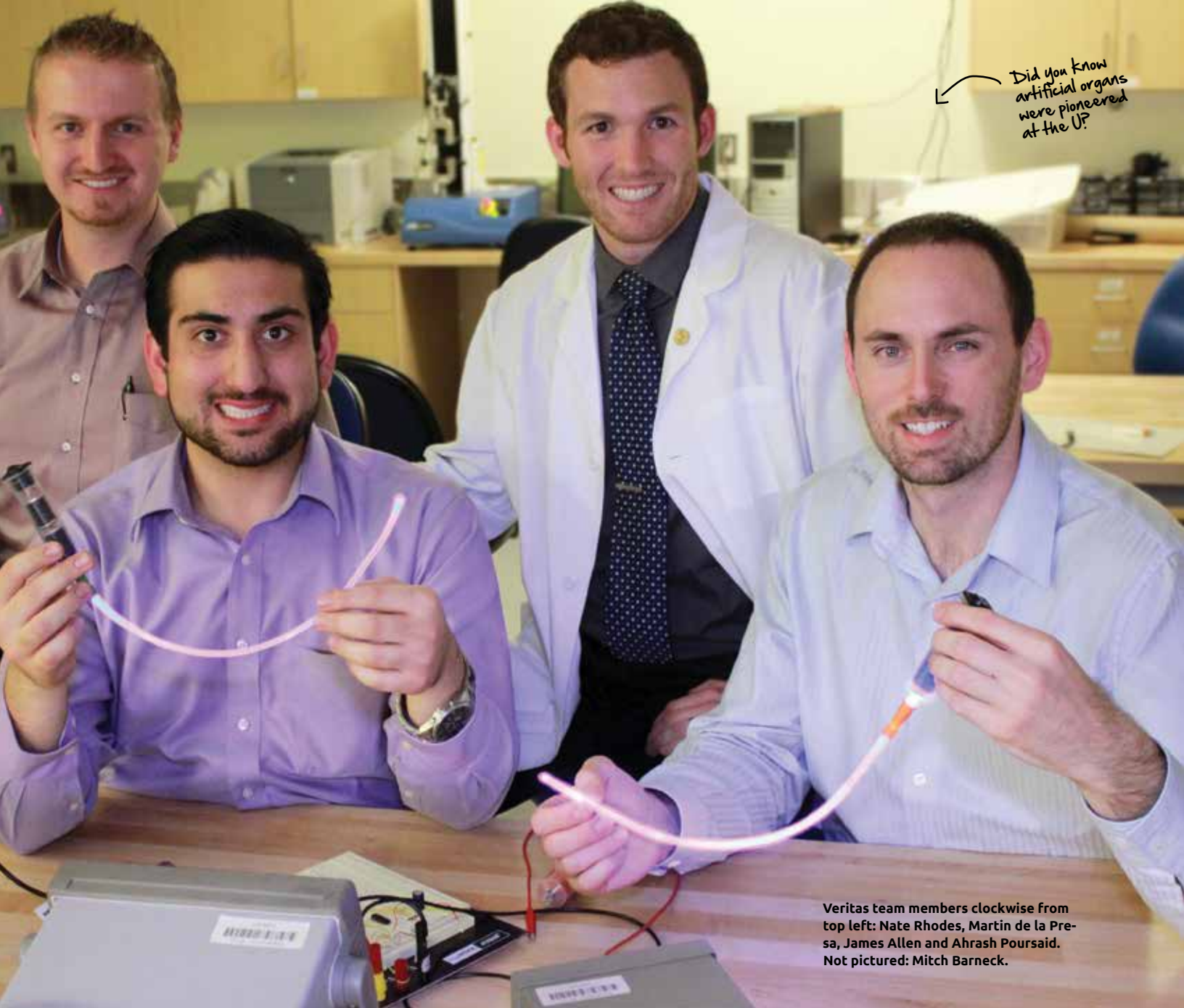
ELECTRICAL ENGINEERING



CHASING 'LIGHTNING' IN A LAB

The fourth state of matter in the universe is called "plasma." It can be created in the laboratory by breaking down gases, the third state of matter, using extreme voltage. A lightning strike is plasma created by nature. Laboratory-generated plasmas, under ordinary conditions, are hard to control. However, thanks to the work of electrical engineering graduate student **Olutosin Fawole**, of professor **Masood Tabib-Azar**'s group, a new device forces plasma, when placed around a magnet, to rotate around a center point. This device has enormous potential impact for sci-

ence since a magnetic-field sensor can detect subtle electric currents. The ingenuity of this work, Olutosin said, is its feature as **"a new device that enables plasma to be used as a magnetic field sensor."** If this device is made a billion times more sensitive, it could enable detection of electricity in human brains. This device is the first of its kind and is a major step in both rearing plasma for experiments and discovering ways to track the elusive signals of the human brain.



Did you know artificial organs were pioneered at the U?

Veritas team members clockwise from top left: Nate Rhodes, Martin de la Pre-sa, James Allen and Ahrash Poursaid. Not pictured: Mitch Barneck.

BIOENGINEERING



INTO THE EYES OF THE FUTURE

Surgical needles that deliver medicine to the eye lead the way in treating the most common forms of eye disease. Unfortunately, this treatment is dangerous and can cause infections that lead to blindness. One group of undergraduate bioengineering students is addressing the danger with a **new type of needle**. "Intraocular injections are effective at treating many diseases but may lead to serious infections — our device should greatly reduce this risk," said **Nick Rejali**, one of the students on the team. The students won \$15,000 at the 2014 Bench-to-Bedside competition at

the U by creating an improved intraocular injection needle with a **novel coating made of PLGA** (polylactic-co-glycolic acid) at the tip. PLGA is made of sugars and is biodegradable and extremely protective. An eye pierced by this new-generation needle can prevent bacteria from entering the eye's most vulnerable region. Only when a wire, the diameter about that of a human hair, punctures the PLGA coating will the medicine be delivered, cleanly, to the back of the eye. This clever design can reduce infection rates in the eye without sacrificing efficiency.

INTERDISCIPLINARY



BECOMING A VESSEL FOR CHANGE

After a five-month trip in Pakistan shook up her worldview, **Jai Hamid Bashir** transferred to the U so she could learn how to be “a vessel for change.” “Experiencing a world beyond Salt Lake City really opened my eyes,” she said. Bashir is now triple majoring in environmental and sustainability studies, English and gender studies while she seeks to effect change in the community. She is the **director of the Student Immersion and Outreach Board** at ASUU and is currently the senior chair of the **English undergraduate committee**. She has organized events such as the **People’s Climate March** in Salt Lake City and a campus forum on women’s education in solidarity with Malala Yousafzai. Bashir hopes to continue her efforts after graduation while pursuing a master’s in environmental humanities.

PSYCHOLOGY



PREVENTING SEXUAL ASSAULT

Eighteen months ago, the U’s **Beta Theta Pi Chapter** launched a sexual assault education and prevention campaign in partnership with the **Rape Recovery Center**. Because of its success, the chapter received a \$3,200 grant from **Students of the World** to aid in their efforts and was recognized by the “**Dr. Phil**” show. “The largest issue surrounding sexual assault education and prevention is that our society shies away from candid conversations about it,” said **Mitchell Cox**, 2014 chapter president. The Salt Lake City native joined Beta Theta Pi because of the chapter’s focus on values and leadership. Now an honors graduate of psychology, Cox works for Beta Theta Pi’s administrative office and continues to volunteer with sexual assault prevention programming with the Rape Recovery Center and Students of the World.

FILM



CHASING YOUR PASSION AROUND THE WORLD

Convinced that film was just a hobby, **Jake Chamberlain** came to the U to pursue medicine. But after filming for a global-health, study-abroad trip in India, he realized he could turn his passion into a career. Last summer, Chamberlain traveled the world to take part in a **six-part filming project highlighting social startups for the Clinton Global Initiative Program**, combining his love of innovation, global health and filmmaking. A soon-to-be graduate of the U’s Film Department and regular collaborator with the Lassonde Entrepreneur Institute, Chamberlain is now trying to make it cheaper for student entrepreneurs to hire professional filmmakers. “They need videos,” Chamberlain said, “so I’m looking at ways to make it cheaper for them to hire me.”

tip 7: improving the world can be as easy as jumping in  and letting your voice  be heard.

tip 8: your location 
matters. find a place filled
with amazing people ,
a place that inspires you
and a place where it's safe
to fail .*

*Failing isn't bad.
Fail fast, fail cheap!

The "garage" on the main floor of Lassonde Studios will be open to all students to build prototypes, launch companies and attend events. (Architectural rendering)

#LiveCreateLaunch

5 PLACES TO GET CREATIVE

INTERDISCIPLINARY

Part incubator, part lab from "Big Hero 6."

Lassonde Studios 1

2.

MARRIOTT LIBRARY

The central library at the U has a lot more than a trove of books and reference materials. It has 3-D printers, a recording studio and many experts with knowledge of intellectual property and more.

3.

STUDENT UNION

Students at the U naturally congregate at the Student Union, which sits in the heart of campus and serves as headquarters for student government and a broad variety of activities.



Above the garage will be four floors of housing. All students are welcome to live at Lassonde Studios.

Opening in fall 2016, the **\$45 million Lassonde Studios** facility will be the new home for student entrepreneurs and innovators at the U. **All students are welcome** in the one-of-a-kind building that will merge spaces for **making, startups** and **living**. The first floor will feature a 20,000-square-foot “garage” with 3-D printers, laser cutters, prototyping tools and lounge space. Above that will be four floors of mixed residential and creative work space. An international campaign is underway to attract the “400 best student entrepreneurs” to live here. Apply to live here and learn more at lassonde.utah.edu/studios. ■



400 lucky students get to live here!

4.

SYNAPSE (ECCLES LIBRARY)

The Center for Medical Innovation and the Eccles Library have teamed up to create a space for faculty and students interested in health-care innovation to collaborate and access important resources.

5.

ANYWHERE YOU CHOOSE!

Inspiring places come in all shapes and sizes. Lock yourself in your bedroom. Sit under a tree. Work on the train. Find a place that frees your mind and drives you forward.

tip 9: utah has amazing
outdoor recreation  .
embrace it. create an
outdoor product  ,
service or initiative. then
go skiing  !

Interchangeable straps and lenses provide for maximum style and personalization.

Spherical lenses provide a wide range of vision, minimize distortion and offer superior fog protection.



Dear Santa, I've been very good this year ...

AURA OPTICS

BUSINESS **DESIGN**

A pair of undergraduates has a plan to take the ski-goggle industry by (snow) storm. They created a low-cost, high-style goggle with interchangeable parts and a great fit. Watch for them at a ski shop near you.



Schaeffer Warnock, left, and Jake Nelson co-founded Aura Optics.

It didn't take **Schaeffer Warnock** long to fall in love with Utah's ski country. The first time he hit the slopes at Alta as a 14-year-old, he knew being outdoors during the winter would be a part of his future.

His passion grew in high school, when he and buddy **Jake Nelson** made the rounds at Snowbird, Brighton and several Park City resorts. In the classroom at Skyline High School, the teenagers had their first brush with entrepreneurship through designing a clothing line as part of a graphic-design class — an endeavor they launched as their first startup, pushing hoodies and hats through a company website.

That experience set the stage for the two to become college entrepreneurs at the U, where this year the two are seniors — Warnock in business, Nelson in design. While many of

their peers are beginning the job hunt for post-graduation life, Warnock and Nelson have traveled further down the road of entrepreneurial success with the launch of their own company, **Aura Optics**, which creates customized goggles that are changing the landscape of the ski-wear industry.

The students' product is based on a simple concept. Avid skiers and snowboarders end up spending several hundred dollars on several pairs of ski goggles, with lenses designed to help navigate the weather conditions of the day.

What if, Warnock and Nelson wondered, they could design a customizable goggle

with interchangeable lenses at a more affordable price point of \$100 to \$200?

With help from the **Lassonde Entrepreneur Institute** at the U, Warnock and Nelson worked to develop a prototype for their idea. They launched a fundraising campaign at Kickstarter.com to help finance production, raising about \$30,000 over the course of summer 2014. That money, coupled with grant funding from the Entrepreneur Club, assisted in moving production forward.

"During our time working at ski/snowboard shops, we noticed a huge price break in goggles. Either customers shelled out and bought a

"We are, first and foremost, a company created by those who ride, for those who ride."

high-end pair of goggles, or they paid much less but sacrificed performance. When customers paid top dollar for high-end equipment, they found themselves limited in color options or were unable to find exactly what they wanted. There had to be a better choice,” Warnock said.

“As our individual collection of goggles continued to grow, we became increasingly frustrated with even top-of-the-line equipment,” he added. “Jake and I found ourselves taking two or three pairs of goggles for each ski day because we knew they would fog. We decided if we had this much trouble, others had to be having the same problem.”

In winter 2014-15, Warnock and Nelson officially started production of their goggles, which tout a variety of characteristics that make them unique to the marketplace. The goggles are designed to bring skiers and riders clarity while riding down the mountain, and also while traveling back up.

Response to their product has been overwhelmingly positive, with Warnock and Nelson moving on to the next phase of marketing their company and exploring its evolution.

“We are, first and foremost, a company created by those who ride, for those who ride,” Warnock said. “Our motto is that we strive for perfection. We’re only getting started, and I can’t wait to see what’s next.”

“We love the look of our goggles and everything about them,” Nelson added. “We’re glad we are bringing something new to an industry that we are passionate about.”

More at auraoptics.com.

GEOSCIENCE

BE PREPARED TO FACE ANYTHING

When **Cedar Coleman** found his mother unconscious after crashing her mountain bike high in the Wasatch Mountains, raw panic set in. With no first-aid training and no medical help for miles, Coleman felt vulnerable, helpless — but also determined to keep himself and anyone else from ever experiencing that fear. That’s why, after becoming a wilderness first responder, Coleman founded **Built Tough in the Wasatch**, a nonprofit organization committed to creating better-prepared adventurers through innovative wilderness first-aid education and hands-on instruction. “My goal is to make wilderness first aid as accessible as possible,” Coleman said. “My hope is that everyone would consider taking this workshop because the more prepared individuals there are in our mountains and on our campus, the better off we all are.” More at builttoughinthewasatch.com.



BUSINESS DESIGN

SWISS-ARMY KNIFE OF SKI POLES

Multi-disciplinary design and entrepreneurship student **Alex Carr** had an idea for an innovative ski pole while backcountry skiing one day. He wanted to put tools inside the poles — but it wasn’t until he took the U’s **Innovation Scholar** class and met with **Dave Morrison**, an intellectual property librarian, that his idea started to become a reality and he launched **Char Poles**. The company provides poles for increased performance and functionality and recently started getting their first shipment from their Chinese manufacturer. “Everyone has an idea for a product, but most students don’t realize the resources available to them,” Carr said. Char Poles’ patented products offer unique features including universal camera mounts, screwdrivers, bottle openers and “Five Finger Grab” straps. More at charpoles.com.





MECHANICAL ENGINEERING

WHO NEEDS GRAVITY ANYWAY?

You no longer need steep hills or gravity to pull off difficult snowboard stunts, thanks to the work of six mechanical engineering students at the U. Led by **Rosario Imburgia**, these students designed a **ski winch** that is not only safe, but that is portable, easy-to-use and affordable. At its initial testing, the winch pulled its designers at 25 mph, but with a few engine tweaks, these students are confident they can get it up to 40 mph. “It really has opened up my eyes to how realistic it is for anyone to design and build a product to fill a gap in the marketplace,” said team member Ben Bradshaw.



You must see this video:
bit.ly/skiwinch

tip 10: there's no better
time  to start a
company  than when
you're a student. take
advantage of all the
resources  available.

↑ Insert more than
\$700,000 in cash and
prizes for student teams!

1. TRUE GENTLEMAN: Bespoke Suits for All

To buy just any suit, go to a department store, and pick one off the rack. If you want one that fits your body and personality to a “T,” then you need to visit student haberdasher and owner of True Gentleman Supply Co., Trapper Roderick.

A communication and entrepreneurship student, **Trapper Roderick** got his start two years ago, when he designed a bespoke suit for himself. Then his friends started asking for help and advice. The more suits he created, the more he realized his passion for design and helping others look good.

“The next thing I knew, I was having a lot of fun and people loved my product,” said Roderick, who’s earning an **Interdisciplinary Certificate in Entrepreneurship**. “I did it to solve a problem for myself and others, and it ended up being the perfect opportunity to start my own business.”

Roderick found help through many people and programs at the U. Among other assistance, he got \$6,000 from the U’s **Get Seeded** program and mentoring from the **Innovation Scholar** program. Along the way, Roderick continued to develop his marketing, build his clientele and search the globe for the best fabrics and tailors.

Everything came together in 2014, as Roderick sold 220 suits and hired a small team. He hopes for even better sales in 2015, and eventually, he hopes to start selling custom suits on his website and break \$5 million in revenue. Meanwhile, Roderick will also be finishing his undergraduate degree.

“This process has actually made me want to get a degree even more,” he said. “At first, I just wanted to get in and out of school, but I’m enjoying my classes a lot more now because it helps me in my everyday business.”

More at truegentlemansupply.com.

Our kind of
haberdasher

Trapper Roderick,
owner of True
Gentleman, mod-
eling his custom
menswear.

5 **STUDENT
STARTUPS TO WATCH**

2. BLYNCSY: Tracking the Movement of People Everywhere

On the lookout for his next startup idea and sitting impatiently in his car at a traffic light, **Mark Pittman** put two and two together — “there has got to be a better way to do this,” he thought.

A graduate student studying business and law at the U, Pittman initially wanted to coordinate traffic lights and create a phone app so people could drive through without stopping. But the deeper he dug into the problem, the more his solution evolved.

“Initially we tried to sync all traffic lights, and we talked to traffic employees,” Pittman said. “We learned it’s not possible — not because of the lights, but because of the software. There’s no software that gets data on the movement of people.”

That realization laid the groundwork for his startup, Blynscy, which has a **first-generation beacon that records whenever a signal-emitting electronic-device passes**. The beacons, called Blynscs, can be placed anywhere to monitor the movement of people — on sidewalks, streetlights or even ski lifts.

Since most people carry a connected device in their pocket, Blynscy can monitor the movement of the majority of the population. The company tracks people using IP (Internet protocol) addresses, the unique number assigned to each device, performing a real-time traffic study every second of every day.

Blynscy goes beyond collecting data, though. It makes it meaningful by applying algorithms to determine, for example, how many people are in a vehicle. And the company helps customers make sense of the data by providing heat maps and other visualizations. “We are a big-data company, not a traffic-sync company,” Pittman said.

The company has already received about \$10,000 in grants from the U’s **Entrepreneur Club** and has started two pilot projects. One is working with the U to provide traffic data at the football stadium. Another is working with Snowbird Ski Resort to track skiers and the amount of time it takes to use ski lifts.

“We are building a multi-billion dollar company that we can take public in less than 10 years, if we don’t get bought up first,” Pittman said.

More at blynscy.com.

Mark Pittman, founder of Blynscy, wants to use his devices to synchronize traffic lights.



Does he know
when we're
speeding?

3. ELEVATED DESIGNS: Printing Innovation in Three Dimensions

Think about how frustrating paper printers can be — there are jams, spills and alignment problems galore. Now add another dimension of complexity, and you begin to understand why **3-D printing** isn't as simple as it may seem.

Two undergraduate students are learning this lesson firsthand while launching their company, Elevated Designs. They provide 3-D-printing services. The company was started by **Adam Rosenberg**, a student in the Entertainment Arts and Engineering program, and **Mark Andrews**, a double major in entrepreneurship and management.

"3-D printing seems like a plug-in-and-press-play process — it's not, it takes a lot of time," Rosenberg said.

They launched the company in 2014 with a \$40,000 loan from their parents and office space from the **Lassonde Entrepreneur Institute**. They used most of the money to buy **three printers** — the types are stereolithography, colorjet printing and

fused-deposition model. Over time, they have slowly grown their clientele of mostly student and faculty inventors, printing everything from prototype ski equipment to medical devices.

One unexpected complexity is how "the companies that develop the printers vastly overstate the abilities of them," Andrews said. Another is how much more clients need than just 3-D printing; many want simple concepts, sometimes drawn on paper, turned into something ready for mass production.

The students have overcome these challenges and evolved their business to meet the demands. In addition to 3-D printing, they now provide a robust **rapid-prototyping and 3-D-modeling service**. Students and entrepreneurs alike can approach Elevated Designs with anything from an idea to a CAD file. The company can work with the product step-by-step until it is ready for distribution.

What does the future hold for Elevated Designs? That may be as promising and uncertain as the future of 3-D printers — "in 10 years, 3-D printers will look a lot different," Rosenberg said.

More at **3elevatedesigns.com**.

Elevated Designs is a student startup providing custom 3-D printing and modeling. Pictured are sample projects.



4. SAKPANTS: “Coziest Pants in the World”

Looking for the perfect gift for someone with everything? How about the “coziest pants in the world?”

A pair of U students has launched a line of uniquely designed pants — dubbed Sakpants — through a university-sponsored entrepreneurship program and a crowdsourcing funding campaign to raise money.

Students **Brayden Iwasaki**, a graphic design graduate, and **Garred Lentz**, an MBA student, came up with the idea for Sakpants, a **cross between “Thai fisherman pants” and children’s footie pajamas**, in 2013. They developed an initial prototype and received a \$3,000 seed grant from a U program affiliated with the Lassonde Entrepreneur Institute. The students used the seed money to refine their product and then raised nearly \$25,000 from 476 supporters on Kickstarter.com to continue moving their idea to production.

The product’s features include a secret slot that allows people to access feet for “emergency toenail-clipping,” as well as a design with mass appeal to consumers.

Lentz noted his Utah roots helped generate the idea.

“Growing up in the land of ski resorts and freezing-cold winters, I was constantly trying to wrap my feet in my sweatpants to stay warm when I was hanging around the house,” Lentz said.

More at sakpants.com.



Sakpants are available for purchase online at sakpants.com.

Gotta have 'em!

ART

5. FORMIDABLE TOYS: Medieval Swords for Kids of All Ages

Prime Swords by Formidable Toys are just as appealing to kids as adults with a nerd streak or an itch for mortal combat. “When people see our swords, it captures their imagination,” said **Mark Jarman**, an Entertainment Arts and Engineering student who helped launch the company.

Jarman drew the first prototypes in 2012, when his cousin asked him to help bring his son’s idea to life. They wanted to create a sword that was more durable and interesting than anything available. Their swords feature dragon heads for cross guards and flames and ice shards for blades, and they come apart so

you can mix and match the parts.

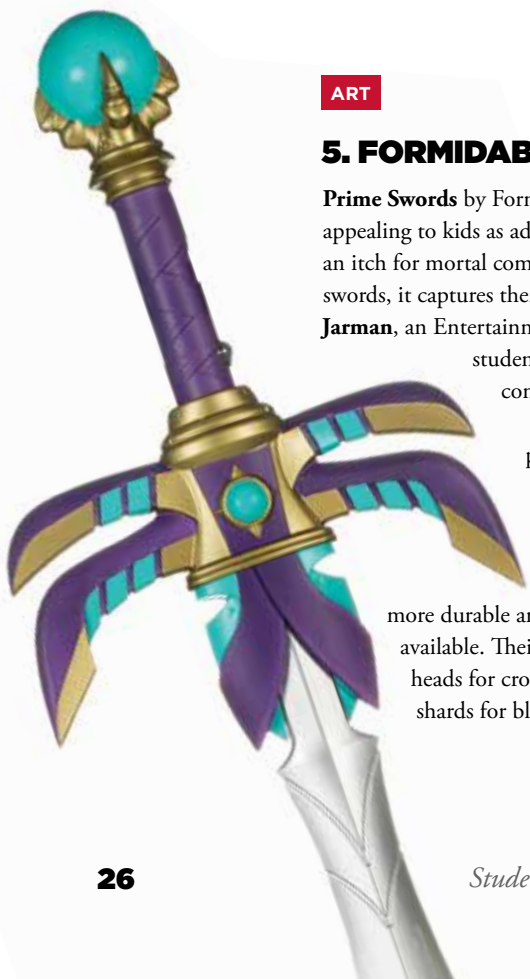
Since then, the company has grown past anything Jarman imagined. They raised \$48,000 from a crowdfunding campaign in summer 2014. Then they presented their product at the booming Salt Lake Comic Con and were surprised by the interest — “our booth was solid people for all three days,” Jarman said. Now, they are using a \$7,000 grant from the U’s **Get Seeded** program to get into Wal-Mart stores.

If all goes as planned, Jarman will be using his swords to beat off swarms of customers. “One day, I’d love to be a full-time, video-game professor and making toys on the side,” he said.

More at formidabletoys.com.

Prime Swords come in several colors and have interchangeable parts.

Put two in my shopping cart, please.

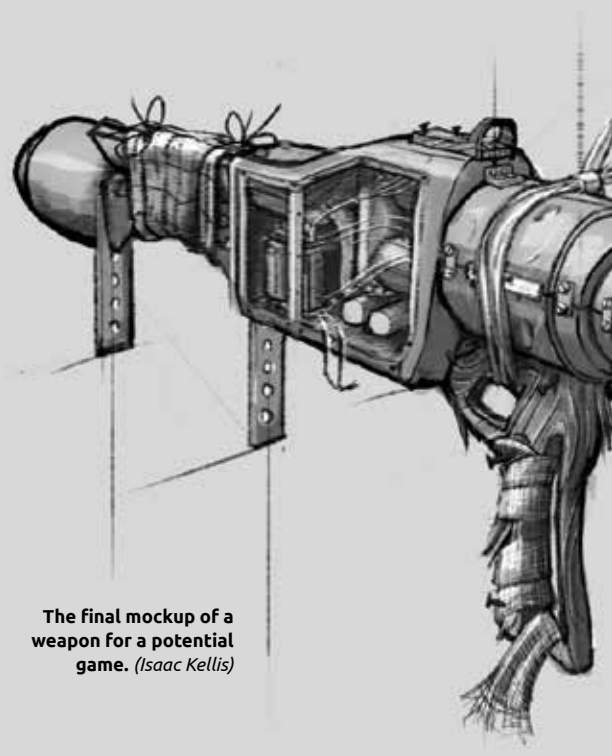


tip 11: games are serious
business. create a video
game  or app  to
entertain or change the
world. computer science
degree  not required.

A final, game-ready character model and exercise in hard-surface modeling and texturing. (Isaac Kellis, art student)

← You can get a degree designing games? I'm going to the U!

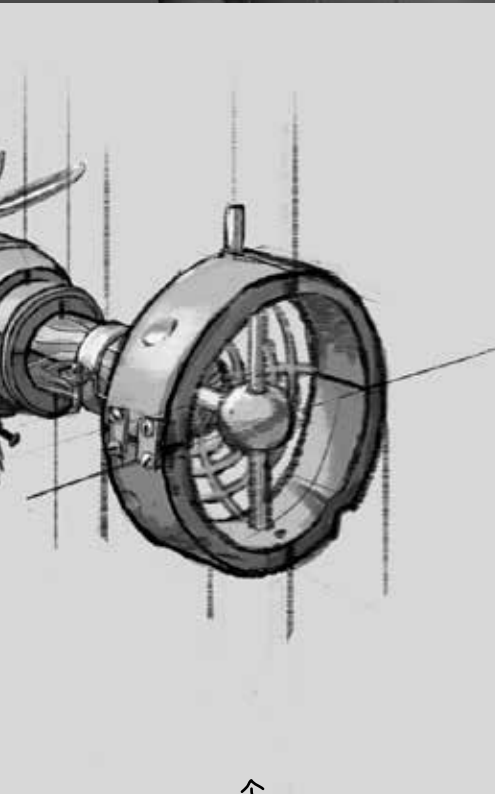
“There is nothing more satisfying than seeing my art come to life in a way other people can both connect with and experience interactively.”



The final mockup of a weapon for a potential game. (Isaac Kellis)



Models of a character project, an android named Anna.
(Isaac Kellis)



Best accessory ever!



Rendering of Anna.
(Isaac Kellis)

5 STANDOUT GAMES & APPS



ENGINEERING ART

1. XCADATION: Using Games to Improve Student Behavior

While only a paper prototype, a game being developed by U graduate students is already reducing bullying and increasing attendance in classes in a local elementary school. “One mother told us it used to be a struggle to get her kid to school on time, but after the game, he pushes her to get him to school on time,” said **JenJen Francis**, an **Entertainment Arts and Engineering** graduate student.

Their game is called Xcadation, formerly known as Navitas, a **system of software and accessories to help teachers improve learning engagement and classroom management**. The game developers are collaborating with fifth- and sixth-grade teachers for design and testing.

Xcadation software is an educational game that puts students into groups that become virtual countries on a fictional planet. Countries share an arch-enemy, Perditus, who tries to occupy them. Children are “**wielding education in defense of home**.” When students exhibit positive actions in real life, they receive resources for character-building, country upgrade or stronger equipment. If they fail to meet academic and classroom expectations, resources go to Perditus, which gives him strength. Parents and teachers get immediate feedback on the progress of the children. ■



2. NITEOUT: An App to Improve Your Nightlife

It's Friday night, and you need a break from classes and homework. Where will you find your friends? Now, there's an app for that! NiteOut is a new, socially driven application. "This is a quick way to check the scene at local bars or at an event," said **Jeffrey Morelli**, NiteOut cofounder. "Never again will they show up at an empty bar or a party and not know anybody." Morelli, a business major, and **Michael Quigley**, a computer engineering major, wanted to help students get the most of their downtime. "College students highly value their free time," Quigley said. The team has received funding from the Get Seeded program through the Lassonde Entrepreneur Institute. More at niteout.io.



3. STEPPETS: Virtual Pets with Real Health Benefits

Can a game get you walking your pet, even if it's a virtual pet? U MBA student and co-founder of StepPets, **Tim Cooley**, is developing a game where players compete with pets they earn by walking more and more each day. The players earn, raise and train their virtual pets in a fun and exciting tournament. "We started the game as a way to walk a virtual pet, and it has evolved into something much better but still has that element," Cooley said. He is joined by **Topher Nadauld**, **Binoy Mohanty** — both Entertainment Arts and Engineering graduate students at the U — and **Eleora Nelson**, a local Salt Lake City artist. They have raised \$5,500 through the U's Get Seeded and Bench-to-Bedside programs. More at steppets.com.



4. PROTOCOL TRANSCENDENCE: One Month From Concept To App Store

The assignment was to develop an app to release on the Windows 8 app store in one month. Six students from the class took control and developed "Protocol: Transcendence." U Entertainment Arts and Engineering graduate student **Travis Turner** said it is a non-violent stealth game for cell phones. "The player is a janitor drone working on a government ship who must steal important government documents," he said. Turner says getting certification to be on the app store was great, especially because most games of this genre are on platforms like Xbox and PCs. The game was released at the end of 2014 and already has around 500 downloads.



5. SAVE YOUR BACON: Easing Health-Insurance Confusion

People ages 18 to 34 are statistically accident-prone, but many do not get insurance because the process is too confusing. A new mobile-device game called "Save Your Bacon" illustrates the need for health insurance by showing the costs of accidents for insured and uninsured victims. The game randomly selects from a variety of potential injuries. "Students don't realize how costly common injuries can be," said **Chuck Haugan**, one of the developers who graduated with his MBA from the U last year. The game was developed in partnership with the U's Entertainment Arts and Engineering program, the Center for Medical Innovation, the Sorenson Center for Discovery and Innovation, and Arches Healthcare.

↑ When pigs... cry?

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 ... artsforceutah.com

BENCH-TO-BEDSIDE: A competition for medical, engineering and business students to collaborate to develop or improve a medical device ... bit.ly/UUB2b

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 ... bioinnovate.utah.edu

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

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

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

ENTERTAINMENT ARTS & ENGINEERING: Interdisciplinary program where students design and develop video games ... eae.utah.edu

ENTREPRENEUR CERTIFICATE: The David Eccles School of Business offers an undergraduate Interdisciplinary Certificate in Entrepreneurship ... uentp.com

ENTREPRENEUR CLUB: A student-run organization providing programs and networking opportunities for students interested in entrepreneurship ... uofueclub.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

GAMES4HEALTH: Develop a health-related video game or app, design the business model, outline the clinical trial strategy and compete for prize money ... g4h.business.utah.edu

GET SEEDED: Pitch your business idea to the student Entrepreneur Club to receive seed funding for your venture ... uofueclub.com

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/globalscholars

HINCKLEY INTERNSHIP PROGRAMS: Internship opportunities are available to students interested in politics ... hinckley.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

(continued on next page)

*Be brave and read this entire list.

tip 12: imagine  unlocking your future  . get started by using this list to {fill in the blank}.

PROGRAM DIRECTORY (continued)

INNOVATION TOURNAMENTS: *Statewide idea competitions open to all students ...*
bit.ly/innovationtournaments

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 non-profit organizations. Community mentors assigned ... email* lehman@poli-sci.utah.edu

JAMES LEE SORENSON GLOBAL IMPACT INVESTING CENTER: *Provides in-depth experience tackling global issues by investing into innovative startups dedicated to solving social and environmental problems ...*
sgiiicenter.com

LASSONDE ENTREPRENEUR 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 inventor and spend a year preparing a business plan ...*
lassonde.utah.edu/new-venture-development

LASSONDE STUDIOS: *The home and hub for student entrepreneurs and innovators. Opens fall 2016. All students welcome ...* 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/legalscholars

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 ...* ues.utah.edu/oq

ROBOUTES: *Students interested in robotics participate in competitions ...* roboutes.utah.edu

SORENSON 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/sorensoninnovation

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 ...*
eae.utah.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 ...* ues.utah.edu/uec

UTAH ENTREPRENEUR SERIES: *A series of statewide idea and business-plan competitions managed by students at the U ...* ues.utah.edu

UTAH FIRST LEGO LEAGUE: *Kids solve real-world challenges by building LEGO-based robots to complete tasks on a thematic playing surface. Many volunteer opportunities available ...* utfill.utah.edu

UTAH REAL ESTATE CHALLENGE: *Real-estate development competition for undergraduate and graduate students throughout Utah ...* bit.ly/realestatechallenge

Did we miss something in the listing? Contact us at 801-587-3836 or lassonde@utah.edu to be included in the next edition.

*Your turn...
Be featured in the next edition!*

**STUDENT
INNOVATION
AT THE U 2015**

IMAGINE



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lassonde.utah.edu/studentinnovation2015 